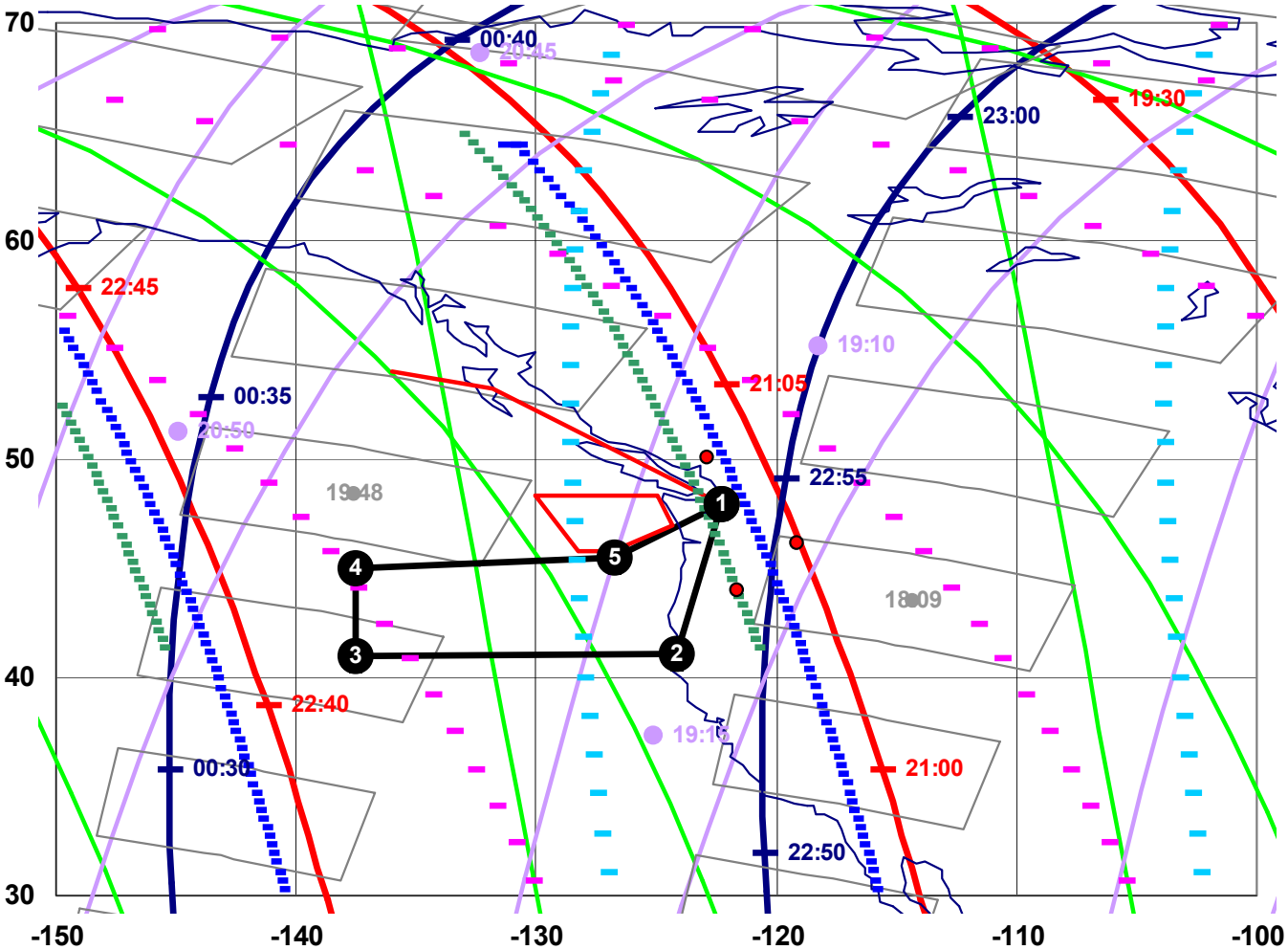
IMPEX C130 flight 8 (Seattle local 7)

5 May 2006.

doors open / power on:	0715 PDT
takeoff:	1015 PDT (1715 GMT)
estimated landing:	1845 PDT (0145 GMT)

Objectives:

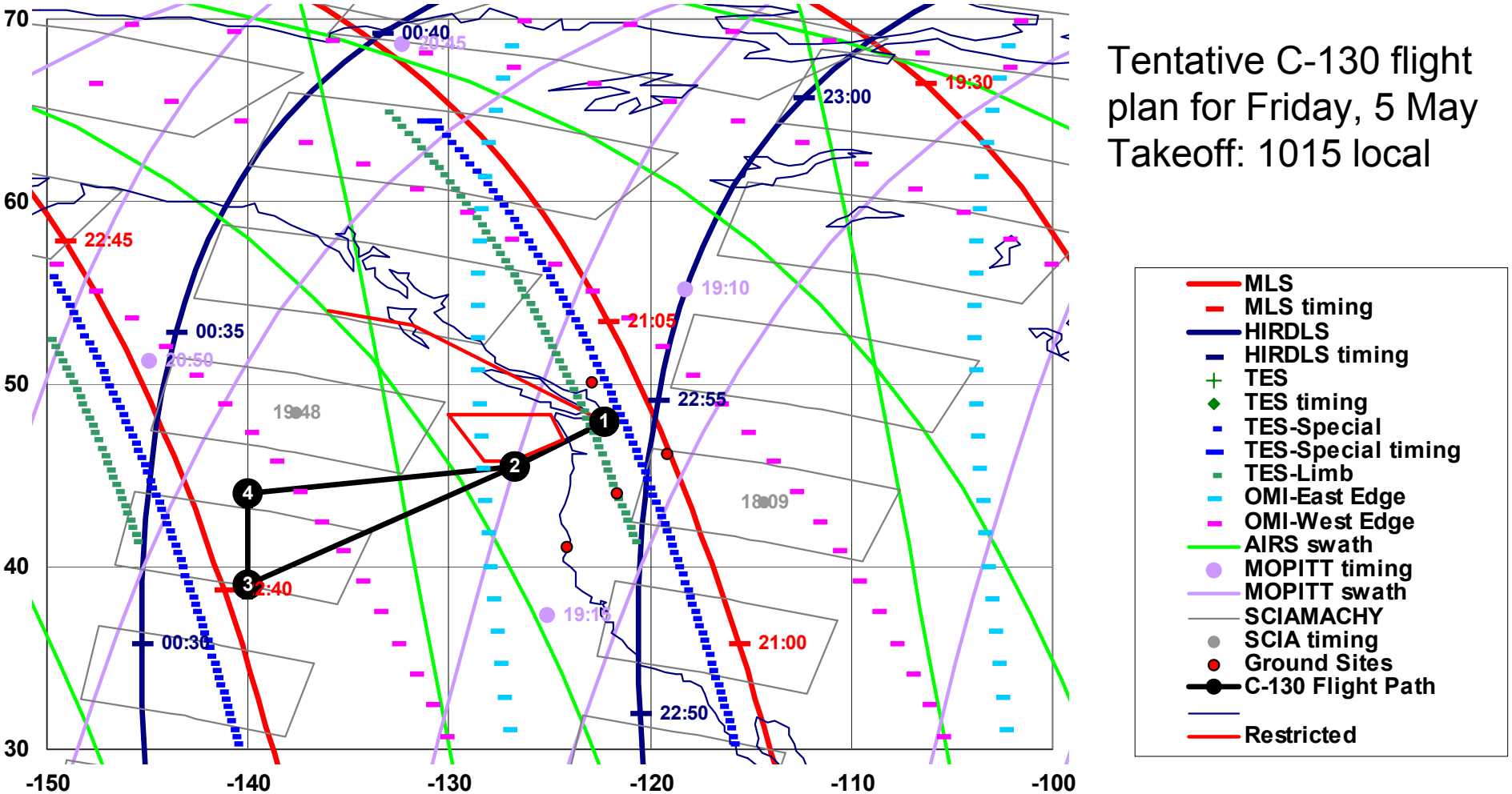
- spiral over Trinidad Head coincident with Terra overpass
- quasi-lagrangian sampling of DC-8 observations from Thursday, 4 May
- sample aged and subsiding Asian pollution over eastern Pacific
- learn the models' predictive capabilities for Asian plumes



Tentative C-130 flight plan for Friday, 5 May
Takeoff: 1015 local

- MLS
- MLS timing
- HIRDLS
- HIRDLS timing
- TES
- TES timing
- TES-Special
- TES-Special timing
- TES-Limb
- OMI-East Edge
- OMI-West Edge
- AIRS swath
- MOPITT timing
- MOPITT swath
- SCIAMACHY
- SCIA timing
- Ground Sites
- C-130 Flight Path
- Restricted

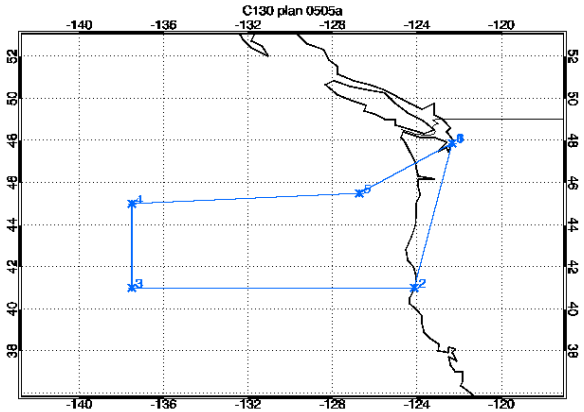
	Latitude (N)		Longitude (W)							
Way Point	deg	min	deg	min	Cum. Time	Leg Time	Local Time	UTC	Delay	Note
1	47	54	122	17	0:00	0:00	10:15	17:15		
2	41	3	124	9	1:43	1:43	11:58	18:58	0:25	Trinidad Head
3	41	0	137	30	4:37	2:29	14:52	21:52		
4	45	0	137	30	5:36	0:59	15:51	22:51		
5	45	30	126	43	7:29	1:52	17:44	0:44		
6	47	54	122	17	8:26	0:57	18:41	1:41		

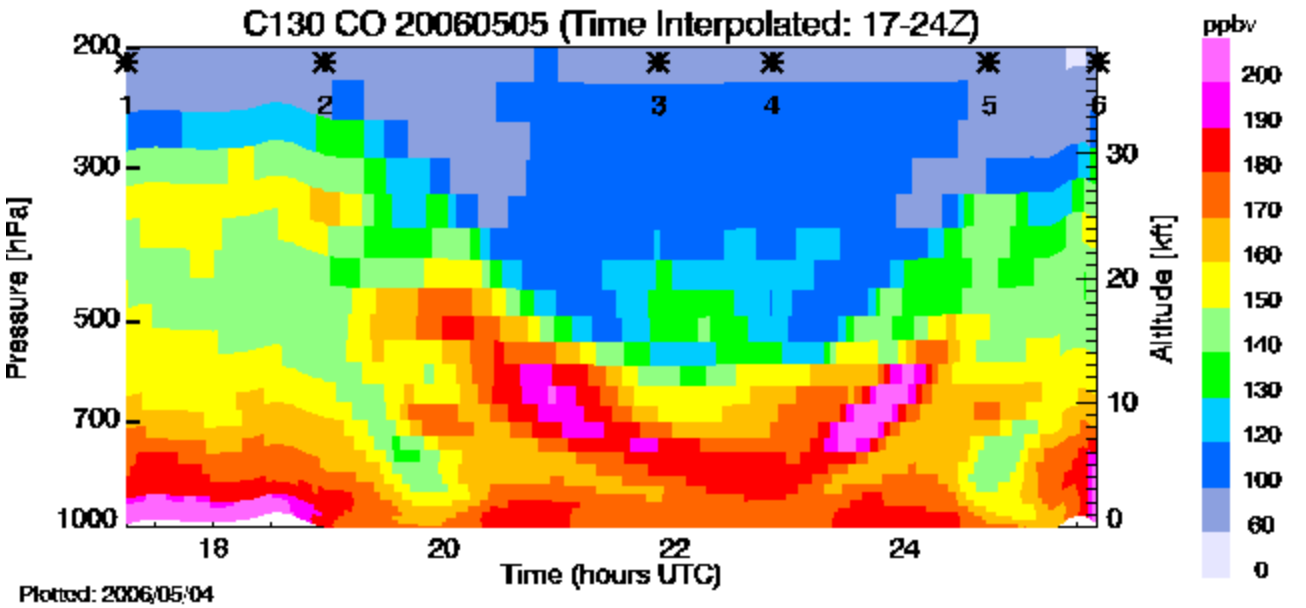


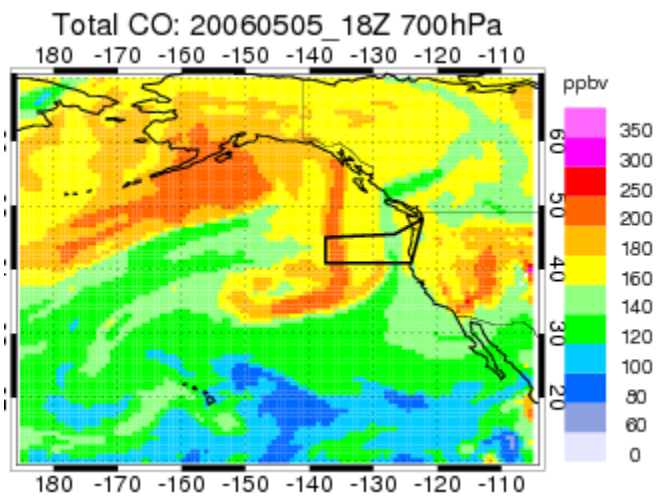
Way Point	Latitude (N) deg	Latitude (N) min	Longitude (W) deg	Longitude (W) min	Cum. Time	Leg Time	Local Time	UTC	Note
1	47	54	122	17	0:00	0:00	10:15	17:15	
2	45	30	126	43	0:57	0:57	11:12	18:12	Sedar
3	39	0	140	0	3:51	2:54	14:06	21:06	
4	44	0	140	0	5:05	1:14	15:20	22:20	
5	45	30	126	43	7:27	2:21	17:42	0:42	Sedar
6	47	54	122	17	8:24	0:57	18:39	1:39	

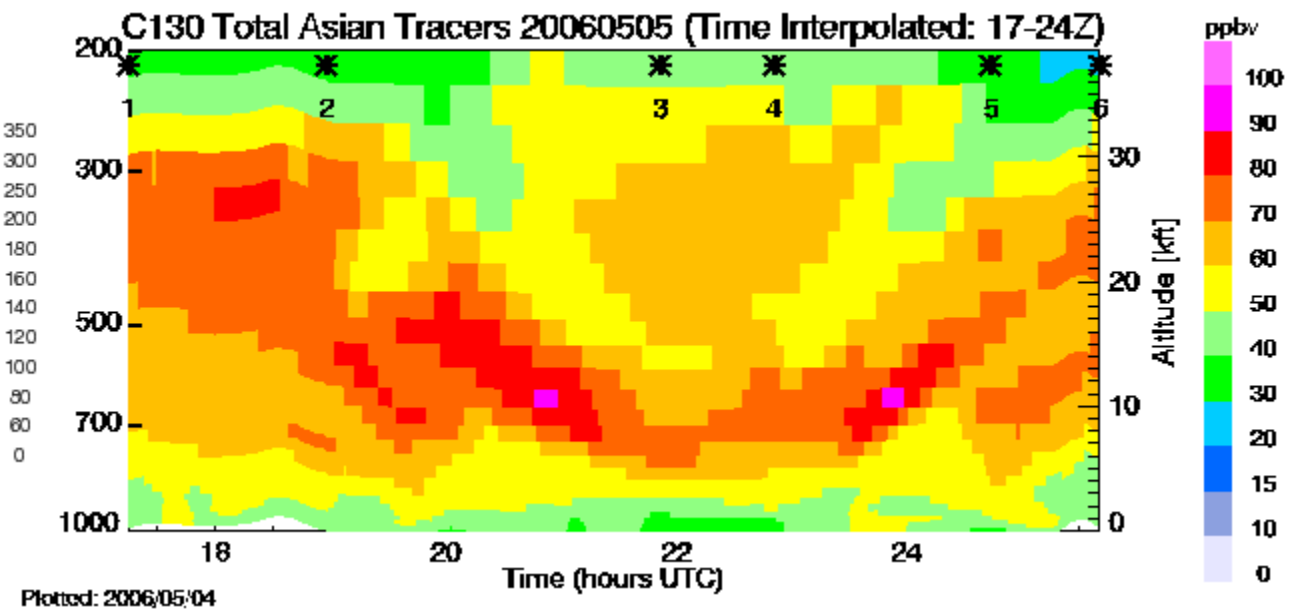
05/03 12Z Forecast: Valid for 05/05 18-24Z

Fri flight plan A



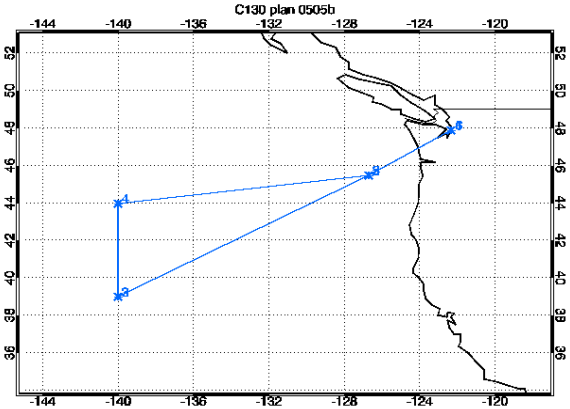


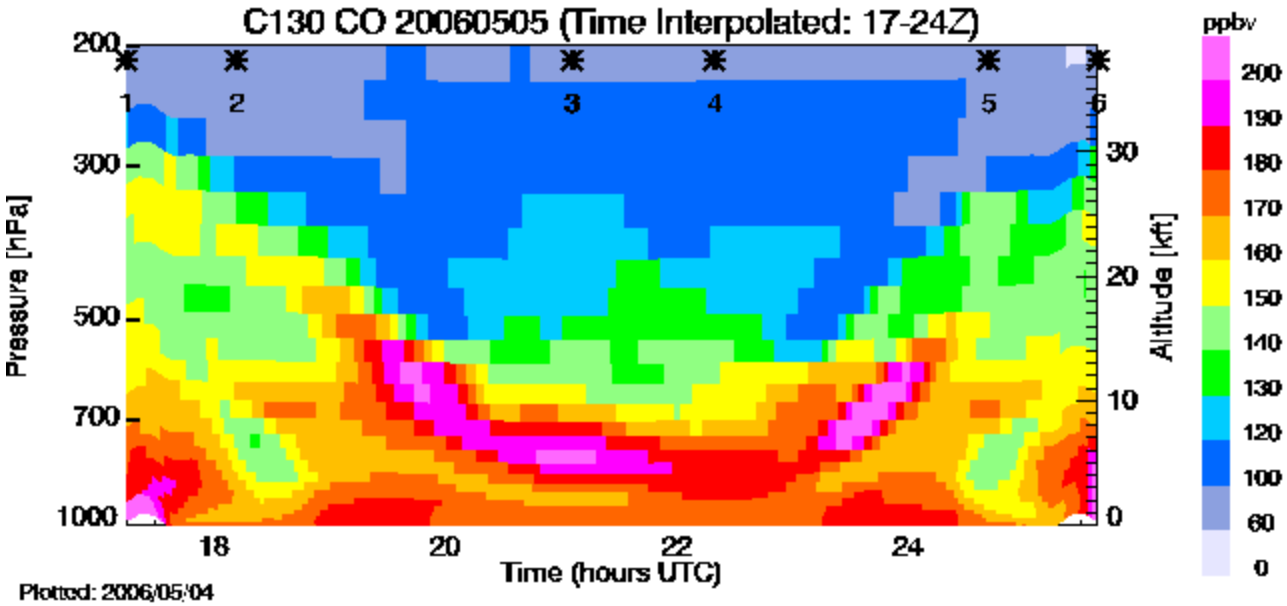


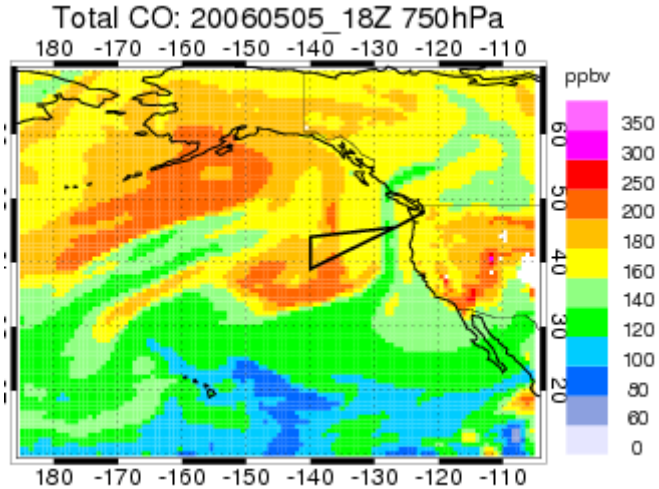


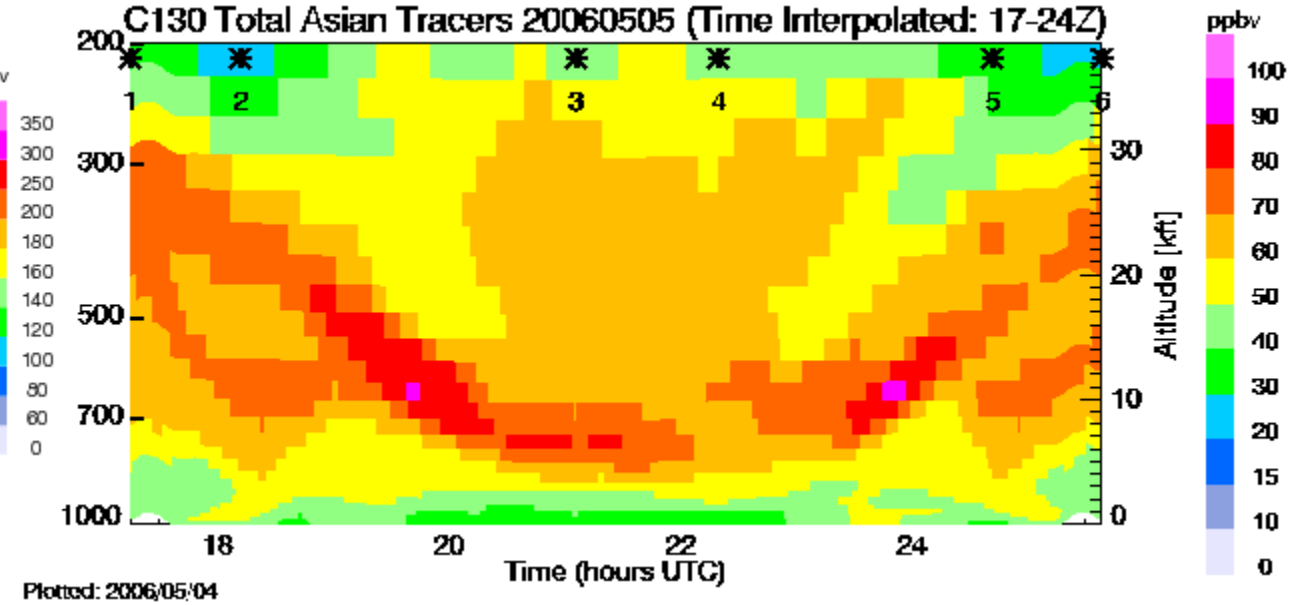
05/03 12Z Forecast: Valid for 05/05 18Z

Fri flight plan B



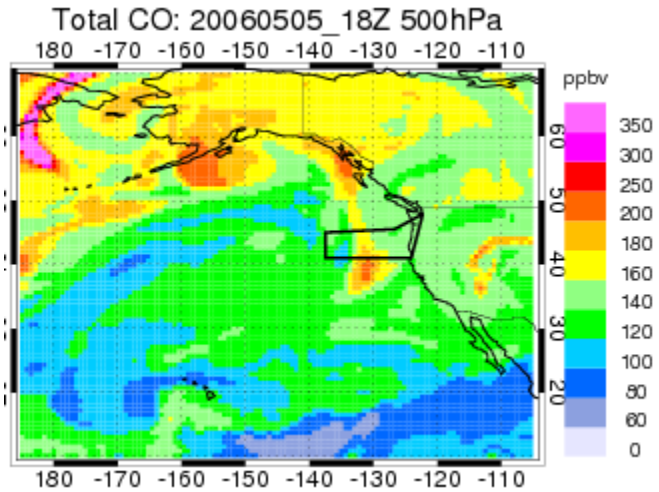




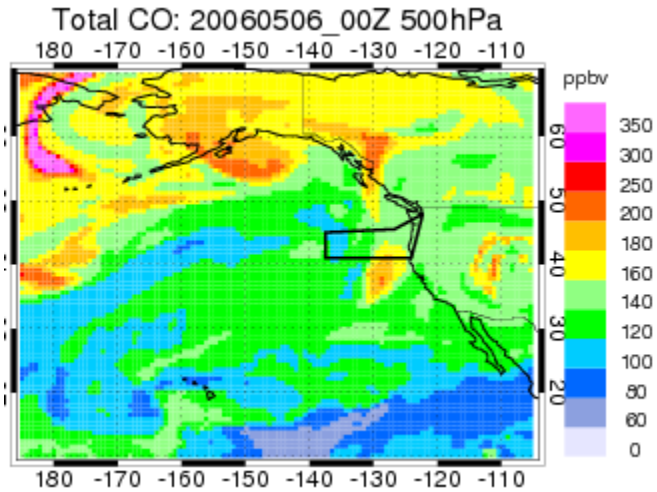


05/03 12Z Forecast: Valid for 05/05 18-24Z

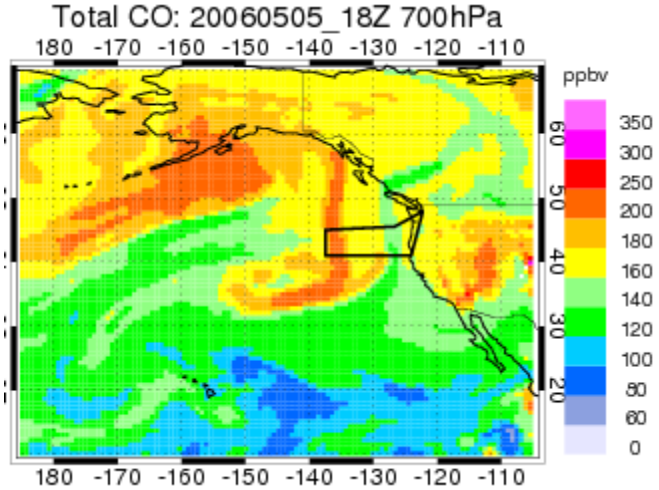
18Z: 500 hPa



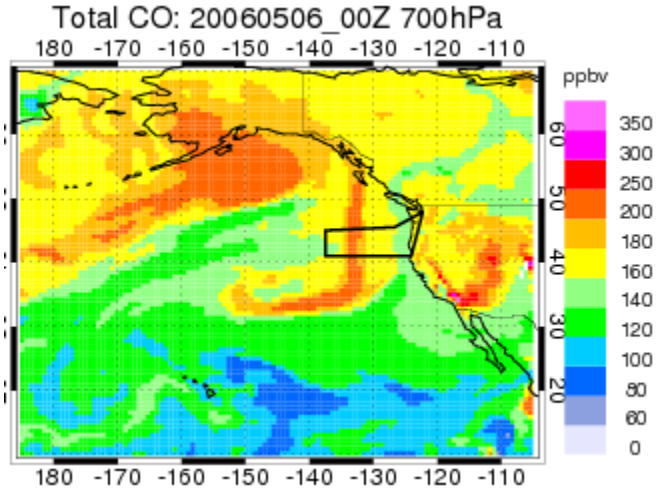
24Z: 500 hPa



18Z: 700 hPa



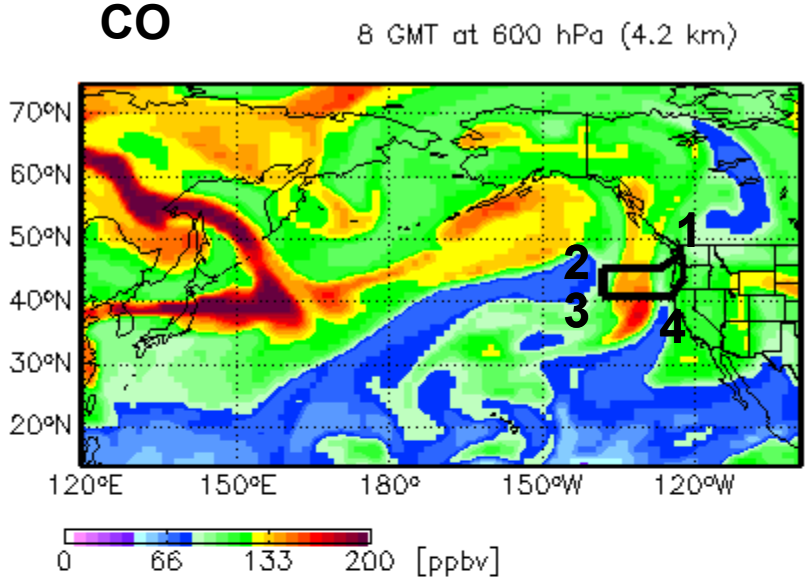
24Z: 700 hPa



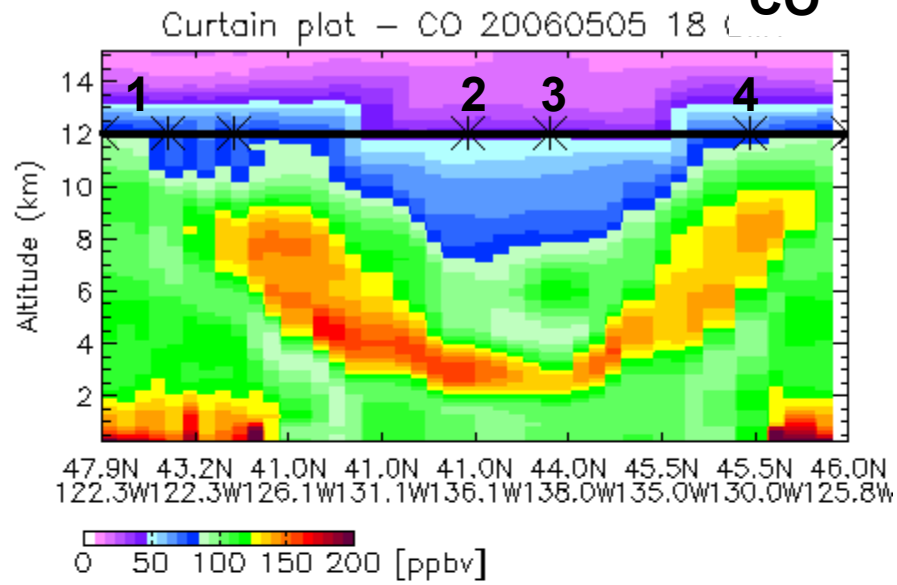
5/4 00Z forecast

Potential flight -- Friday, 5/5, 18Z

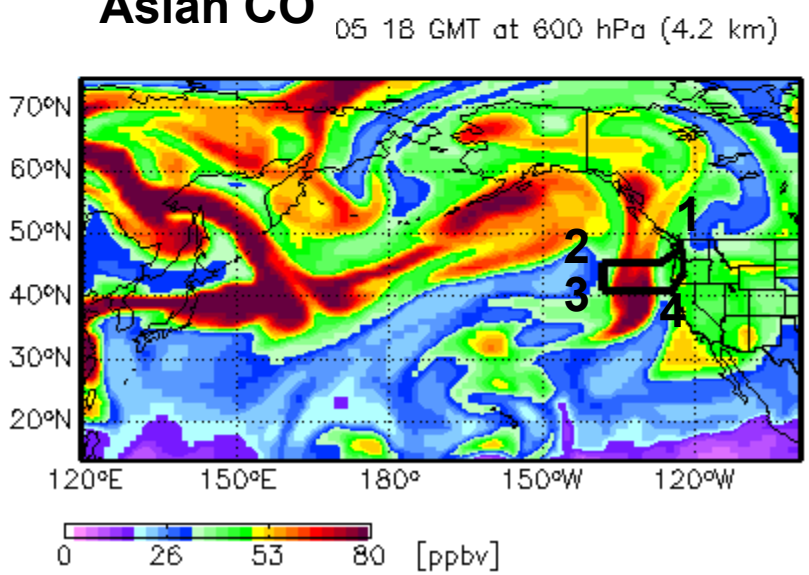
CO



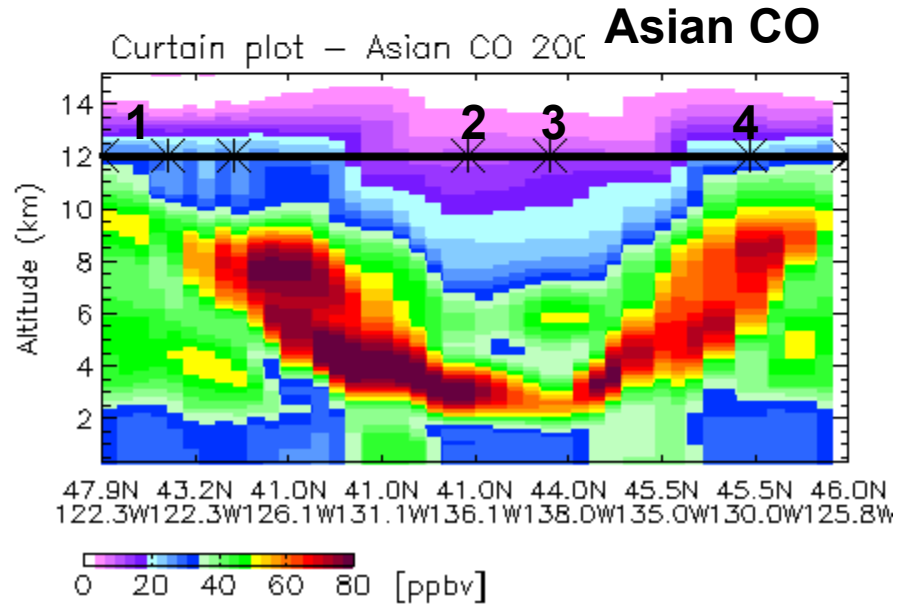
CO



Asian CO

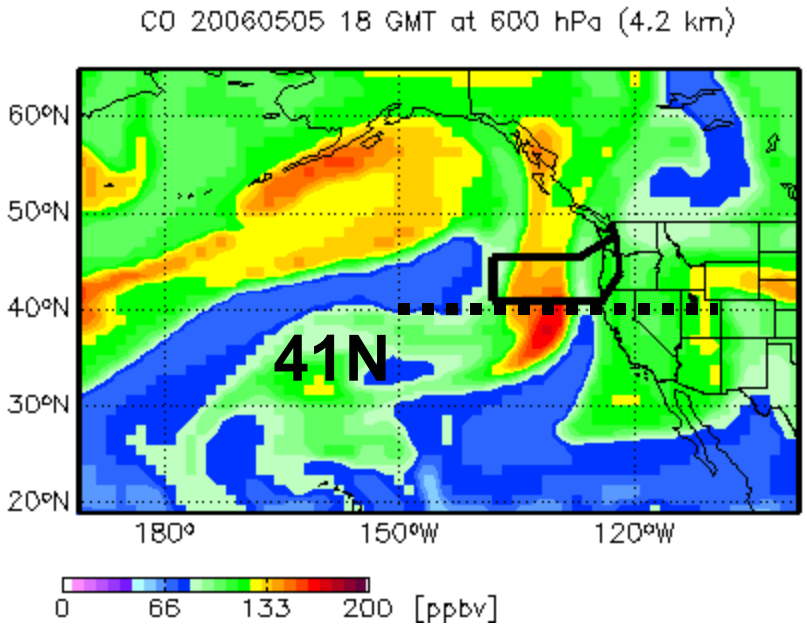


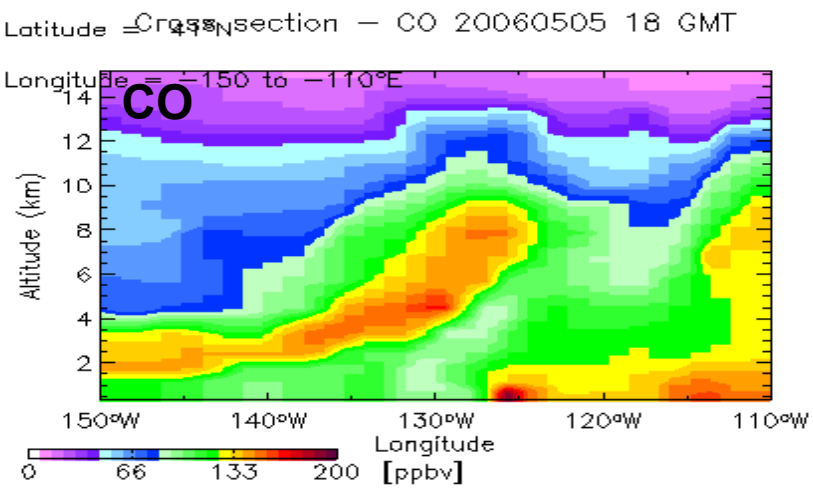
Asian CO

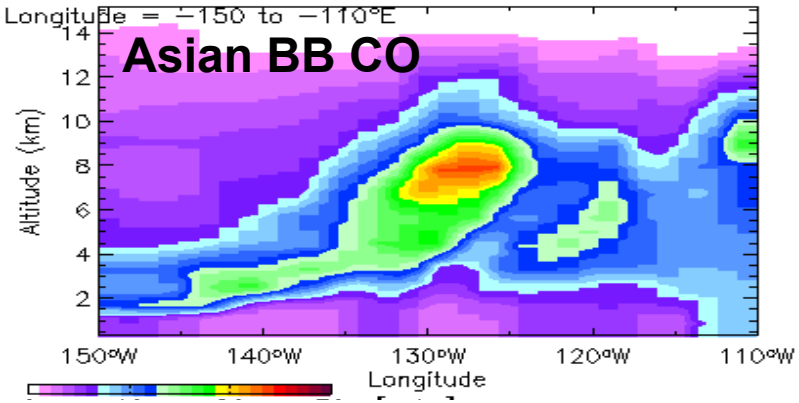


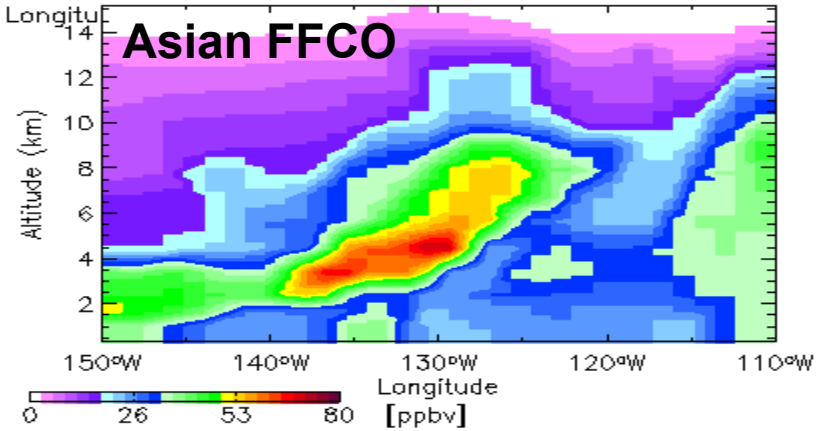
5/4 00Z forecast

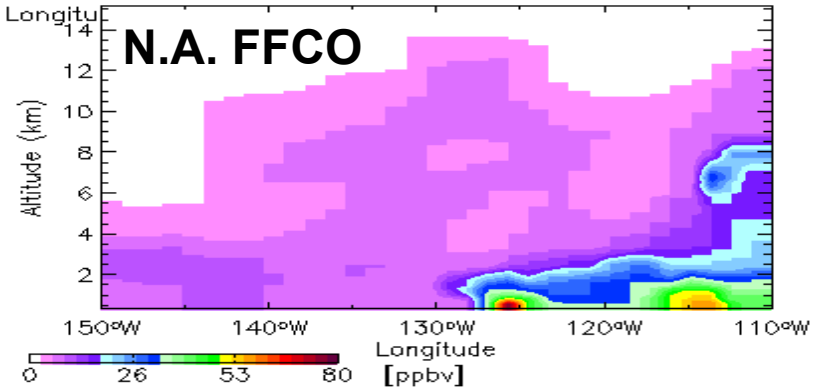
Friday, 5/5,18Z – Meridional CrossSec





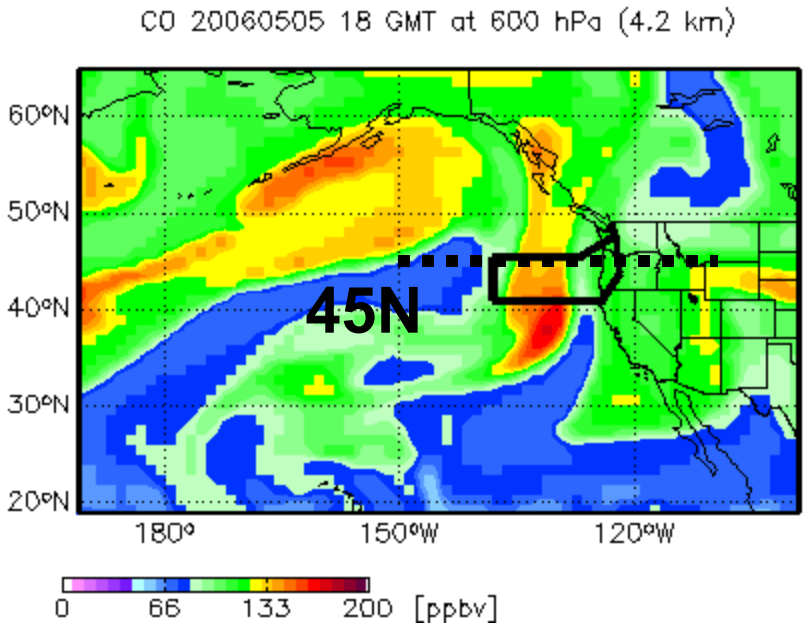


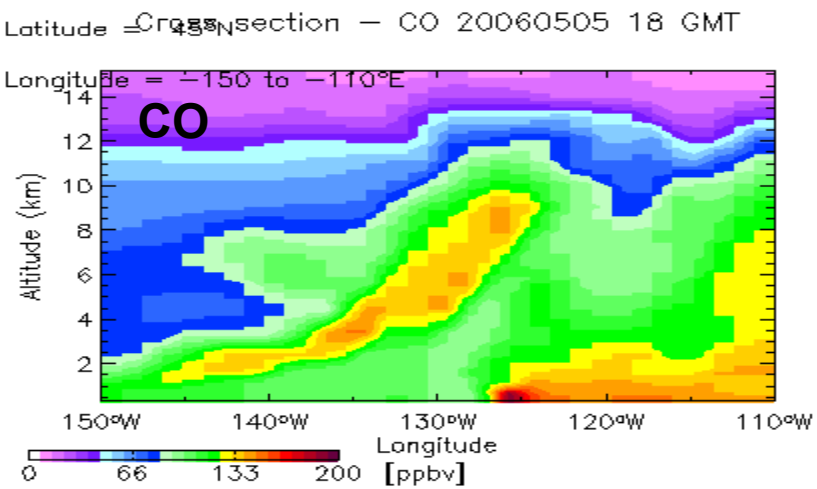


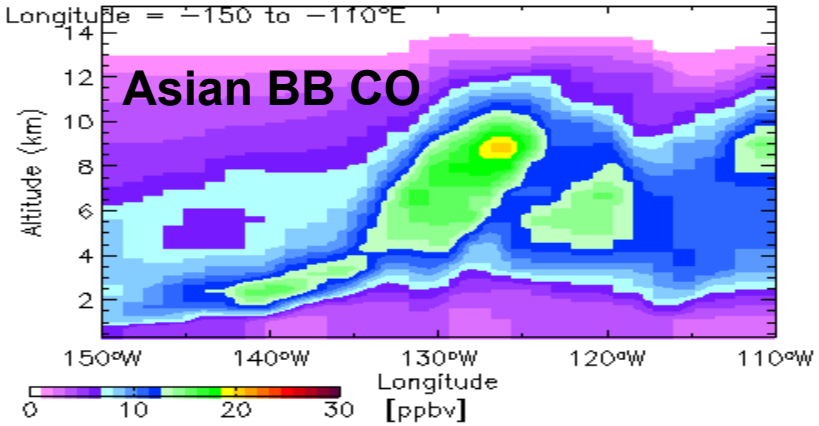


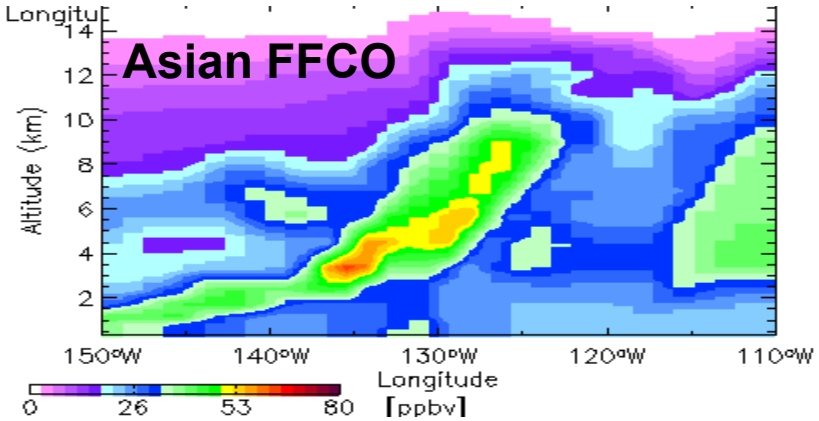
5/4 00Z forecast

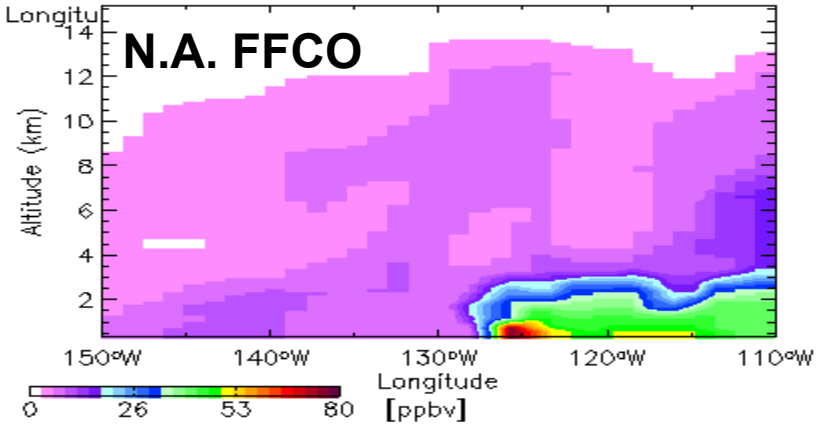
Friday, 5/5,18Z – Meridional CrossSec



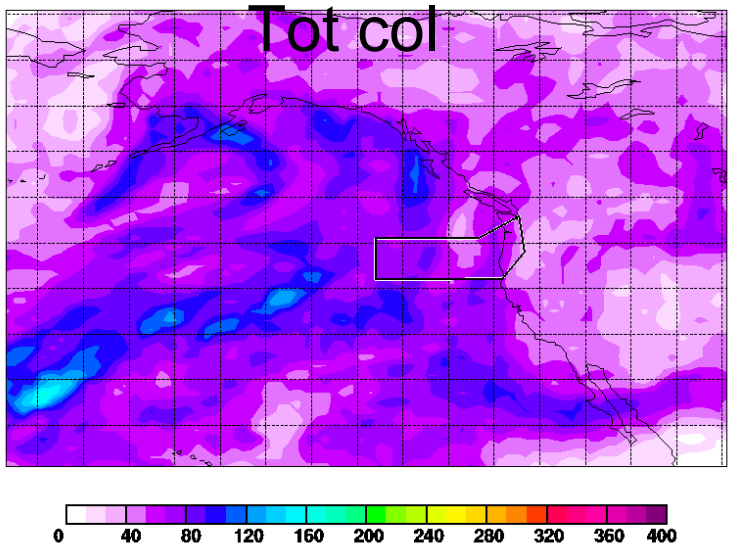




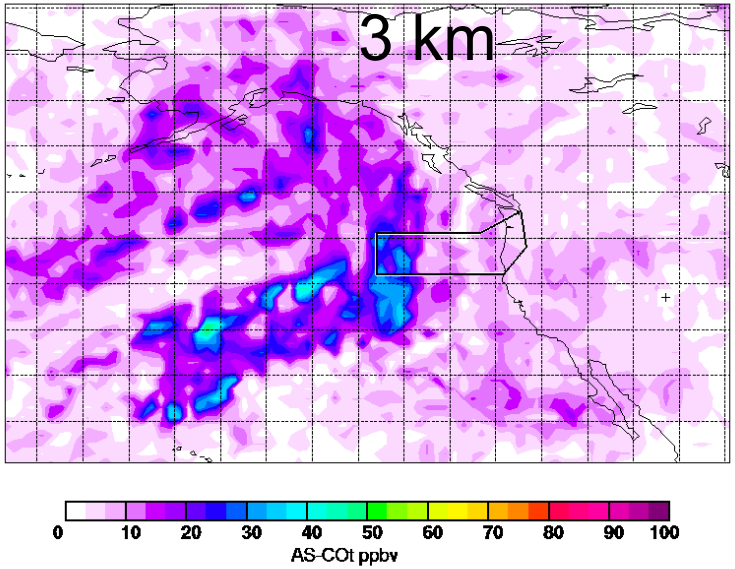




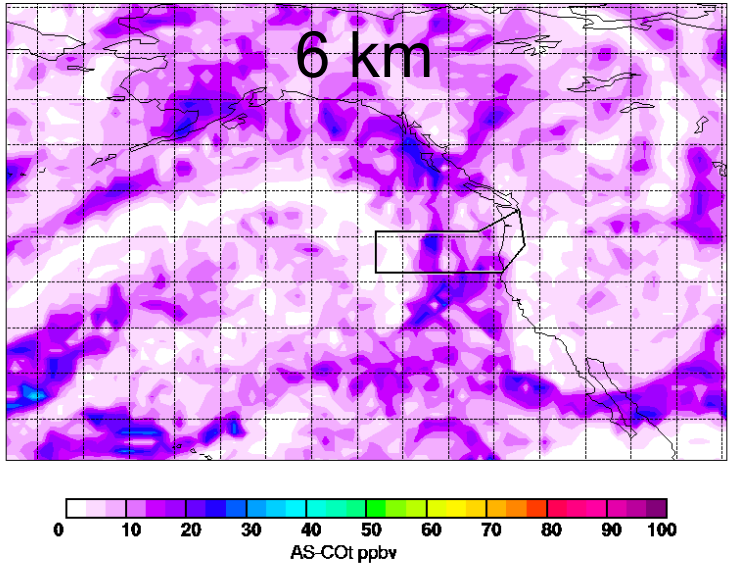
Total column of species AS-COt for age class 0 - 20.00 DAYS
Latest analysis time 20060504. 60000 Actual time 20060505.210000
Mean value 0.419E+02 Maximum value 0.752E+03 Minimum value 0.000E+00
Distance of grid lines 5.0 deg



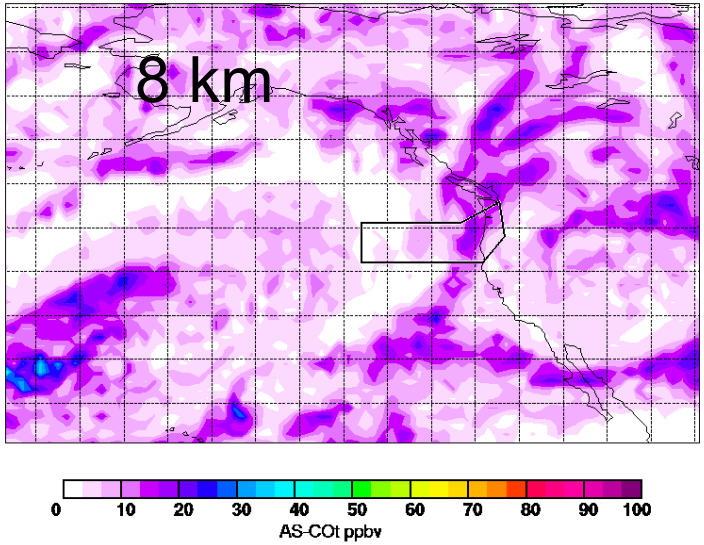
Mixing ratio of species AS-COt at 3000 m asl for age class 0 - 20.00 DAYS
Latest analysis time 20060504. 60000 Actual time 20060505.210000
Mean value 0.587E+01 Maximum value 0.230E+03 Minimum value 0.000E+00
Distance of grid lines 5.0 deg

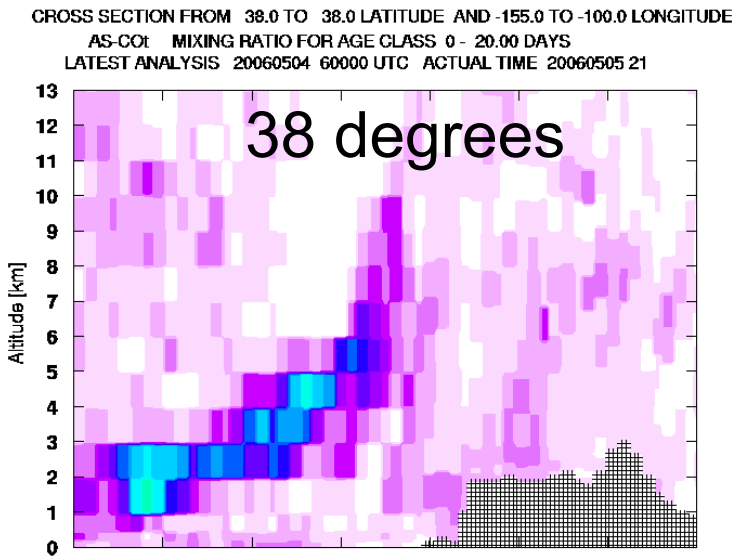


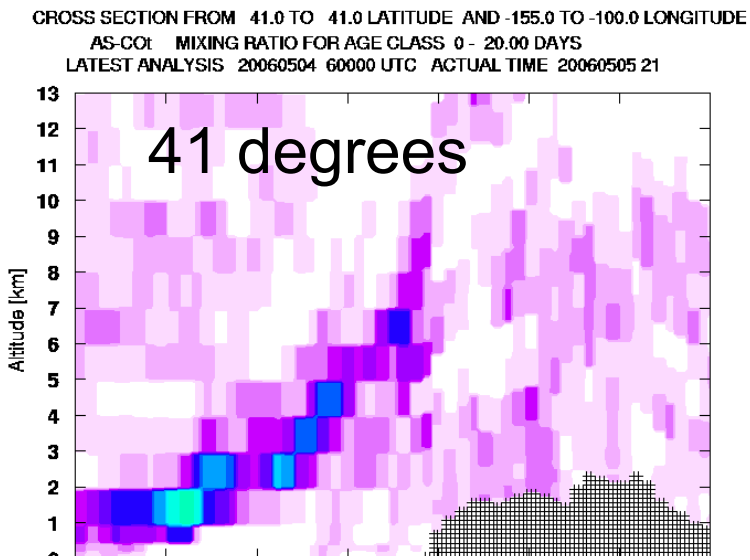
Mixing ratio of species AS-COt at 6000 m asl for age class 0 - 20.00 DAYS
Latest analysis time 20060504. 60000 Actual time 20060505.210000
Mean value 0.471E+01 Maximum value 0.110E+03 Minimum value 0.000E+00
Distance of grid lines 5.0 deg

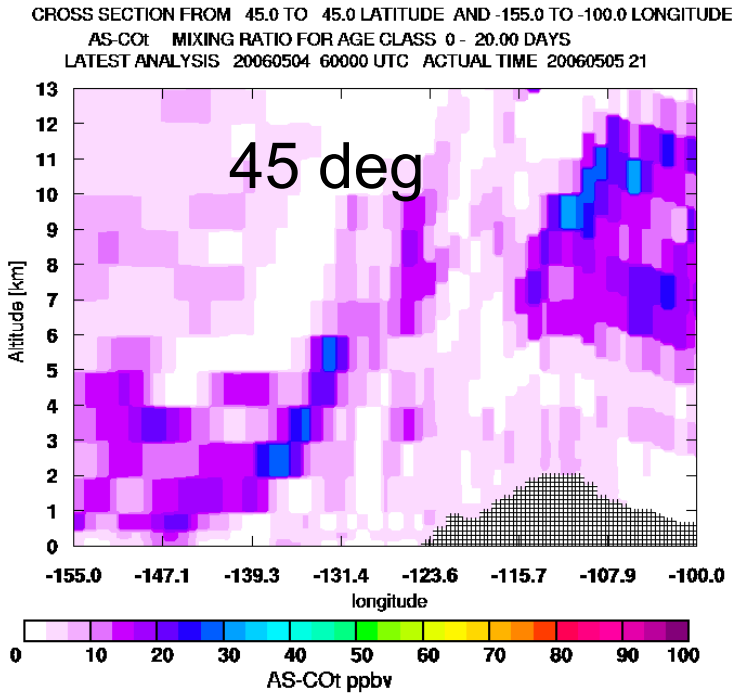


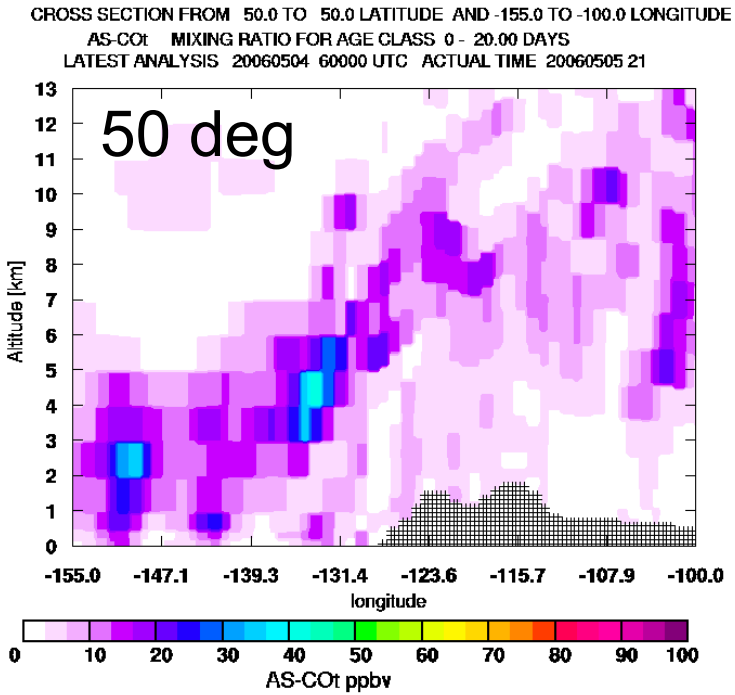
Mixing ratio of species AS-COt at 8000 m asl for age class 0 - 20.00 DAYS
Latest analysis time 20060504. 60000 Actual time 20060505.210000
Mean value 0.420E+01 Maximum value 0.105E+03 Minimum value 0.000E+00
Distance of grid lines 5.0 deg

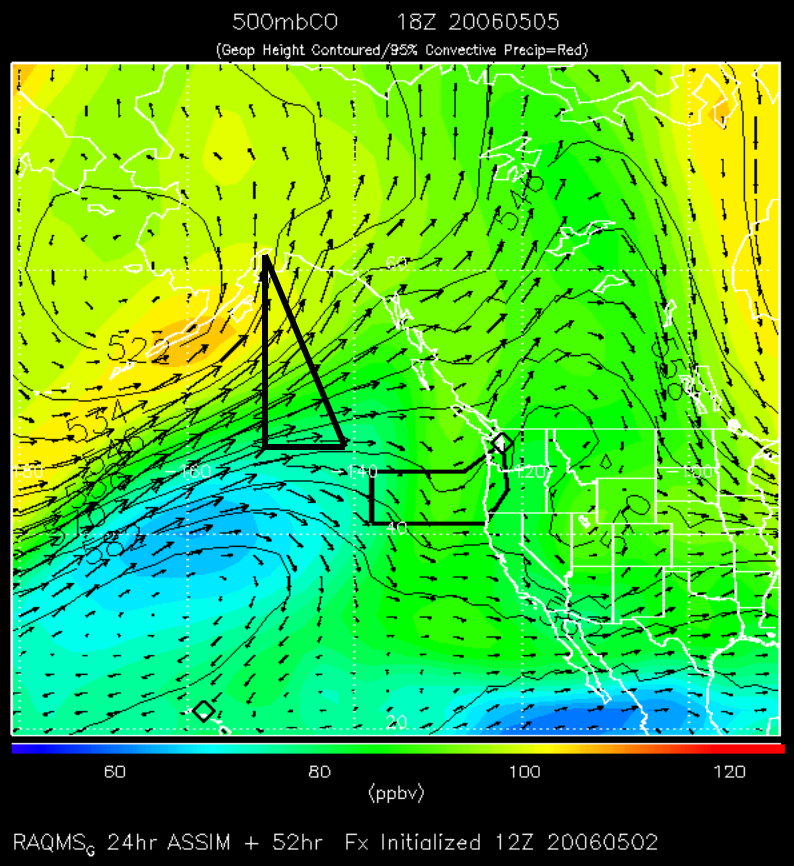



CROSS SECTION FROM 38.0 TO 38.0 LATITUDE AND -155.0 TO -100.0 LONGITUDE
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060504 60000 UTC ACTUAL TIME 20060505 21
38 degrees
Altitude [km]


CROSS SECTION FROM 41.0 TO 41.0 LATITUDE AND -155.0 TO -100.0 LONGITUDE
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060504 60000 UTC ACTUAL TIME 20060505 21
41 degrees
Altitude [km]

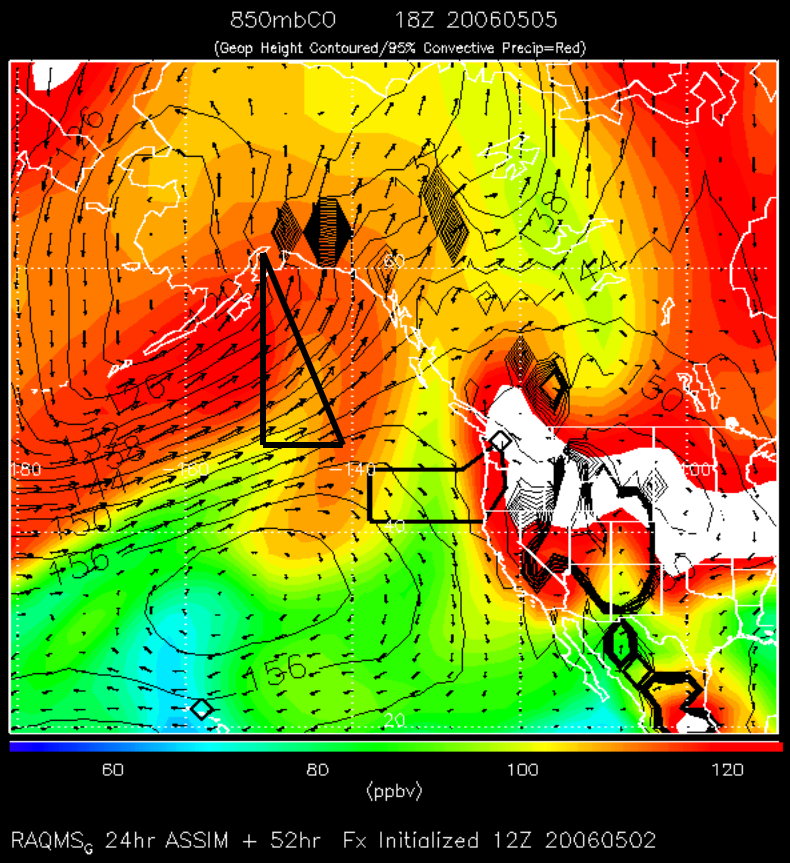

CROSS SECTION FROM 45.0 TO 45.0 LATITUDE AND -155.0 TO -100.0 LONGITUDE
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060504 60000 UTC ACTUAL TIME 20060505 21
45 deg
Altitude [km]
-155.0 -147.1 -139.3 -131.4 -123.6 -115.7 -107.9 -100.0
longitude
0 10 20 30 40 50 60 70 80 90 100
AS-COt ppbv

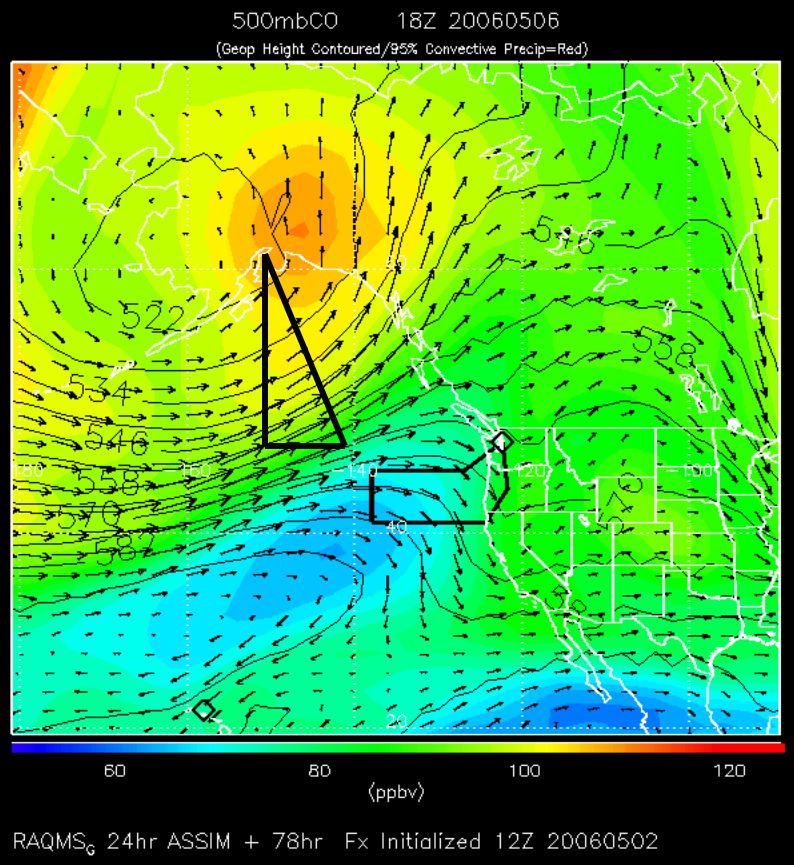

CROSS SECTION FROM 50.0 TO 50.0 LATITUDE AND -155.0 TO -100.0 LONGITUDE
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060504 60000 UTC ACTUAL TIME 20060505 21
50 deg
Altitude [km]
-155.0 -147.1 -139.3 -131.4 -123.6 -115.7 -107.9 -100.0
longitude
0 10 20 30 40 50 60 70 80 90 100
AS-COt ppbv



RAQMS 54hr 500mb CO
Valid 18Z 05/05/06

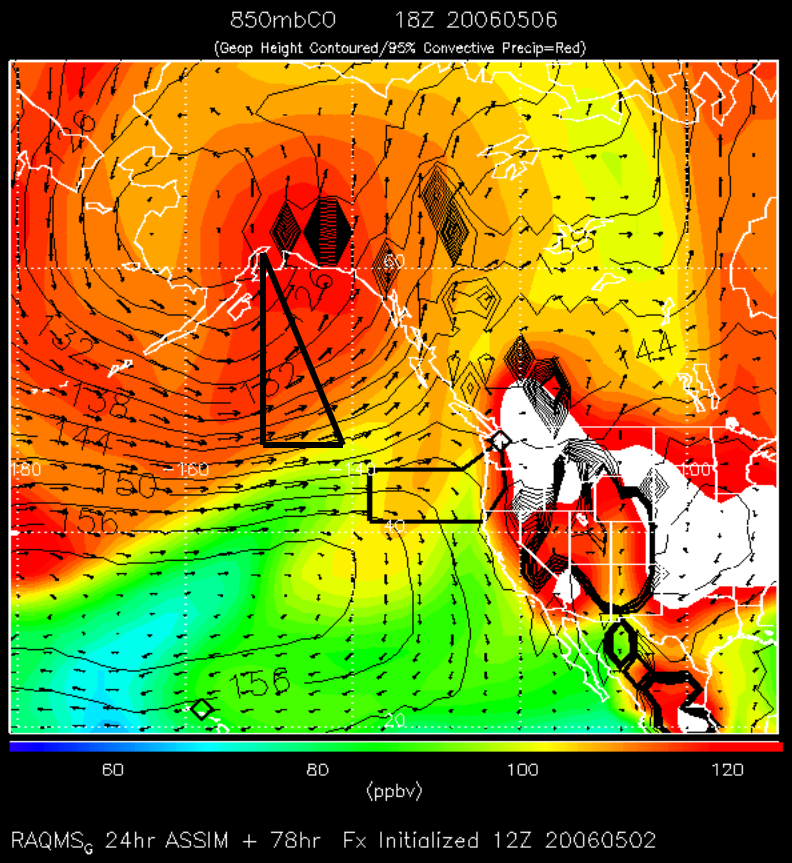
RAQMS 54hr 850mb CO
Valid 18Z 05/05/06



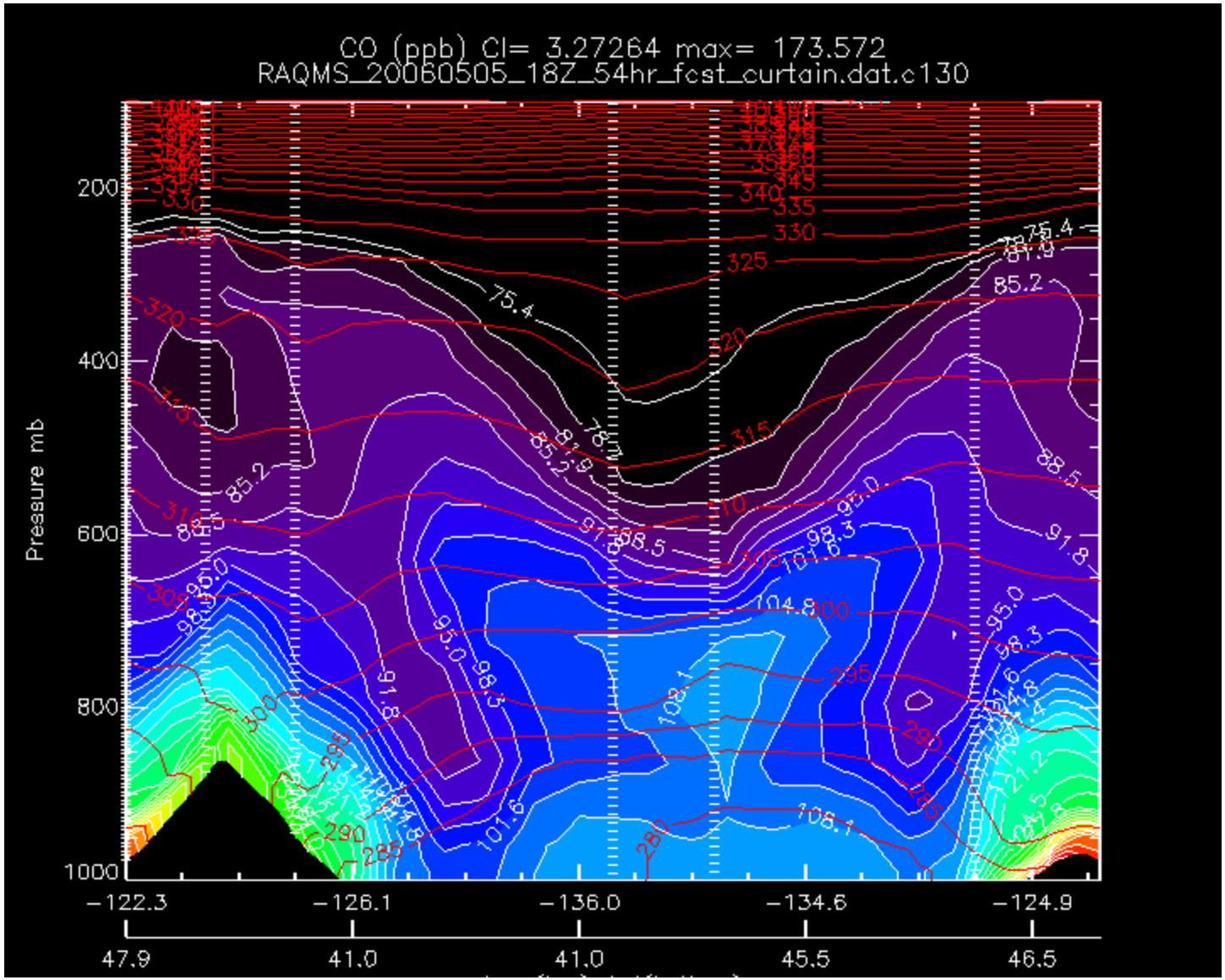


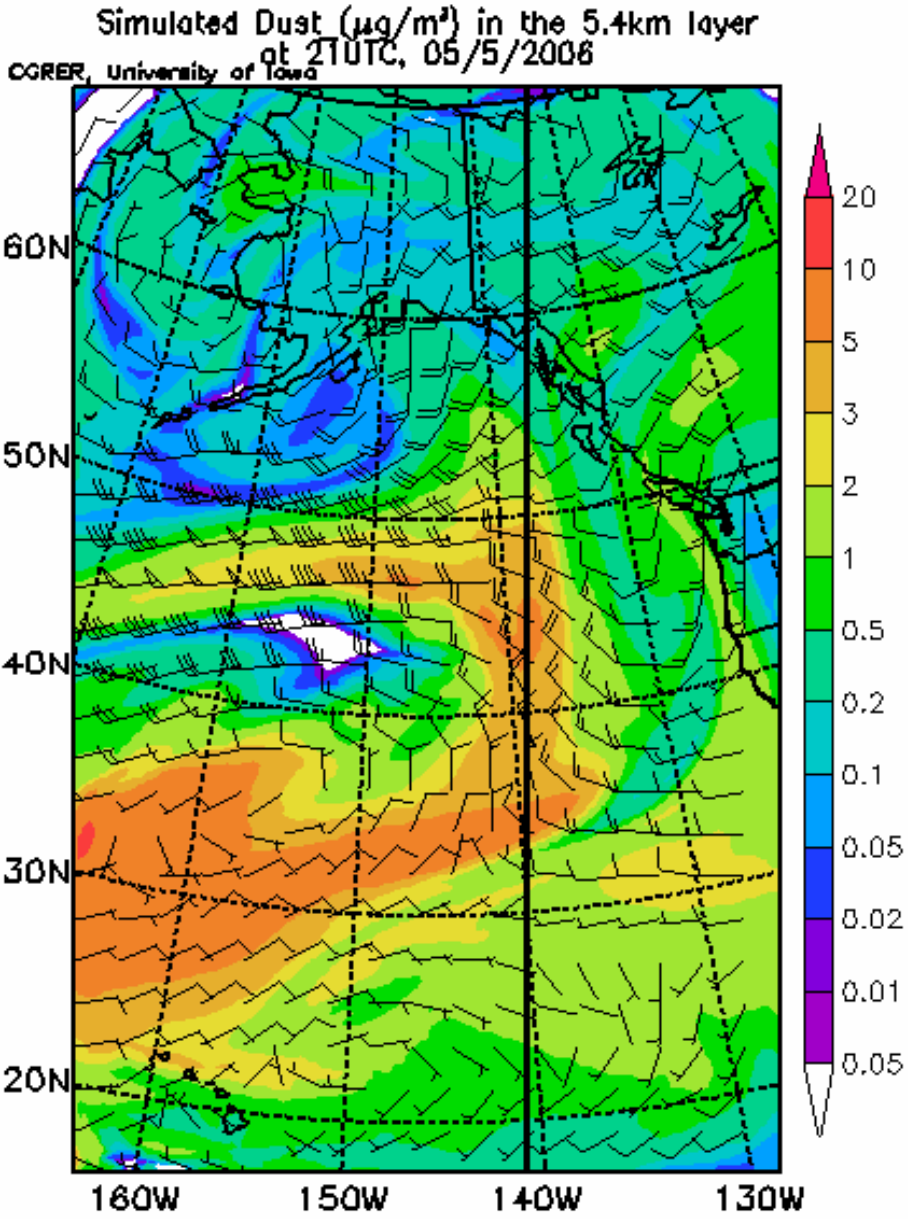
RAQMS 78hr 500mb CO
Valid 18Z 06/05/06

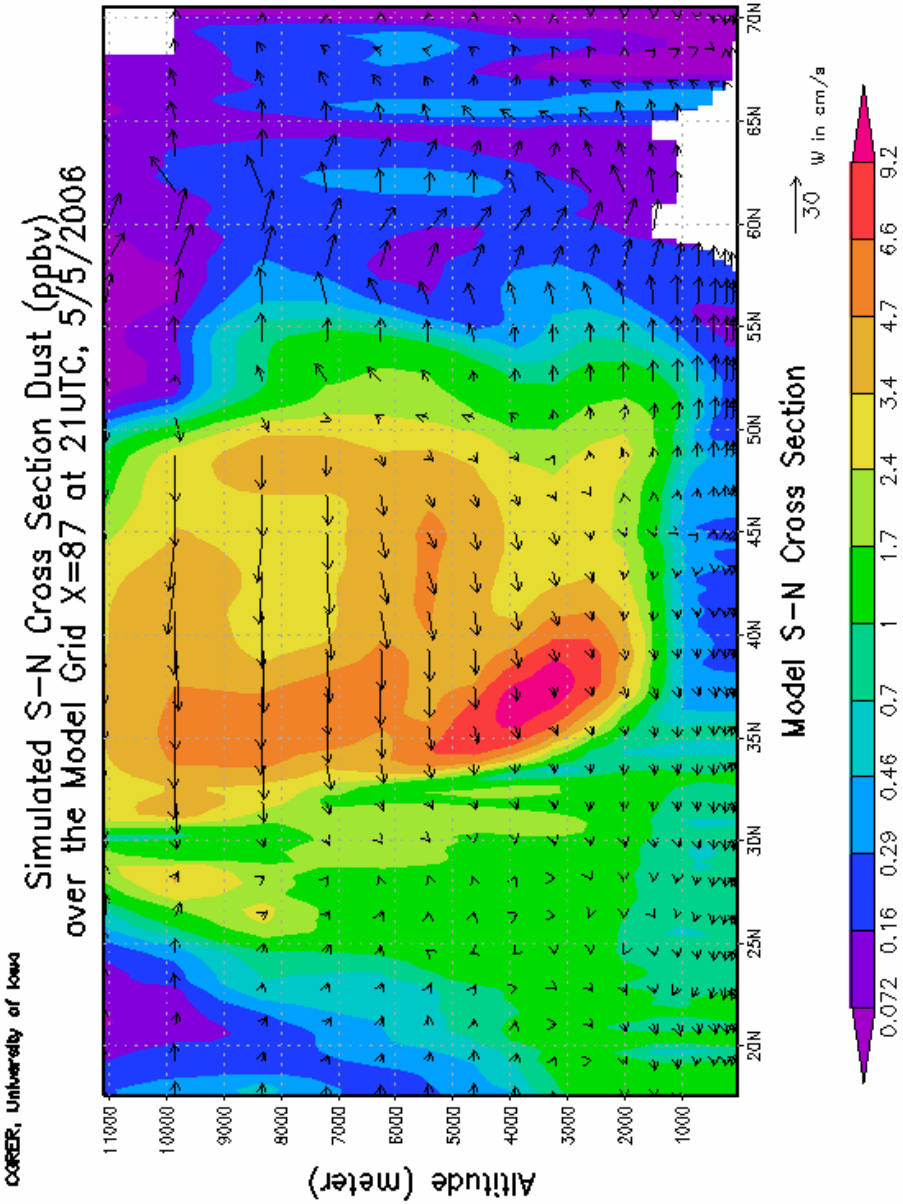
RAQMS 78hr 850mb CO
Valid 18Z 06/05/06

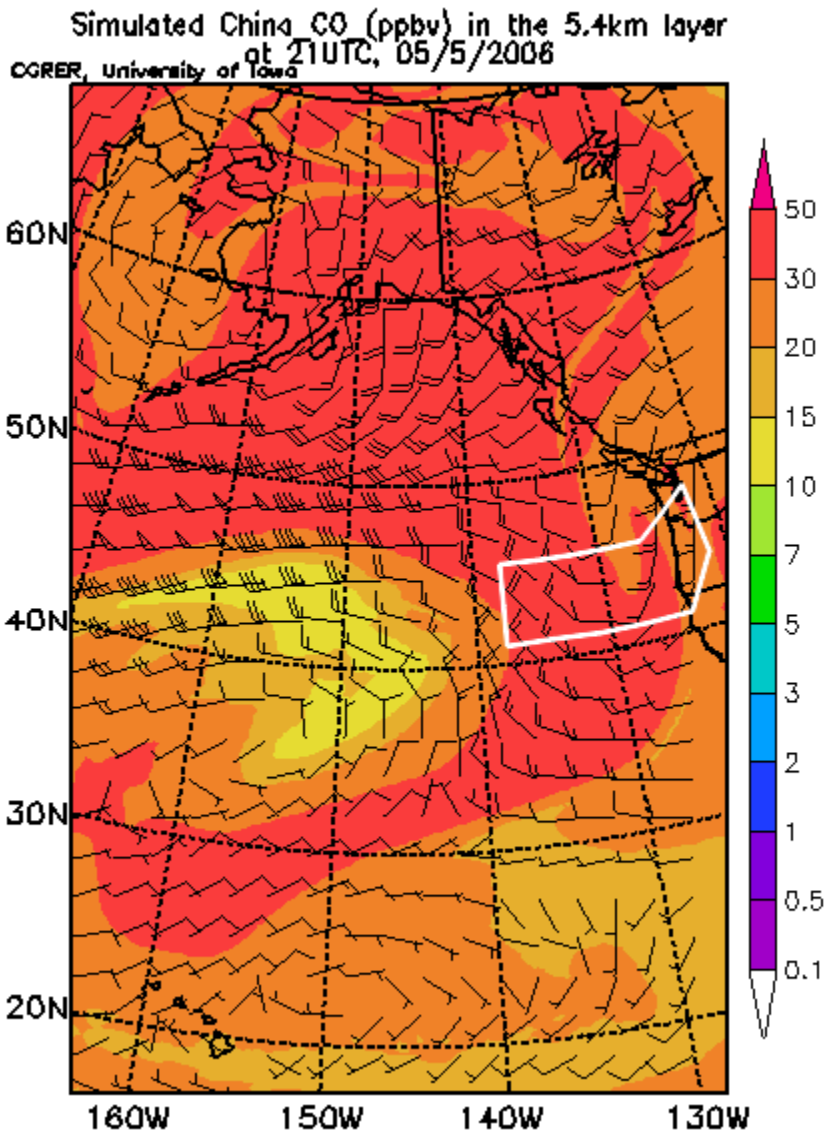


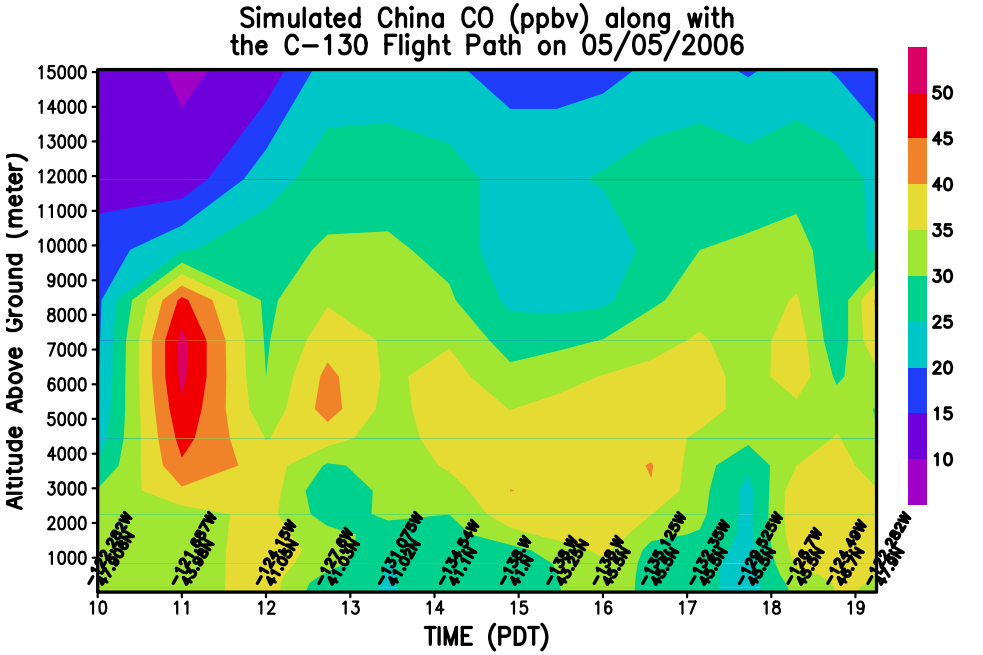
RAQMS 54hr CO Curtain Valid 18Z 05/05/06

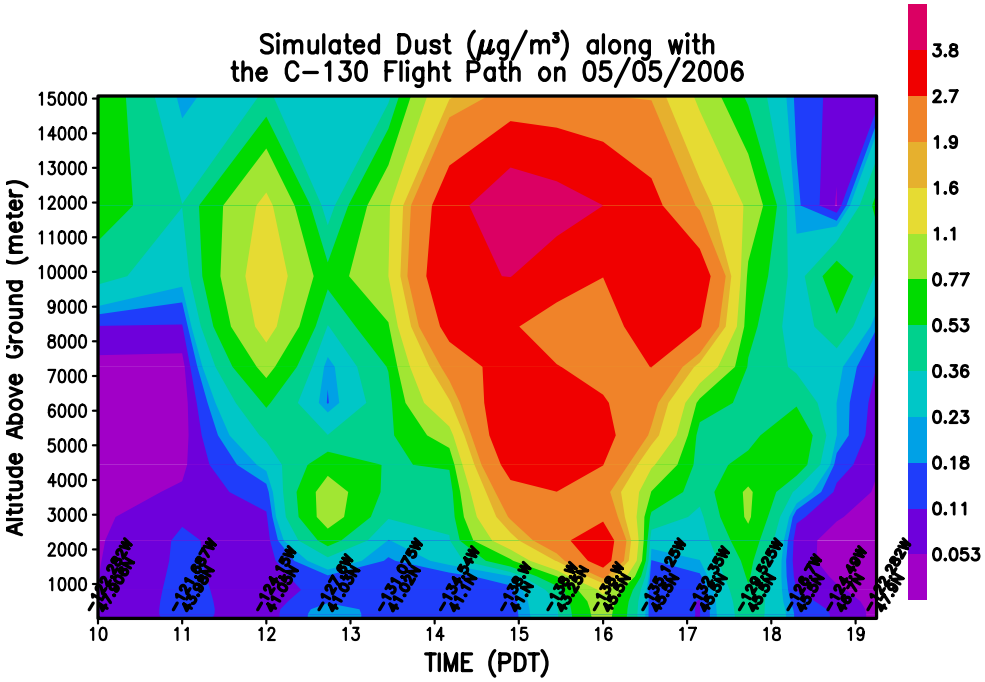


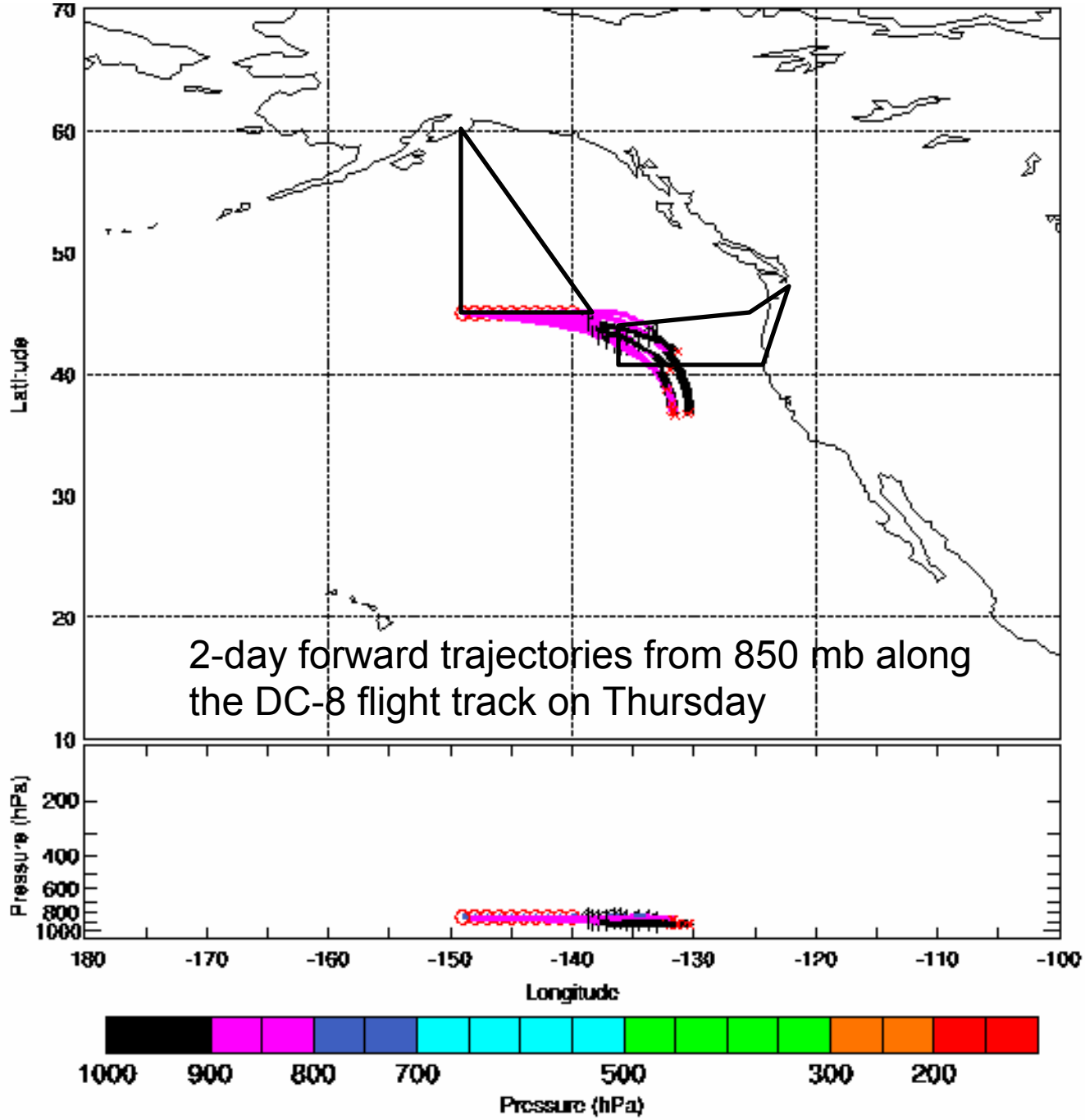

Simulated Dust (μg/m³) in the 5.4km layer
at 21UTC, 05/5/2006
CGRER, University of Iowa
60N
50N
40N
30N
20N
160W
150W
140W
130W
20
10
5
3
2
1
0.5
0.2
0.1
0.05
0.02
0.01
0.05

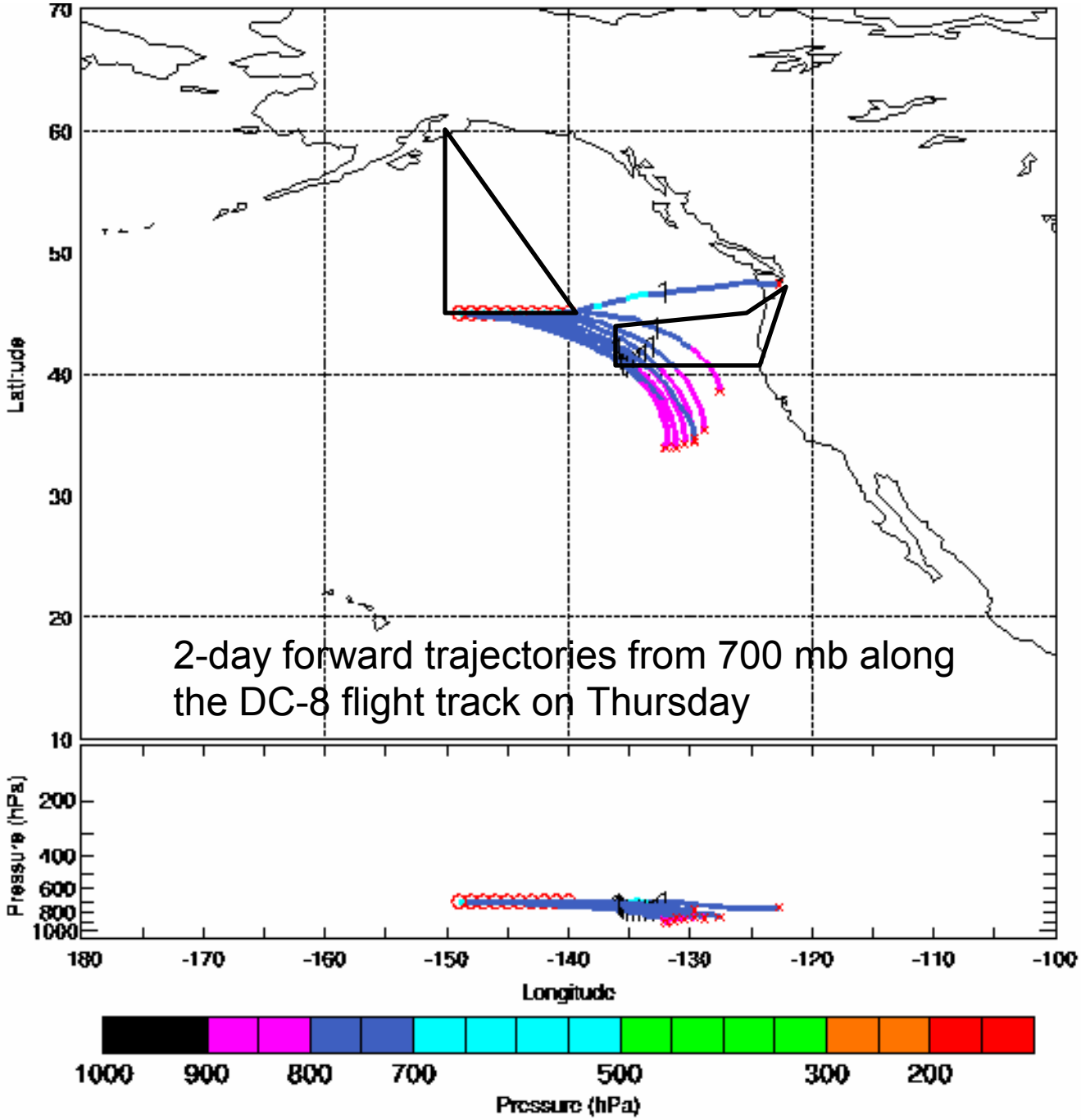

Simulated S-N Cross Section Dust (ppbv)
over the Model Grid X=87 at 21UTC, 5/5/2006
CGRER, University of Iowa
Altitude (meter)
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
20N
25N
30N
35N
40N
45N
50N
55N
60N
65N
70N
Model S-N Cross Section
30
W in cm/s
0.072
0.16
0.29
0.46
0.7
1
1.7
2.4
3.4
4.7
6.6
9.2

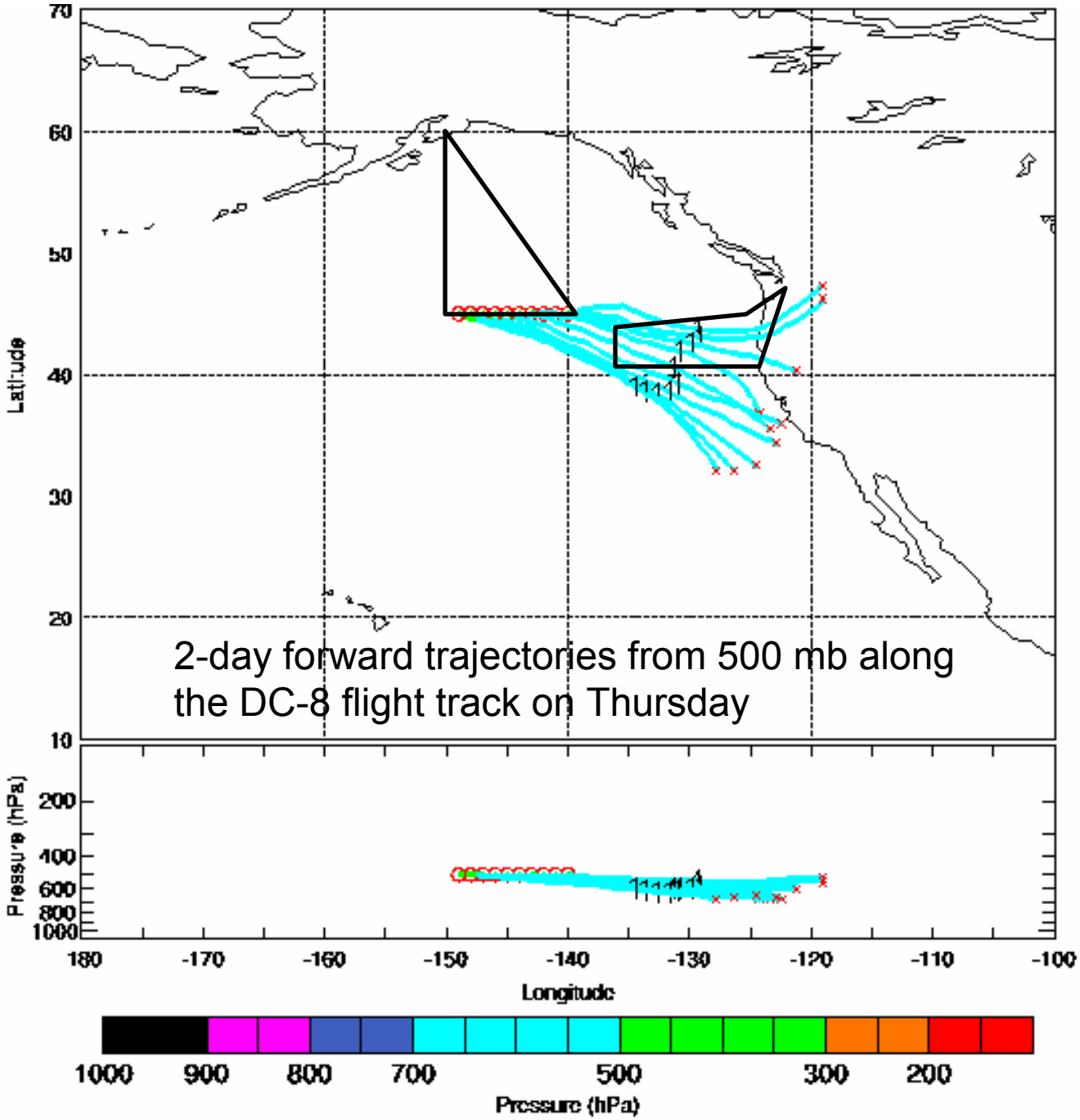

Simulated China CO (ppbv) in the 5.4km layer
at 21UTC, 05/5/2006
CGRER, University of Iowa
60N
50N
40N
30N
20N
160W
150W
140W
130W
50
30
20
15
10
7
5
3
2
1
0.5
0.1

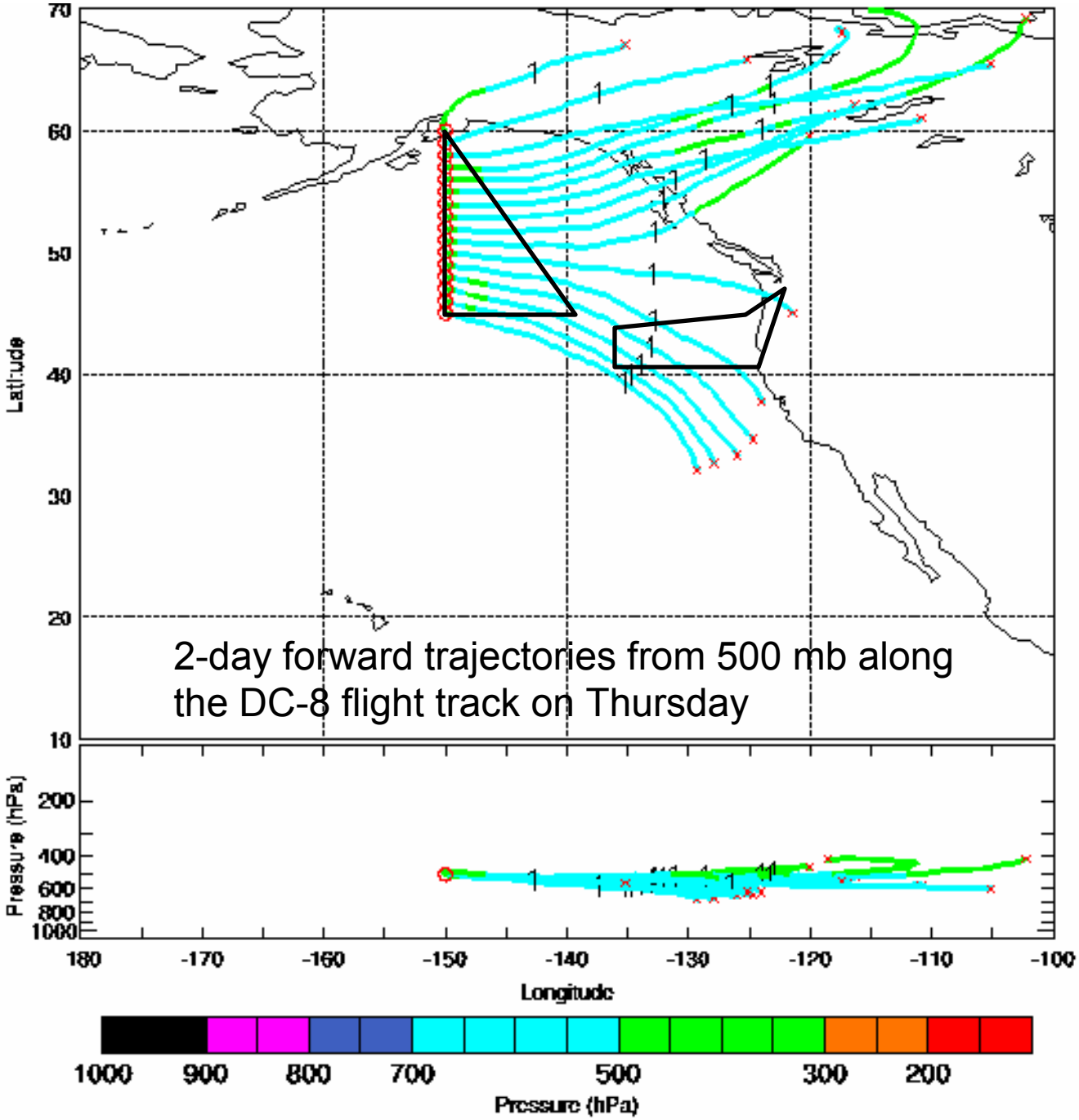

Simulated China CO (ppbv) along with
the C-130 Flight Path on 05/05/2006
Altitude Above Ground (meter)
TIME (PDT)
50
45
40
35
30
25
20
15
10

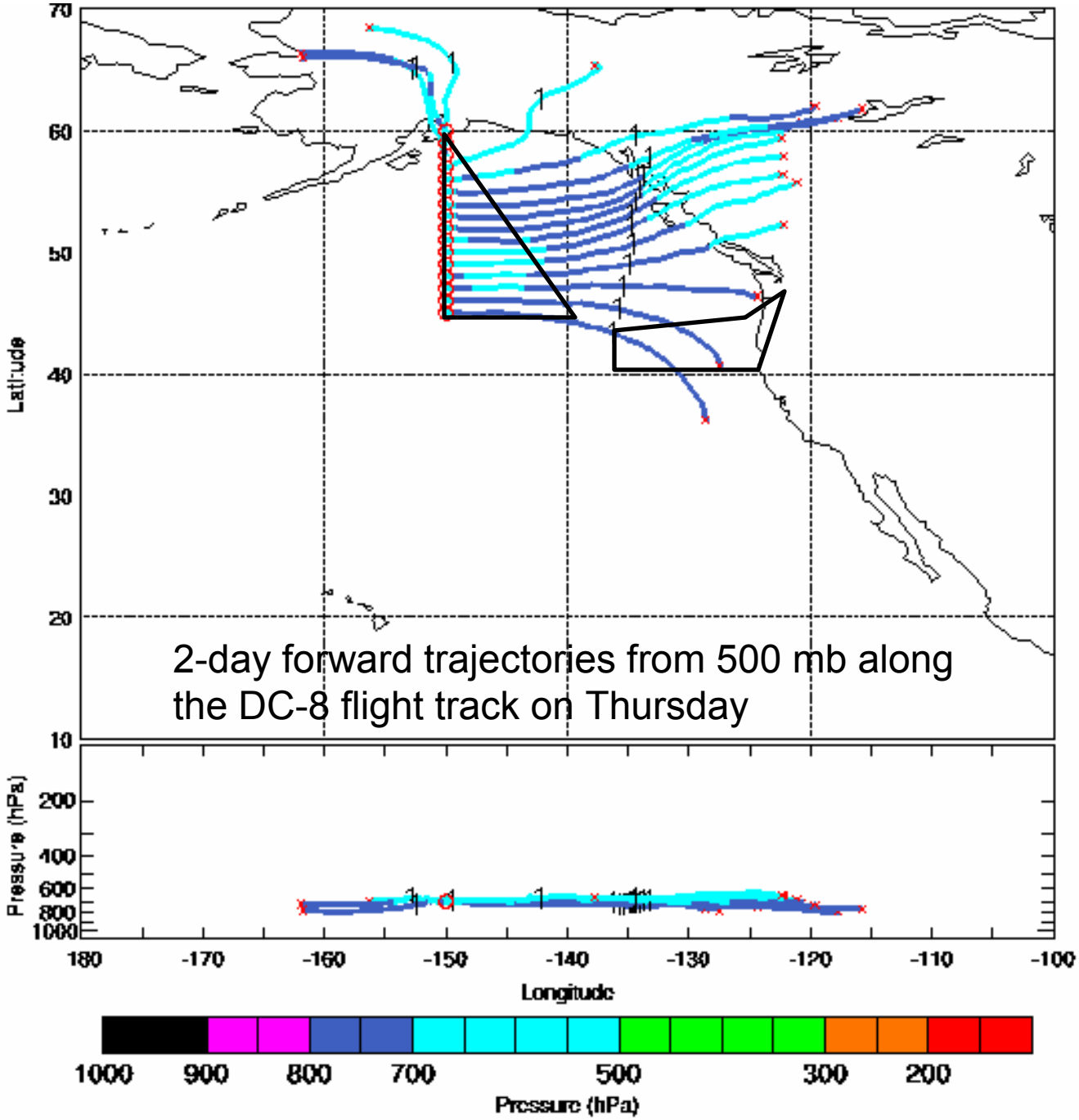

Simulated Dust (μg/m³) along with
the C-130 Flight Path on 05/05/2006
Altitude Above Ground (meter)
TIME (PDT)
3.8
2.7
1.9
1.6
1.1
0.77
0.53
0.36
0.23
0.18
0.11
0.053


2-day forward trajectories from 850 mb along the DC-8 flight track on Thursday
Latitude
70
60
50
40
30
20
10
Pressure (hPa)
200
400
600
800
1000
180
-170
-160
-150
-140
-130
-120
-110
-100
Longitude
1000
900
800
700
500
300
200
Pressure (hPa)


70
60
50
40
30
20
10
Latitude
2-day forward trajectories from 700 mb along the DC-8 flight track on Thursday
Pressure (hPa)
200
400
600
800
1000
180
-170
-160
-150
-140
-130
-120
-110
-100
Longitude
1000
900
800
700
500
300
200
Pressure (hPa)


2-day forward trajectories from 500 mb along the DC-8 flight track on Thursday
Latitude
70
60
50
40
30
20
10
Pressure (hPa)
200
400
600
800
1000
180
-170
-160
-150
-140
-130
-120
-110
-100
Longitude
1000
900
800
700
500
300
200
Pressure (hPa)


2-day forward trajectories from 500 mb along the DC-8 flight track on Thursday
Latitude
70
60
50
40
30
20
10
Pressure (hPa)
200
400
600
800
1000
180
-170
-160
-150
-140
-130
-120
-110
-100
Longitude
1000
900
800
700
500
300
200
Pressure (hPa)


70
60
50
40
30
20
10
Latitude
2-day forward trajectories from 500 mb along the DC-8 flight track on Thursday
Pressure (hPa)
200
400
600
800
1000
180
-170
-160
-150
-140
-130
-120
-110
-100
Longitude
1000
900
800
700
500
300
200
Pressure (hPa)