

C-130 IMPEX / INTEX-B Flight summary

date: 08 May 2006 (20060508)

flight number: 9

Take-off: 16:07:50 GMT

Landing: 00:21:04 GMT

Objectives:

- do two fly-by comparisons with Mt. Bachelor at different times of the day
- sample Sacramento pollution within the regional context
- Sample Asian pollution over land and ocean
- learn the models' predictive capabilities for Asian plumes
- OMI / SCIAMACHY validation – near nadir position
- fly the same track through the Central Valley and out over the ocean to look for diurnal changes

Instrument status:

All instruments, except SABL and a few channels in 4-channel CIMS, were operating.

Flight summary.

The C130 flight went as planned.

On the way south, narrow pollution plumes were encountered between 9 and 16 kft. CO exceeded 200 ppbv, whereas background air had about 130 ppbv; NO_y, CN, particle scattering, and other pollutants were also increased.

The Mt. Bachelor fly-by was well executed by Henry and Bob, the pilots.

During the first low-level run at 1500 ft. down the Central Valley, CO was typically 150 ppbv, while NO_y and PAN increased during the flight south toward west of Sacramento. The spiral up near Sacramento was timed to coincide with the SCIAMACHY overpass. Pollution layers were encountered at 7.7-9.5 and 11.0-11.5 kft.

On the legs going west-east over the land and ocean, persistent layers were observed at altitudes of 5.5-9.5 kft and 16-21 kft. These layers became less solid over the ocean; the lower layer seemed to fall apart out over the ocean.

On the return, the second spiral, in the same position as the first, coincided with the OMI overpass. During the spiral, pollution layers and a dust layer were sampled. There was evidence of new particle formation as well.

During the second low-level run at 1500 ft back up the Central Valley, constituents like CO, NO_y were about the same as on the first low-level run. However, O₃, which had been ~50 ppbv on the first run, was now 70-75 ppbv. It will be interesting to see if the models can duplicate this O₃ increase.

The air on the northern part of the returning track had become cleaner than when we left in the morning.

Overall summary. Most objectives were met. Sacramento's pollution was not sampled because the flight track was to the west and the winds were from the west. However, the polluted agricultural lands were sampled at two different times of day.