

CR-AVE Flight Summary
7 February 2006
All times given in CST

General Information

Flight date – 7 February 2006

Flight description – Flight 11 CR-AVE *In Situ* Payload Data Flight (14th flight)

Flight duration - 4.5 hours

Crew – Bill Rieke, John Bain

Instruments flown (25): 2DS, ACAM, ALIAS, Argus, CAFS, CAPS, CIMS, CO₂, CPI, CSI, FCAS, Frostpoint, ICOS, JLH, MACS, MMS, MTP, NMASS, Ozone, PALMS, PANTHER, PT, Scanning-HIS, WAS, Water Vapor

Flight Log

Engine Start	9:46 am	Takeoff	10:05 am	Approach	2:25 pm
Data Rec On	9:58 am	Begin Descent	2:02 pm	Landing	2:33 pm

Gear extensions/retractions

Gear Up	10:05 am	2:28 pm				
Gear Down	2:25 pm	2:30 pm				

Weather Observations

Climb-Out

- The sky was very clear on climb-out, with cumulus clouds on the other side of the mountains.
- 10:15 am – We observed and photographed Kelvin-Helmholtz instability clouds. Took more photos at 10:31 am. The first photos were taken in the climb (25 to 37 kft), and the last two were taken at 48 kft.
- The CAPS display had 5 to 10% hits at 25 kft, but almost none as we climbed higher.

Cruise

- 10:39 am – There was a lot of blow-off cirrus below, but no high subvisible layers were seen. Took five photos.
- 10:40 am – We reached 54 kft, and began hunting for cirrus. We made multiple shallow ascents and descents between 54 and 57 kft. The CAPS display was active, with random hits from very few to a maximum of 10%. No pattern could be identified, so we porpoised between 54 and 57 kft to the southern end of the flight.
- 10:48 am – Took four photos of a big thunderstorm on the right of the aircraft.
- 10:52 am – Took seven photos of a subvisible layer in the distance. By 10:58 am, the layer had faded away. No CAPS display pattern could be correlated to this observation. The display showed less than 5% hits throughout the time that the layer was in view.
- 11:05 am – Took three photos of a large blow-off layer below us on the right side of the aircraft. We were at 55 kft, and the CAPS display was showing about 5% hits. At 11:09 am, took two more photos.
- 11:55 am – We began the descent to 35 kft while continuing south. We then made the turn back north, about 30 miles short of waypoint 4. We reached 35 kft at 12:04 pm, and headed north.
- 12:05 pm – Performed MMS maneuvers (yaw, then pitch) at 35 kft.
- 12:08 pm – Initiated the climb. We reached 60 kft at 12:43 pm.
- 12:45 pm – Took three photos of a large blow-off below on the left.
- 1:00 pm – Took six photos of a very large blow-off cloud as we passed over it. The cloud tailed off as it extended east of us (right side of aircraft), and an interesting zigzag indicated an air current moving part of the cloud to the north.
- 1:35 pm – We reached 65 kft on the leg back.
- 1:41 pm – We began our descent to reach the desired contrail altitude (57 kft). The sky was exceptionally clear to the surface, with scattered clouds near the ground. We turn at 1:46 pm and ran downwind for five minutes, and then turned to intercept our contrail. We were making a contrail, but it was not persistent, so we were unable to intercept it. We flew the reciprocal path, but the CAPS display was showing less than 5%, indicating that we did not find the contrail remains.
- 1:58 pm – Took three photos of Kelvin-Helmholtz instability clouds.

Descent

- 2:02 pm – We began the spiral descent over the airfield. During the descent, we were conning, but it was not a persistent contrail.
- The CAPS display showed 30% hits when we reached about 33 kft during the spiral. A thin cirrus layer appeared to be at this level.
- The CAPS display showed 90% hits between 24 and 22 kft. As we were making the final descent below 10 kft, the CAPS display again showed high activity.

Instrument Notes

- There were no instrument fail lights during the flight.