Squawk List for flight 1892,
Flown on Wednesday, 28 November 2001,
Pre-IMPROVE II CV-580 flight 2.

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

OVERALL LOOK-WEATHER

This was a ferry flight from EUG to PAE in post-frontal conditions consisting of numerous stratiform regions from dissipating maritime cumulonimbus clouds and their stratiform ice regions. Some liquid water was also intercepted.

OVERALL LOOK-INSTRUMENTATION

Numerous noise spikes in the two temperature parameters and in pstat. The Rosemount temperature is the most impacted.

The CPI worked intermittently as did the HVPS leaving gaps in key data. Details of exactly when these instruments experienced outages is not yet known. It was suggested by SPEC that we check the seating of the bridge card between the two ITI cards inside the computer. This was done post-flight 1892.

1. AIRCRAFT PARAMETERS

No problems noted.

2. STATE PARAMETERS

Rosemount static temperature (tstat): Numerous noise spikes are present in the data that affect from one to several seconds at a time. These must be excised from the data. Tstat tracked the tstatr values well and were very close though a difference (Rosemount lower than the tstatr by 1-5 C) has now been noted using the correction factors developed from the rawinsonde comparison. An investigation of this problem is underway.

Reverse Flow Temperature: Also impacted simultaneously by noise spikes but they are of a lesser magnitude (a few degrees or less in amplitude) than those in tstat.

Ophir dewpoint (dp_o): Occasional cyclic noise that changed in amplitude and period during the flight. Occasional noise spikes. Will

be cleaned post-flight. May have been associated in some way with excessive icing observed.

Cambridge chilled mirror dewpoint (dp): Amplitude and period of heating cooling cycles changed during flight from not evident to more than 10˚ C in maximum amplitude. Also was briefly higher than the ambient temperature on the ferry leg to the research site. Will be cleaned post-flight. Some problems may have been associated with the excessive ice accumulated on this flight.

Rosemount analog pressure transducer (pstat): Continues to exhibit spurious changes in pressure of up to several mb in per second. These, in turn, can, cause spurious standard pressure altitude changes of up to 30-50 m in one second. Also has been impacted to a larger degree by the same noise spikes seen in tstat. The amplitude of these momentary spikes is larger than those mentioned above.

3. Cloud Microstructure Probes

DMT Hot wire device: Impacted by numerous noise spikes, with momentary indications of having worked in-cloud. Data likely to be of little use.

JW Hot wire device: Responds to LWC but in a perfunctory way producing mainly top-hat appearing LWCs. Data may be of little use except to confirm that LWC is present.

PMS 2-D cloud probe: Long outages in cloud. Tom suggested that this was probably due to the fact that our early version of the 2-D probe is unable (the PMS manual indicates this) to image particles when the true airspeed is >125 m s^{-1}. This hypothesis seemed to be verified when the probe worked well in the research area at true air speeds lower than 125 m s^{-1}.

PMS 1-D cloud probe: Still indicating spurious data in clear air that continues when in-cloud thus compromising any usefulness of this probe so far. Don will align the probe today, but this seems more like a wiring problem than an alignment problem to me. Recall that the 15 channel 1-DC is now installed where the 32 channel FSSP-300 used to be.

SPEC HVPS: Periodic malfunctions noted, details, and cause not known.

SPEC CPI: Was not operated on this ferry flight except for a very brief test period due to the large amounts of spurious data being output and filling up the hard drive.

4. AEROSOLS

Not QC-ed formally yet, but Tom has installed the CCN manufacturer's software that indicates via text in one of the CCN counter windows whether it needs liquid.