

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

General Information

Flight date – 6 February 2006

Flight description – Flight 10 CR-AVE *In Situ* Payload Data Flight (13th flight)

Flight duration – 5.0 hours

Crew – Scott Reagan, Joe Gerky

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	10:07 am	Takeoff	10:24 am	Approach	3:10 pm
Data Rec On	10:13 am	Begin Descent	2:22 pm	Landing	3:24 pm

Gear extensions/retractions

Gear Up	10:24 am					
Gear Down	2:55 pm					

Weather Observations

Climb-Out

- 10:30 am – The sky was scattered on climb-out, with numerous cumulus clouds on the other side of the mountains and in the distance to the south. The CAPS display indicated about 50% readings at 30 kft.
- 10:52 am – Penetrated some visible clouds at 40 kft. Switched PALM Cloud switch on for 4 minutes. The cloud ceiling was about 45 kft.

Cruise

- During the cruise south, I noticed that I could not detect the high layer of cirrus that had been visible for all of our earlier flights. There were no indications of subvisible readings on the CAPS display above 45 kft. The CAPS display froze at 11:55 am, 150 miles short of waypoint 4.
- The sky was very clear up high, although there were numerous cloud formations below us. I took several pictures of the different formations..

Descent

- 3:00 pm – On final approach to the San Jose Airport, we penetrated clouds from 16.5 kft down to 14.6 kft. The PALMS Cloud switch was turned on for 2 minutes.

Flight Profile

- We climbed on our southern heading, reaching 45 kft at 10:44 am.
- 11:47 am – Performed the MMS yaw maneuver (4 cycles), followed by the MMS pitch maneuver (4 cycles).
- 11:55 am – The CAPS fail light illuminated and the display quit cycling (45 kft). Numerous attempts were made to recover the CAPS display, with no success.
- 12:22 pm – Reached the southern point, turned north, and ascended to 57 kft.
- 12:48 pm – Began the climb from 57 kft to 59 kft, trying to sample subvisible cirrus without the CAPS display.
- 1:02 pm – After flying downwind for several minutes, we began the teardrop turn at 58 kft to intercept our contrail. We intercepted our contrail numerous times. The PALMS Priority switch was on from 1:05 pm – 1:11 pm, 1:12 pm – 1:15 pm, 1:20 pm – 1:24 pm, and 1:25 pm – 1:27 pm.
- 1:30 pm – We began the zoom maneuver, reaching 62.5 kft at 2:07 pm.
- 2:23 pm – We spiraled down to 57 kft over MROC.
- 2:33 pm – After flying into the wind for 10 minutes, we performed a teardrop turn to sample our contrail again. The PALMS Priority switch was on from 2:33 pm – 2:34 pm, and 2:38 pm – 2:43 pm.
- 2:44 pm – Continued the spiral descent over the field.
- 2:45 pm – Lowered the gear.

Instrument Notes

CAPS

- The CAPS fail light illuminated at 11:45 am, and the CAPS display stopped cycling.
- The CAPS fail sequence was attempted 14 times, with no success.
- The Backseater mistakenly left the CAPS operate switch off after the last attempt, rather than leaving it on to ensure that heater power was available.

CPI

- The CPI fail light illuminated numerous times, then recovered without any action. Fail times were 12:55 pm, 1:12 pm, 1:45 pm, 2:25 pm, 2:31 pm, 2:36 pm, and 3:05 pm.