

Revised Squawk List for flight 1898,
Second flight flown on Saturday, 8 December 2001,
IMPROVE II CV-580 flight 8.

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

OVERALL LOOK-WEATHER

This flight began as probably the same postfrontal cold front precipitation band that had been sampled over and offshore of the coast was now passing over the Oregon Cascade mountains. Good microphysical data, sans CPI, were obtained in this system. The microstructure from about 19,000 ft to the MVA altitudes varied little, consisting mainly of unrimed or lightly rimed ice particles. The particles were somewhat larger in the core of the band that also had the highest cloud tops (sufficient to obscure stars). Only small amounts of liquid water were intercepted, probably due to the weak upslope flow present. The flow was also from the northwest at low levels west of the Cascades.

A apparent convergence zone cluster of enhanced stratocumulus clouds with light to moderate turbulence was encountered in the Puget Sound region prior to landing. Once again, much higher droplet concentrations were encountered these clouds than had been observed in the boundary layer clouds of Oregon.

OVERALL LOOK-INSTRUMENTATION

CPI was being repaired on the ground.
Hot wire LWCs did not work

1. AIRCRAFT PARAMETERS

No problems noted.

2. STATE PARAMETERS

Rosemount static temperature (tstat): Noise spikes affect data and then suddenly they quit after 0114 UTC, the time that Tom believes he shutdown the J-w because it was drawing excessive current. Due to this incident, we now believe we have the culprit for the noise spikes in several parameters that began with flight 1890.

Reverse Flow Temperature: Still believed to be our most accurate temperature measurement since KWAJEX. Impacted by a few of the usual minor noise spikes up to about 0114 UTC; "clean" thereafter.

Cambridge chilled mirror dewpoint (dp): High amplitude heating-cooling cycles were few on this flight for unknown reasons and the trace largely “quiet” from these disturbances.

Ophir dewpoint (dp_o): Occasional cyclic noise that changed in amplitude and period during the flight. Spurious dewpoint values were indicated at times when the actual ambient dewpoint (measured by “dp”) went below about -25°C ; the Ophir began to “peg” at values below -50°C . This occurred during a dry slot between cloud layers during the return leg to Paine Field.

Rosemount analog pressure transducer (pstat): Continues to exhibit spurious changes in pressure of up to several mb in per second. No noise spikes were evident.

3. Cloud Microstructure Probes

DMT Hot wire device: Did not work and had numerous noise spikes until the J-W was shutdown by Tom. Thereafter, there were no noise spikes.

JW Hot wire device: Did not work and had numerous noise spikes until Tom shut it down due to an excessive current draw (>25 amps) at 0114 UTC.

PMS 1-D cloud probe: Counts in clear air compromise in-cloud data since the spectra look similar. Seems to be the same problem that we have been having. I don’t believe now that the 1-DC probe has worked properly now since it was moved from the right to left wing and interchanged positions with the FSSP-300 even in spite of some spectra that on the surface appeared to be satisfactory. It may all really be junk. I’ll look back into some former projects where it worked and provide a definitive answer to this when time allows since the coverage of this size range is also covered to a large extent by the 2-DC data.

SPEC CPI: Not installed, being repaired in conjunction with SPEC by Charlie Black.
Progress was made, but it was not yet fixed.

4. AEROSOLS

Not QC-ed.