

Squawk List for flight 1906,
flown on Saturday, 22 December 2001,
IMPROVE II CV-580 flight 16.
Second of two flights on this day

Instruments not mentioned as having a problem are believed to have worked satisfactorily.

OVERALL LOOK-WEATHER

This flight took place as a warm front and associated rainband continued to move northward over Oregon State and across the northern Cascades. The band appeared to strengthen while the CV-580 was on the ground in U-gene.

The cloud system was mainly glaciated, as before, though very isolated patches of low liquid water content in the form of altocumulus clouds or stratocumulus clouds encountered. One such patch was encountered while passing over the Cascades enroute to the band. Droplet concentrations were again low, $<100 \text{ cm}^{-3}$.

Some brief heavy snow was encountered near the frontal band (evidence by a 3,000 foot thick nearly isothermal layer between 11,000 and 14,000 feet sampled near the end of the flight.) The heavy snow was in the form of extremely large flakes perhaps 1-2 inches in diameter.

A "missed" approach was performed at the Troutdale Airport to obtain a wind profile in the Columbia Gorge. Thereafter, the aircraft ascended through a thick patch of stratocumulus clouds and extremely high ice particle concentrations. Tops were around -10° C or warmer. More shallow Sc with ice multiplication in process were encountered during the descent into Puget Sound. These latter clouds looked exactly like those sampled in Barrow on flight 1759 and discussed by Rangno and Hobbs (2001, JGR).

OVERALL LOOK-INSTRUMENTATION

The CPI was not installed but back on the bench.
The hot wire probes did not work.

1. AIRCRAFT PARAMETERS

2. STATE PARAMETERS

Cambridge chilled mirror dewpoint (dp): Most reliable of the dewpoint measurements, though it was somewhat higher than the ambient static temperature for much of the flight when precipitation

and droplet clouds were present. Also, large amplitude heating-cooling cycles returned and persisted through most of the first half of the flight. It appeared to perform well in drier conditions.

Ophir dewpoint (dp_o): Higher than the ambient temperature for much of the flight. Not considered reliable in moist conditions at present. The cause is unknown at this time.

Rosemount analog pressure transducer (pstat): Continues to exhibit spurious changes in pressure of up to several mb in per second.

3. Cloud Microstructure Probes

DMT Hot wire device: Did not work; no response whatever to cloud penetrations.

JW Hot wire device: Power was shutoff to the J-W to eradicate the noise spikes generated by the J-W system that also affected several other parameters.

PMS 1-D cloud probe: The data need to be examined very closely to see if they are OK. However, 1-DC concentrations were clearly well-correlated with the 2-DC concentrations (just available as of 12-26-01) giving new hope that the spectra may be OK after all.

SPEC CPI: Not installed.

HVPS: Brief outages.

4. AEROSOLS

Not QC-ed.