

IOP-6 Summary of Operations 13 November 2009, 1500 UTC – 13 November 2009 2100 UTC

Author: Rauber

IOP-6 was intended to be a test of the C-130's coordination capability with the Air Traffic Control (ATC) to release dropsondes along one of the predefined dropsonde tracks, track G. The second goal was to obtain data within ice clouds to provide a dataset from which we could test our analysis programs for the cloud physics data. Dropsonde Track G is located over Wisconsin and Minnesota, as shown in Fig. 1. No ground operations were planned for IOP-6.

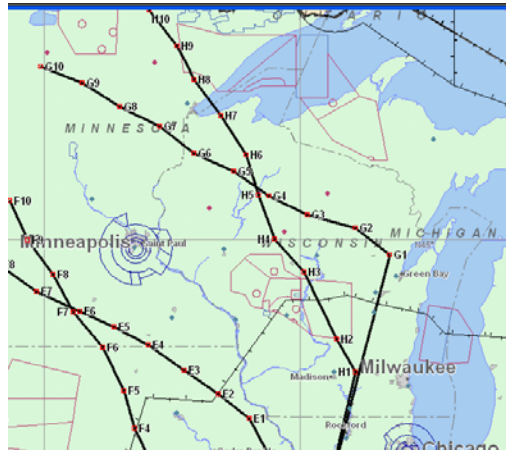


Figure 1: Dropsonde track G over Wisconsin and Minnesota

The weather pattern at the time of the flight appears below. A weak low pressure trough at the surface extended from the southeast corner of Colorado northeastward across Minnesota with a weak cold front along the trough. Ahead of the cold front, a band of showers produced light rain. This band was the target for the IOP.

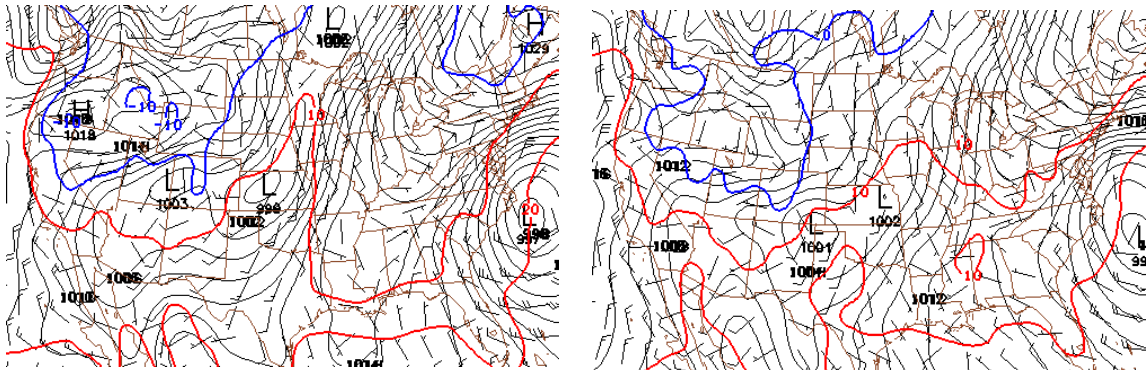


Figure 2
A. 13 Nov 09 1200 UTC Surf Pres/Temp B. 13 Nov 09 0000 UTC Surf Pres/Temp

The satellite and radar data at 1200 UTC are shown on Figures 3 and 4. The band of low level clouds extended northeast from Colorado across Montana. A cirrus shield was present along the jetstream to the east of the band. The dropsonde track crossed the band

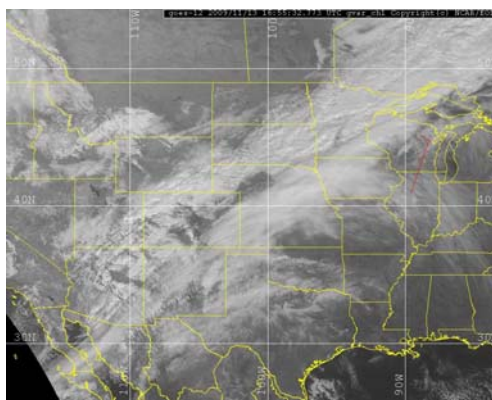


Fig. 3: Nov. 13, 2009 1700 UTC Visible image

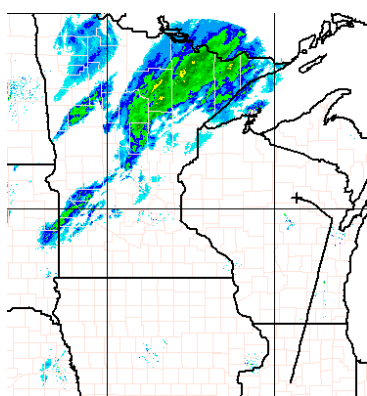


Fig. 4a: 13 Nov 09 1658 UTC

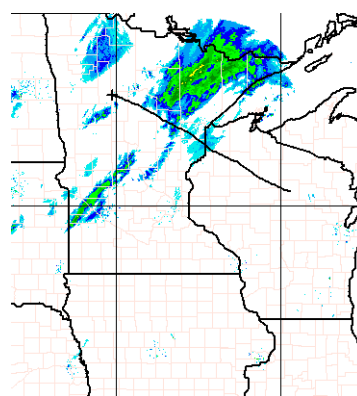


Fig. 4b: 13 Nov 09 1801 UTC

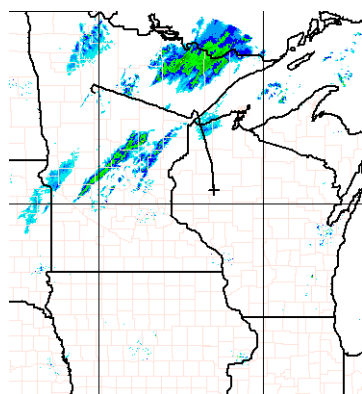
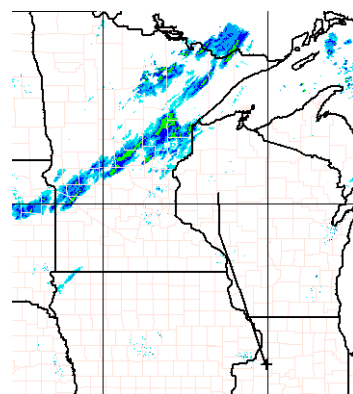


Fig. 4c 13 Nov 09 1900 UTC



13 Nov 09 2000 UTC

Composite radar images of the upper Midwest showing the C-130 flight track.

between Points G5 and G10. The decision was made to drop sondes from points G5 to G10, although the track was flown from G1 to G10. Three of the sondes took data from the aircraft to the ground. Three lost communication with the aircraft shortly after release. There were no problems executing the drops with the ATC but a communication problem was identified between the sondes and the C-130. Sonde data were transmitted to the ground, processed and displayed as Skew-T plots in the PLOWS field catalog. Air-to-ground communications via chat were reliable throughout the flight.

The aircraft turned back to penetrate the clouds and make microphysical measurements. After the first pass, the aircraft developed a problem with the #3 engine and had to shut it down. The aircraft returned to Peoria ending the IOP.