IMPEX C130 flight 6 (Seattle local 6)

3 May 2006.

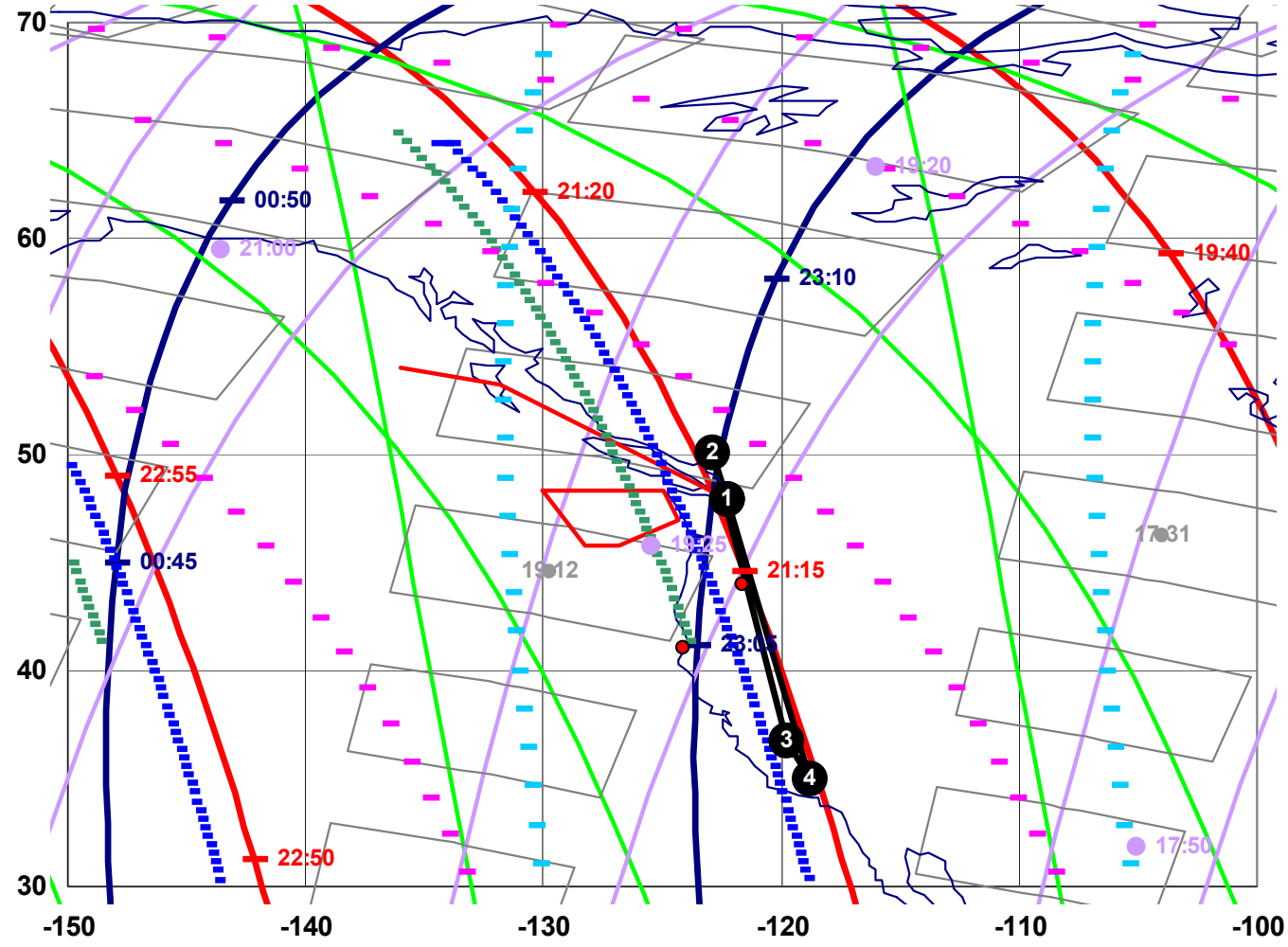
doors open / power on: 0700 PDT

takeoff: 1000 PDT (1700 GMT)

estimated landing: 1830 PDT (0130 GMT)

Objectives:

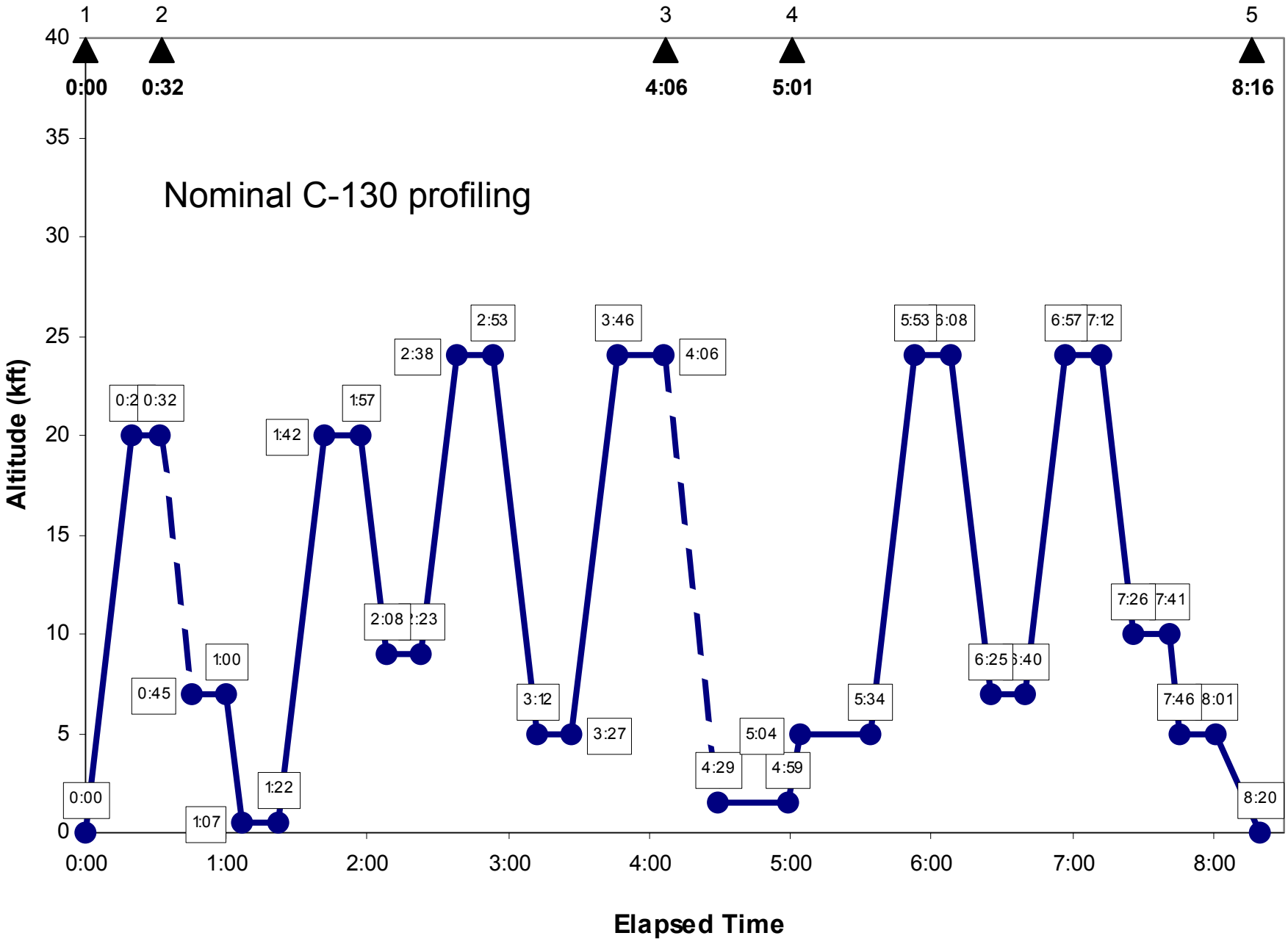
- spiral down over Whistler Peak
- sample large-scale subsidence and entrainment over central California
- OMI validation spiral over Fresno followed by BL sampling south beyond Bakersfield
- learn the models' predictive capabilities for Asian plumes



Tentative C-130 flight plan for Wednesday, 3 May
Takeoff: 1000 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	10:00	17:00		
2	50	3	122	57	0:32	0:32	10:32	17:32	0:15	Whistler Peak
3	36	48	119	48	4:06	3:19	14:06	21:06	0:25	OMI spiral
4	35	0	118	48	5:01	0:29	15:01	22:01		
5	47	54	122	17	8:16	3:15	18:16	1:16		



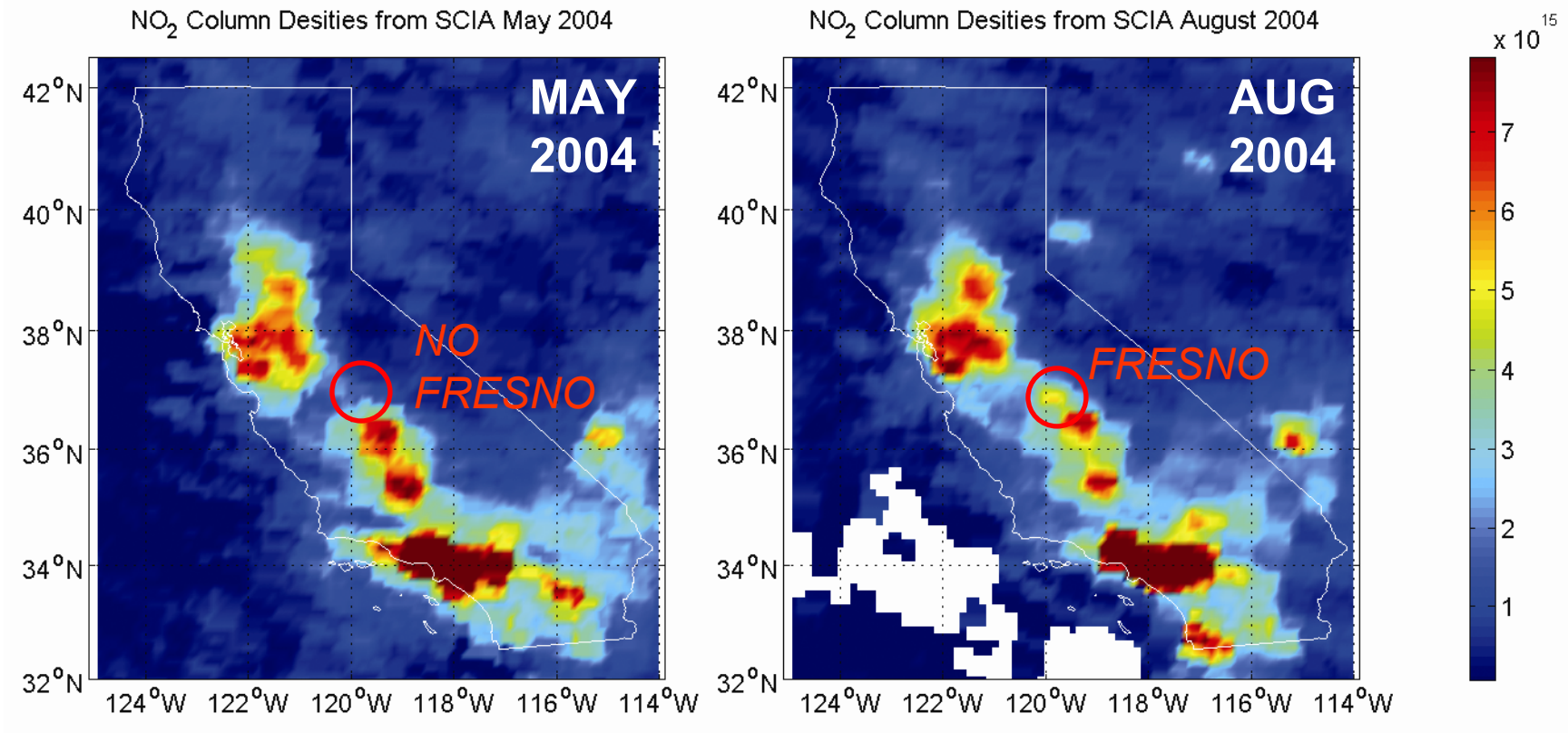
Note: In-Progress profiling in solid lines; Spirals in dashed lines; Way points annotated with triangles.

Whistler Peak

- instruments are located in the peak lift operator's hut

May vs. August 2004

Aerosol Effect on Retrievals?



SCIAMACHY DATA Courtesy of: Andreas Richter (Bremen, Germany)
Monthly Averages

Instrumentation

Trace Gases

O_3 (TECO 49); CO (TECO 48C)

Particle Physics

Particle distributions from 10nm to 20 µm

Grimm OPC (300 nm – 20 µm)

TSI DMA (10 nm – 400 µm)

Particle Chemistry

Filter packs analyzed for soluble inorganic species ($SO_4^{=}$, NO_3^{-}, Cl^{-}, Na^{+}, NH_4^{+}, Ca^{2+}, Mg^{2+})

Particle Light Scattering and Absorption

Nephelometer, PSAP

Temperature, Dew point, Winds

** AMS on site for 5 weeks in spring 2005, possible for spring 2006 **

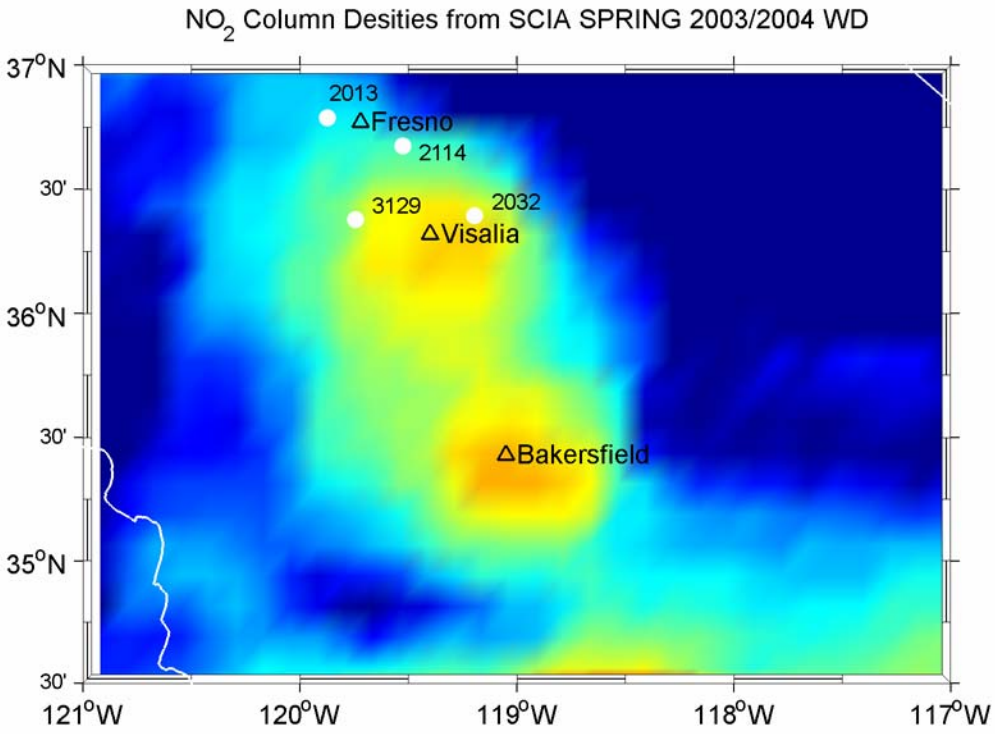
Cessna 207 Instrumentation

- Aerosol mass spectrometer
- CO (Aerolaser)
- O_3 (TECO 49)
- filter packs (inorganic ions, TOC)
- CPC 3010, PCASP, FSSP-300
- AIMS-10 or AIMS-20
- PSAP, nephelometer

Cessna 207 Instrumentation

- payload ~ 500 – 700 lb
- flying time ~ 5.5 h (full fuel), ~ 3.5 h with above instrumentation
- flight ceiling ~ 16 kft, profile to 13 kft without additional O_2
- air speed ~ 50 m/s

Flight Objectives



(numbers are CARB ground stations)

Central Valley
Spring Averages 2003-2004
Weekday 10AM (left)

-Absence of the Fresno Plume, strong signatures from Visalia and Bakersfield (regions of heavy agriculture, feedlots etc.)

-Test effects of aerosols on various NO_2 retrievals

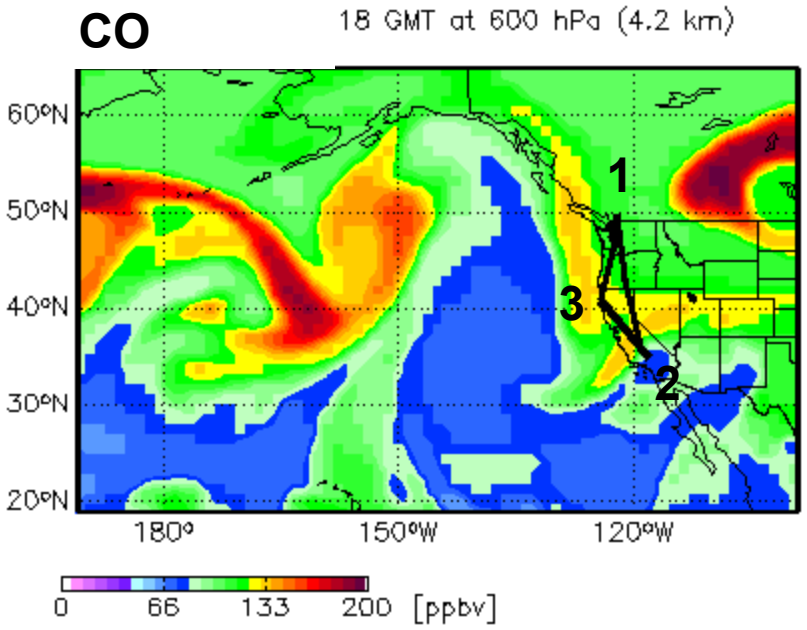
Ideally we would want to do a BL run through these three regions (Bakersfield/Visalia/ Fresno) and spiral at Fresno at the over pass time.

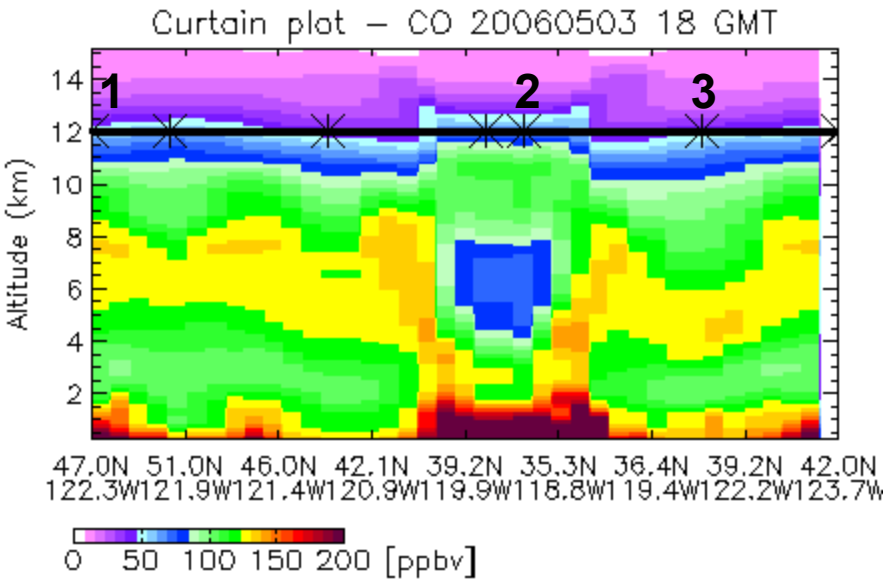
SCIAMACHY DATA Courtesy of: Andreas Richter (Bremen, Germany)

5/1 00Z forecast

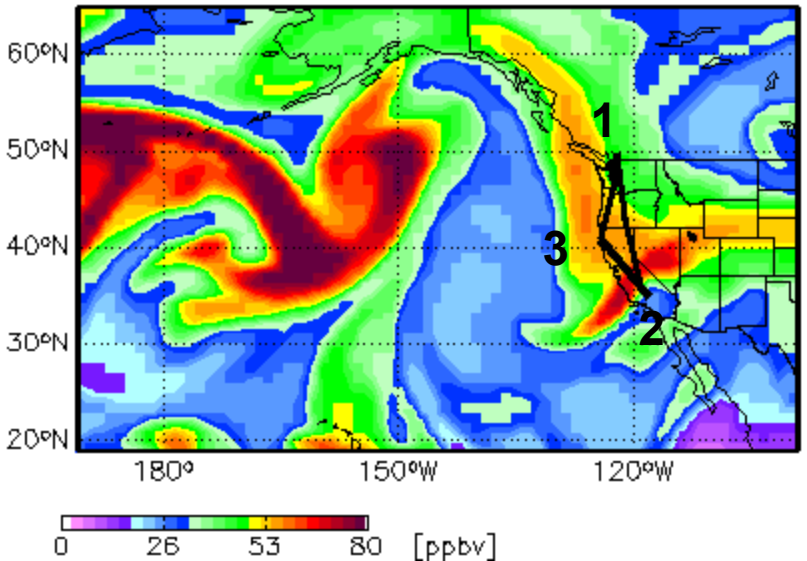
Wednesday, 5/3, 18Z

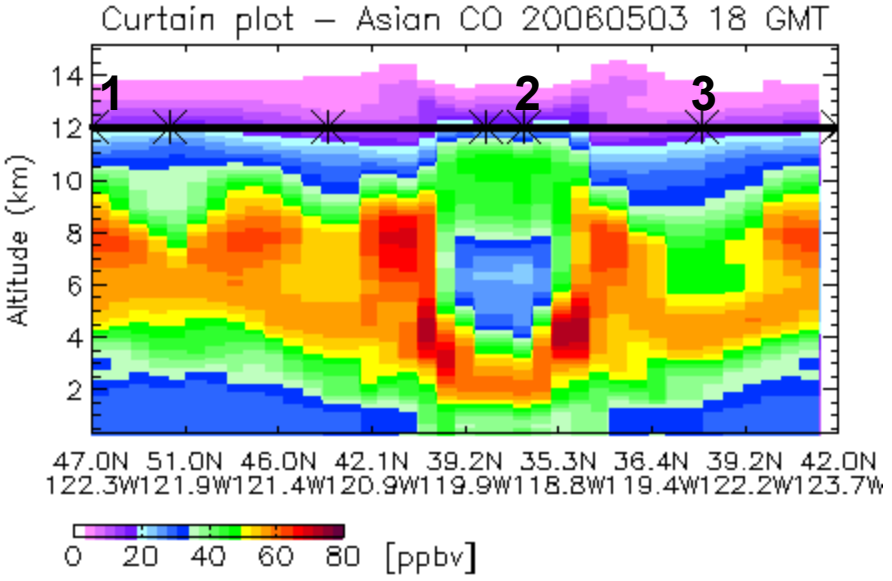
CO





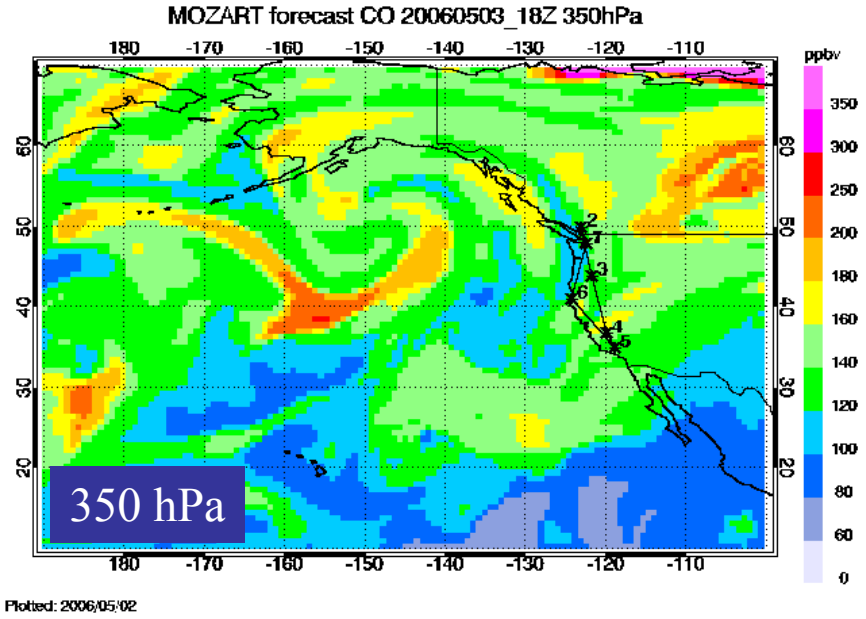
Asian CO

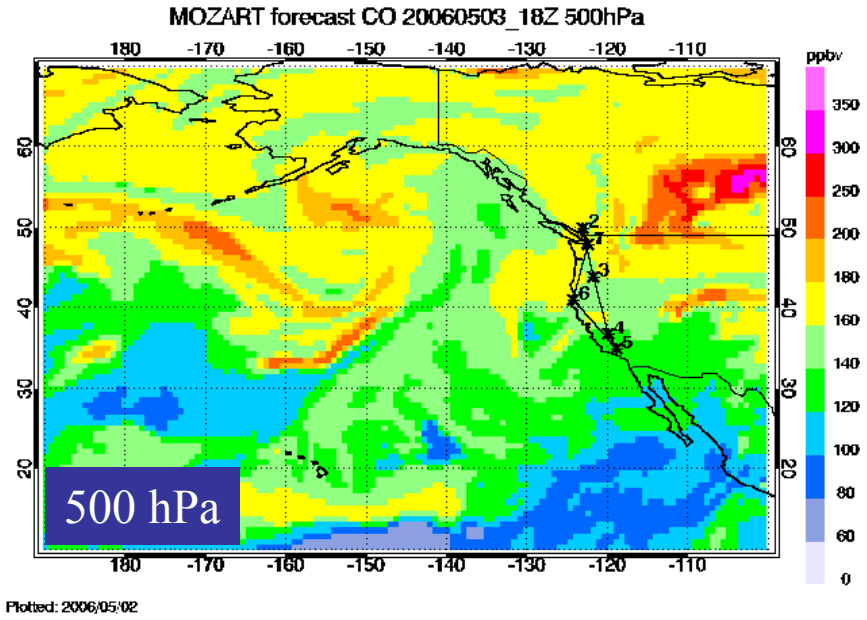


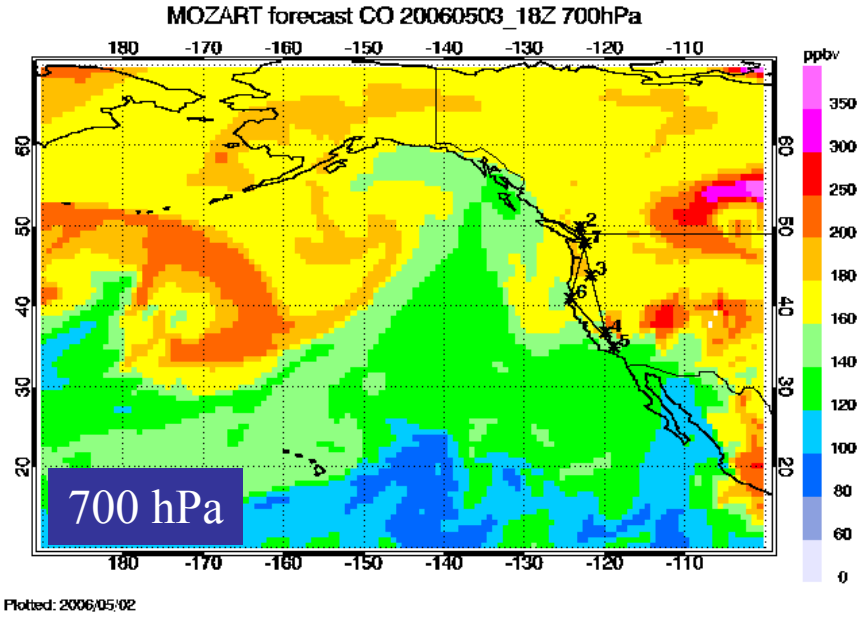


CO Forecast valid for 05/03 18Z

Total CO

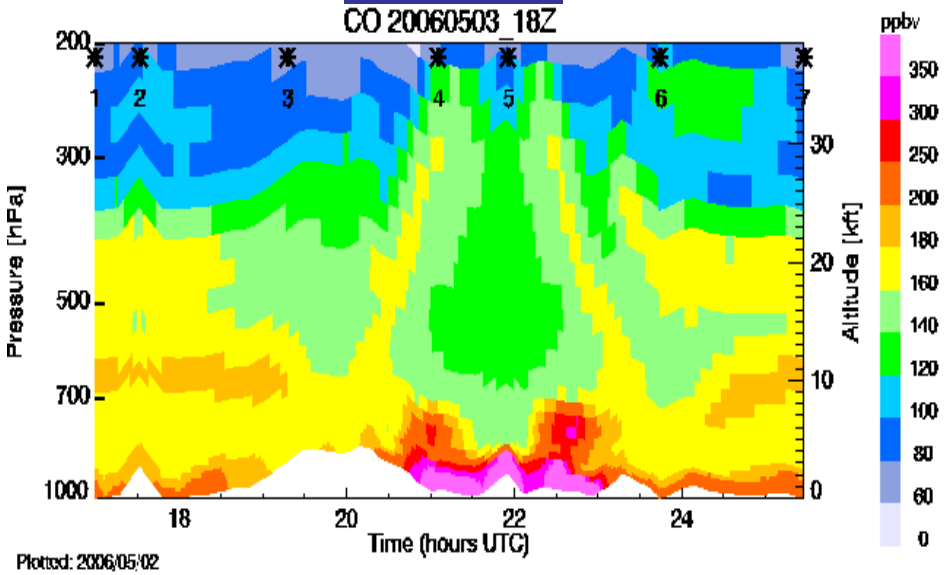




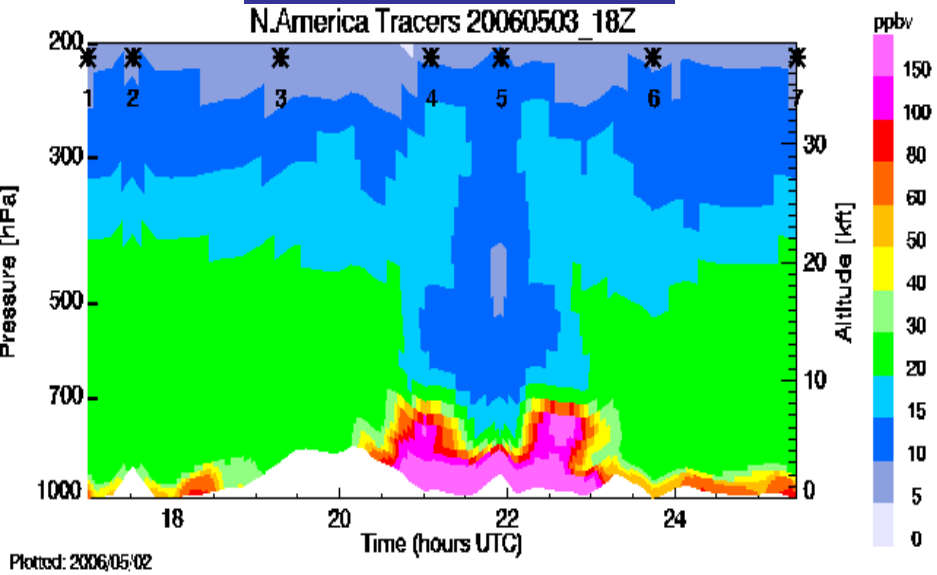


CO Forecast valid for 05/03 18Z

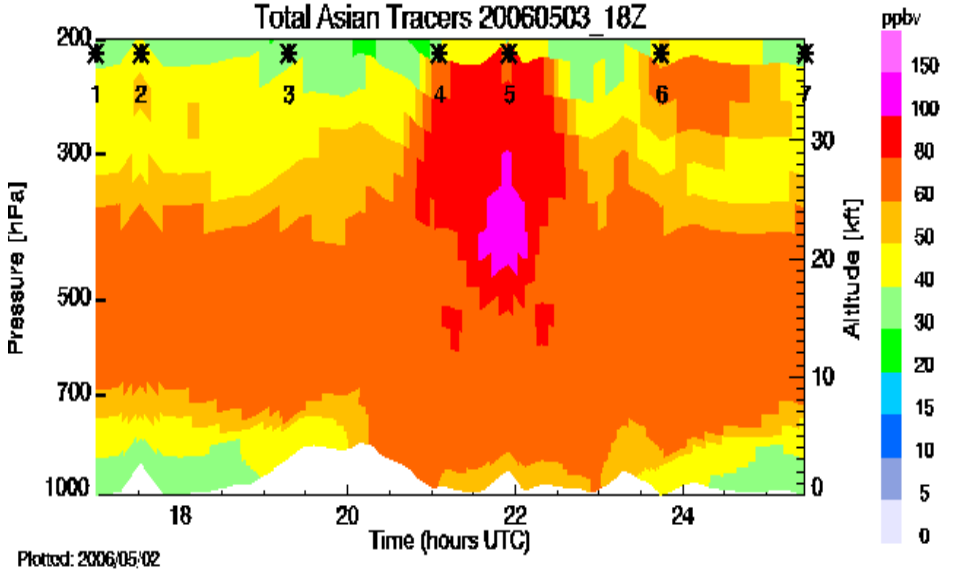
Total CO



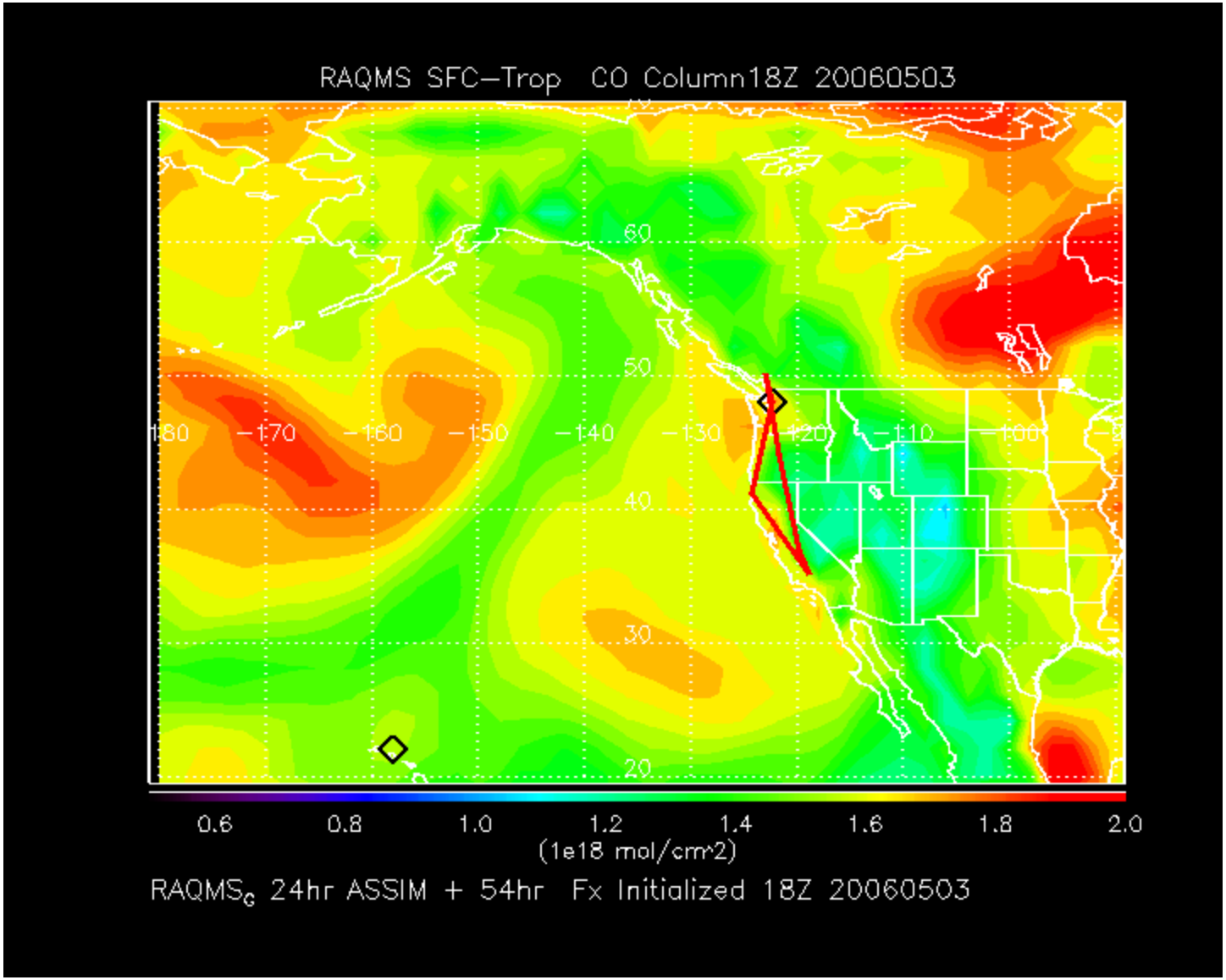
North American CO



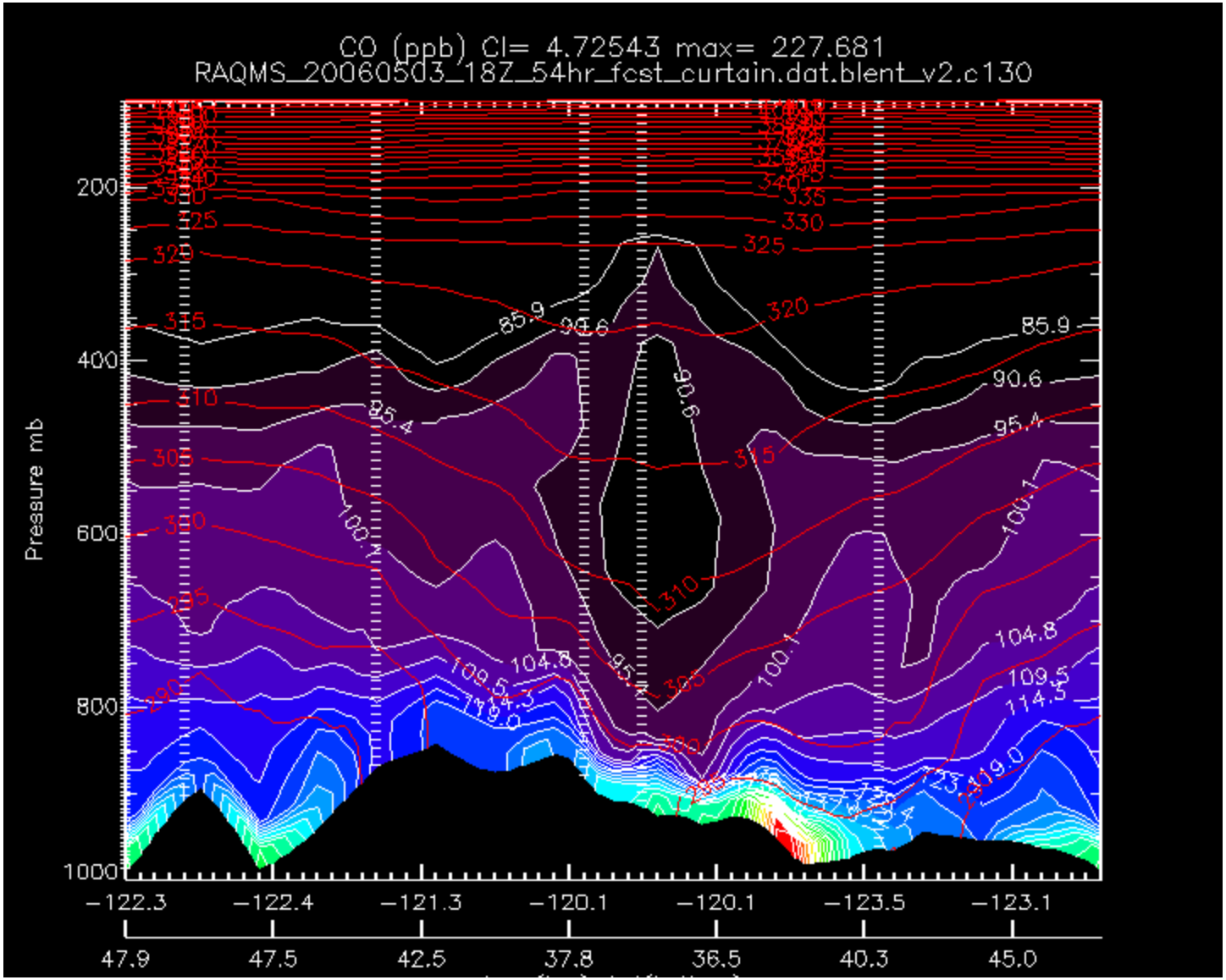
Total Asian CO



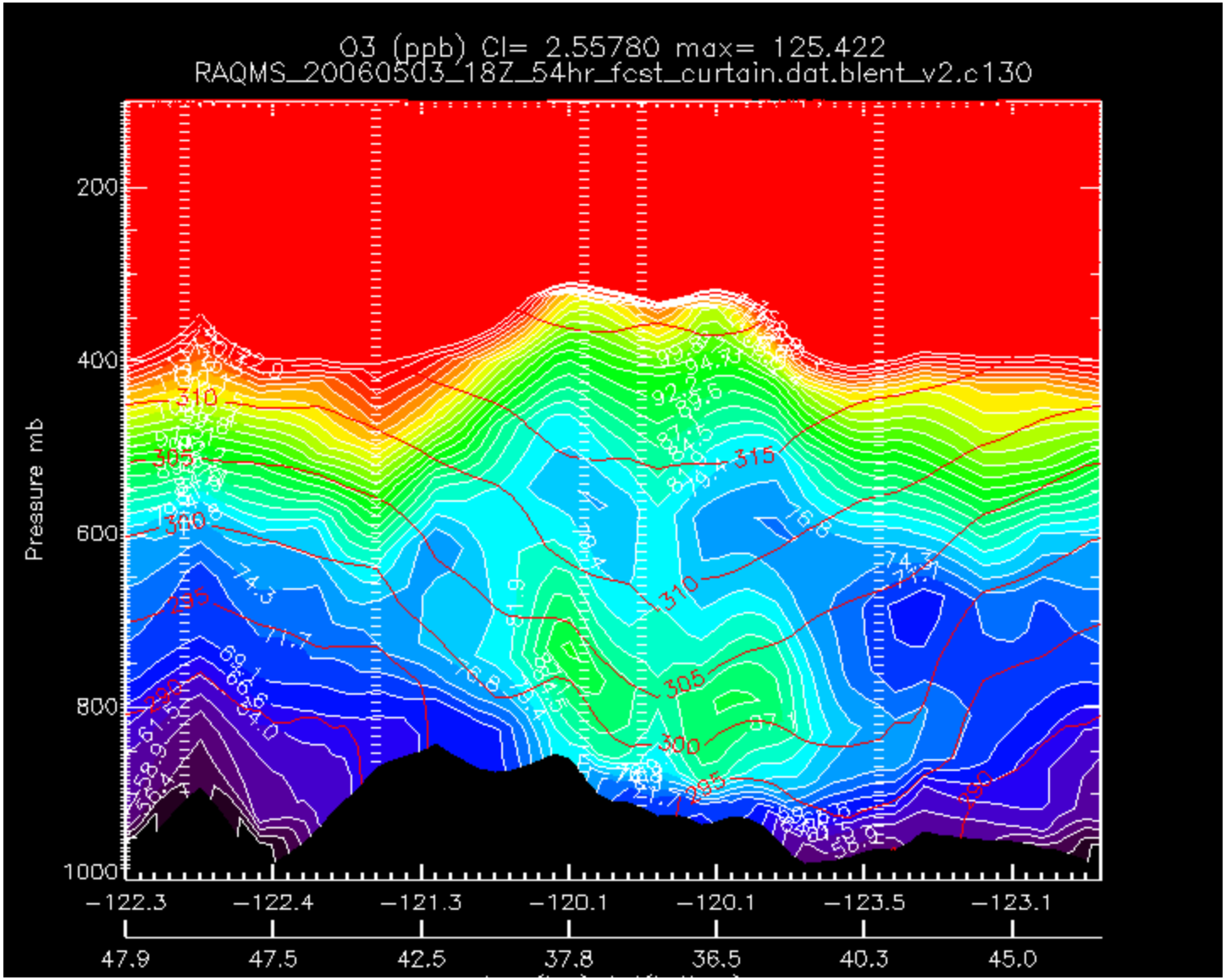
RAQMS 54hr CO Column FX Valid 18Z 05/03/06



RAQMS 54hr CO FX Valid 18Z 05/03/06



RAQMS 54hr O3 FX Valid 18Z 05/03/06

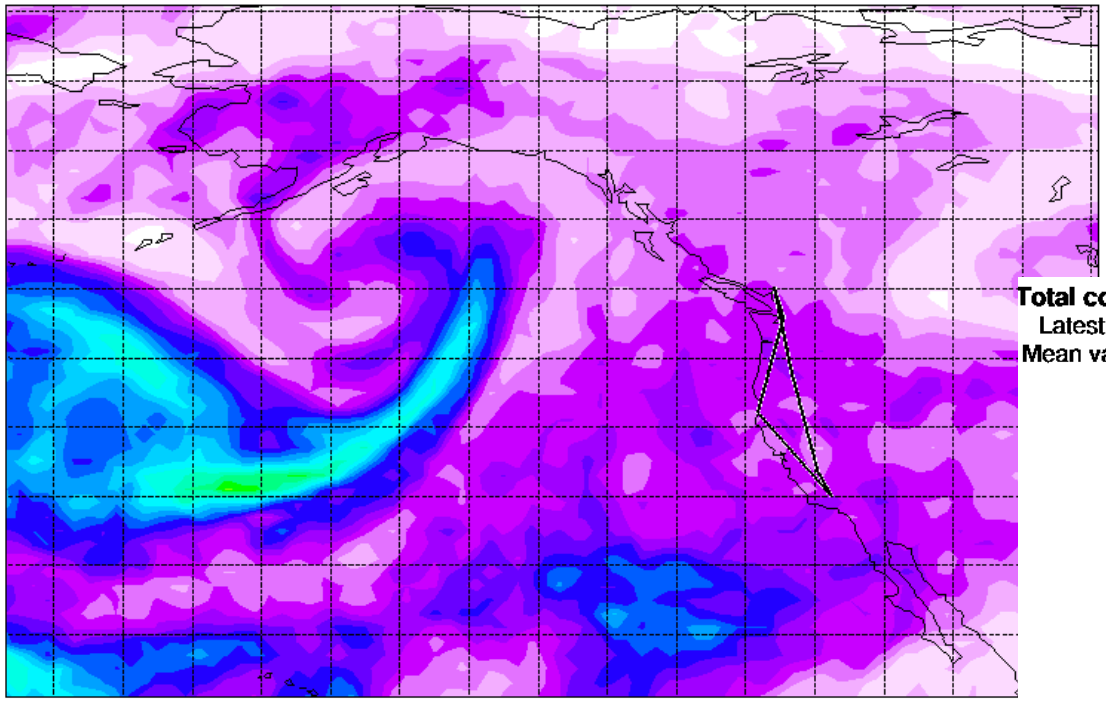


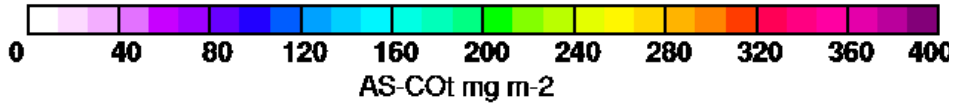
Total column of species AS-COt for age class 0 - 20.00 DAYS

Latest analysis time 20060502. 60000 Actual time 20060503.210000

Mean value 0.416E+02 Maximum value 0.779E+03 Minimum value 0.000E+00

Distance of grid lines 5.0 deg



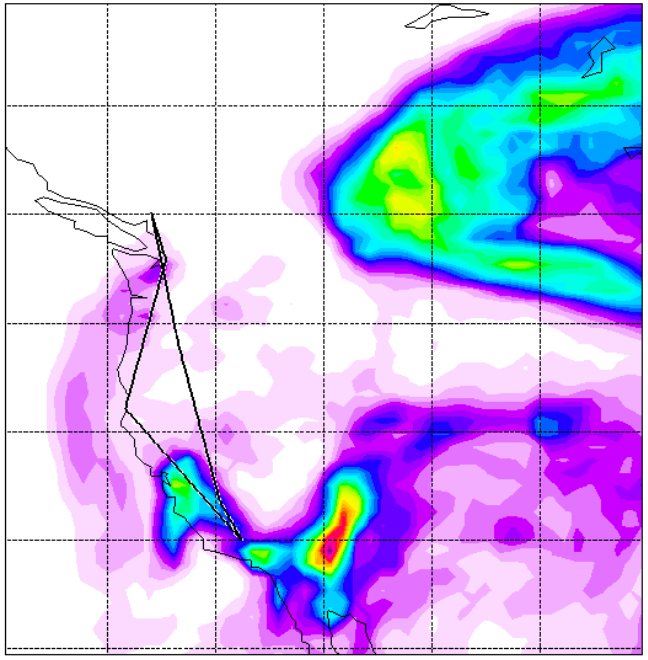


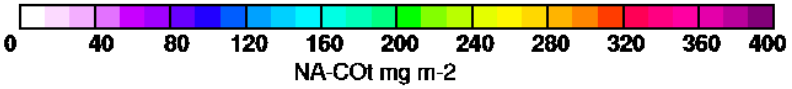
Total column of species NA-COt for age class 0 - 20.00 DAYS

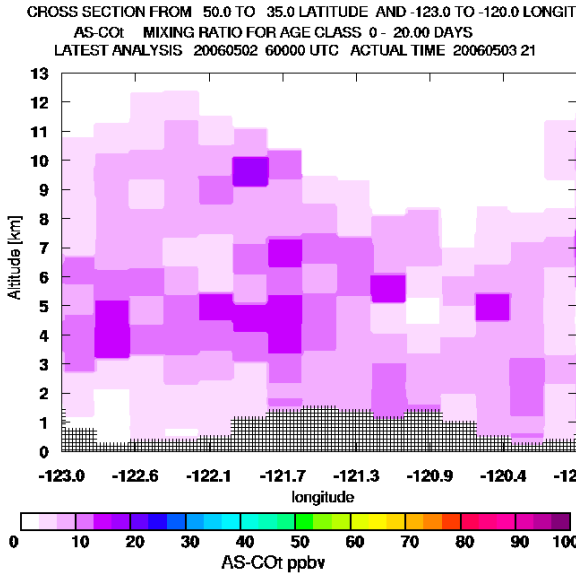
Latest analysis time 20060502. 60000 Actual time 20060503.210000

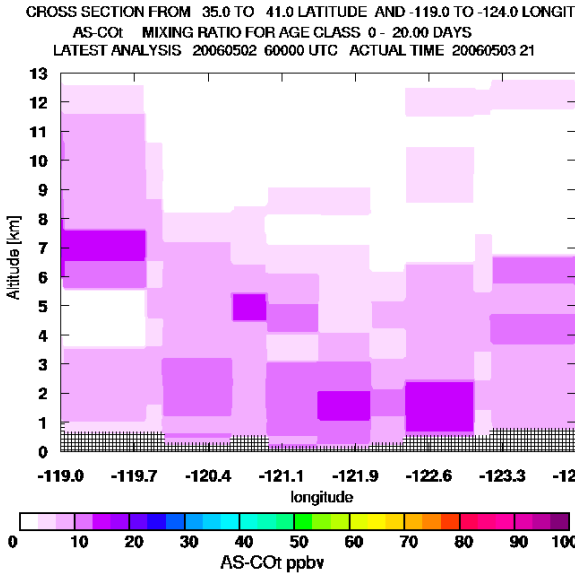
Mean value 0.416E+02 Maximum value 0.711E+03 Minimum value 0.000E+00

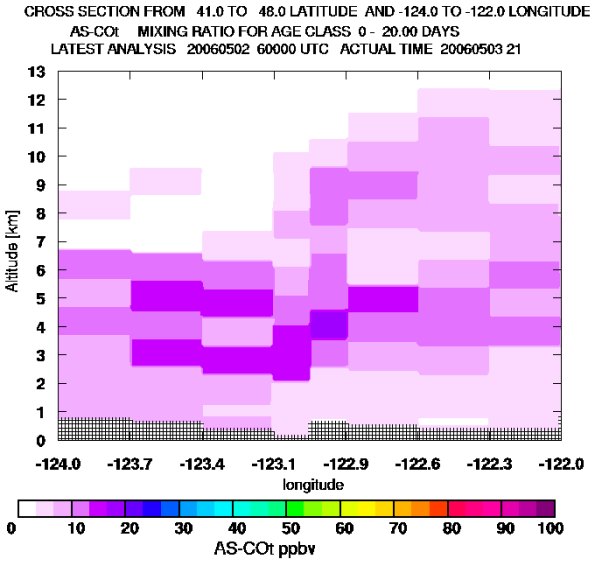
Distance of grid lines 5.0 deg






CROSS SECTION FROM 50.0 TO 35.0 LATITUDE AND -123.0 TO -120.0 LONGIT
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060502 60000 UTC ACTUAL TIME 20060503 21
Altitude [km]
longitude
AS-COt ppbv


CROSS SECTION FROM 35.0 TO 41.0 LATITUDE AND -119.0 TO -124.0 LONGIT
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060502 60000 UTC ACTUAL TIME 20060503 21
Altitude [km]
longitude
AS-COt ppbv


CROSS SECTION FROM 41.0 TO 48.0 LATITUDE AND -124.0 TO -122.0 LONGITUDE
AS-COt MIXING RATIO FOR AGE CLASS 0 - 20.00 DAYS
LATEST ANALYSIS 20060502 60000 UTC ACTUAL TIME 20060503 21
Altitude [km]
longitude
AS-COt ppbv