

TC⁴ DC-8 Science Flight

31 July 2007

All times given in UT

General Information

Flight date – 31 July 2007

Flight description – Sampling of fresh cirrus; coordinated flight with ER2

Flight duration – 7.6 hours

Instruments operating: 2DS, APR-2, AVOCET, CAFS, CIMS, CPI, CVI, DACOM, DIAL, DLH, FastOz, LARGE, LASE, MMS, NO, PALMS, PIP, REVEAL, RICE, SAGA, SSFR, TD-LIF, WAS

Flight Log

Takeoff: 0640 CST/ 1240 UTC

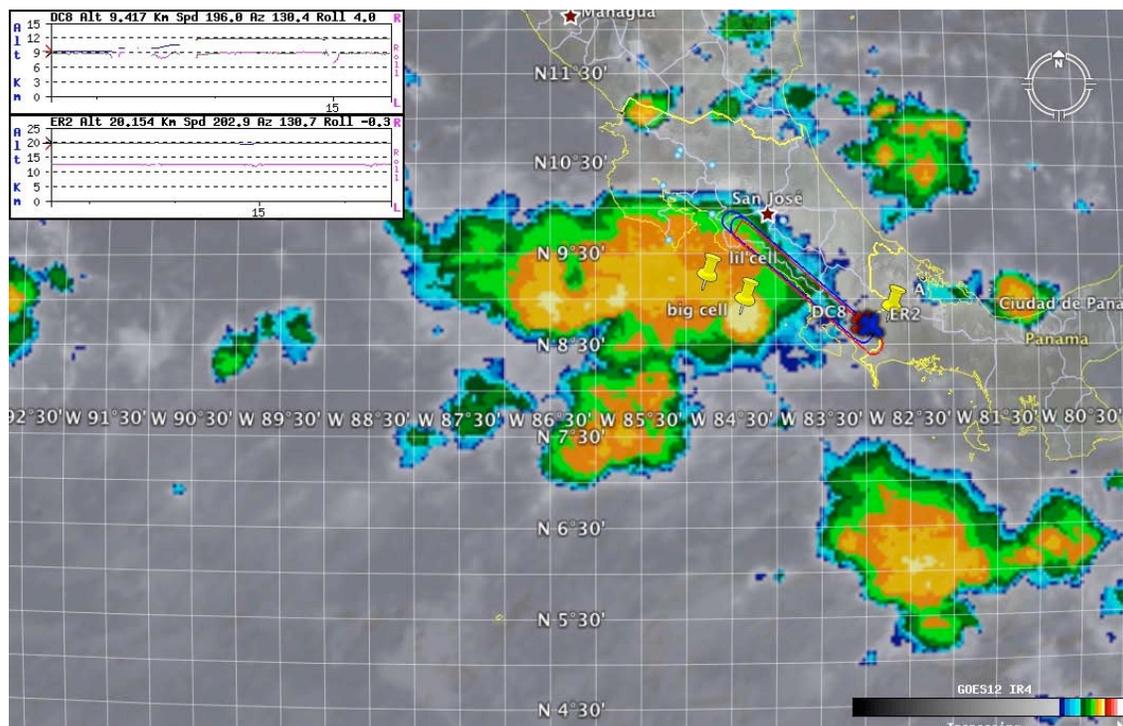
Landing: 1415 CST / 2015 UTC

Weather Observations

Heavy cirrus over SJO and to the west; clear and dry to the south of SJO.

Flight Profile

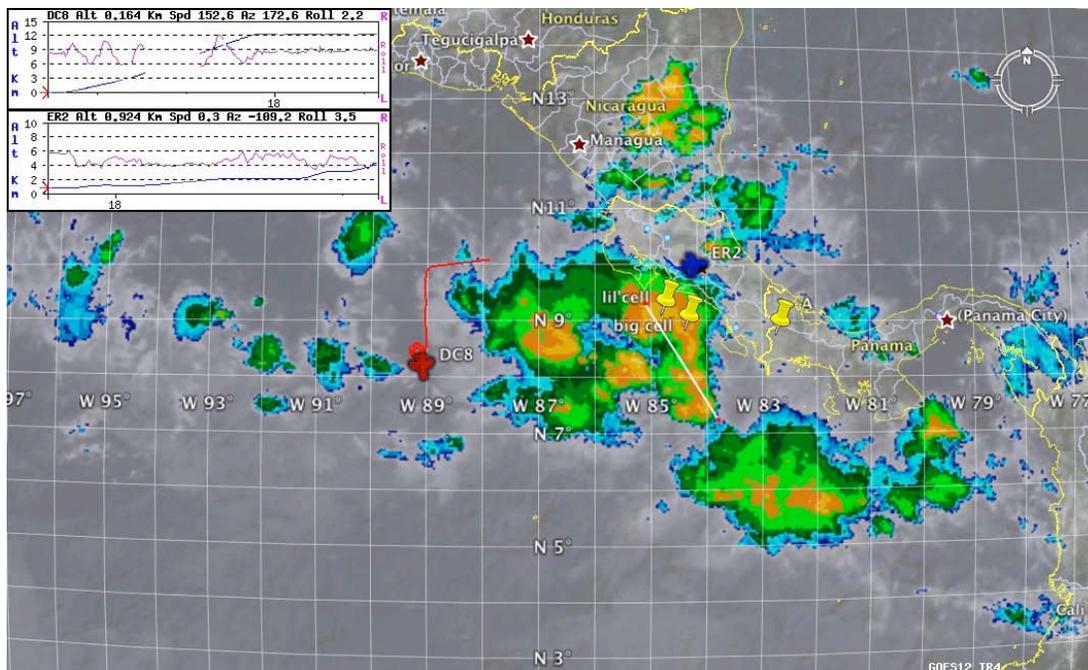
Coordinated flight with ER-2 in cirrus outflow between SJO and southwest Costa Rica. DC-8 sampled multiple layers between 30 and 39 kft.



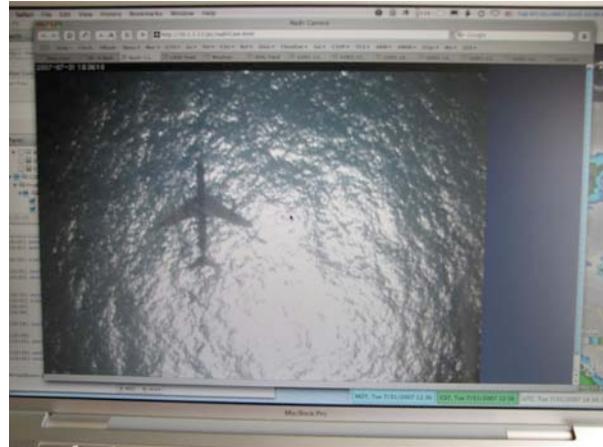
At the south end of the 'race track' (denoted with the pin on the map above), the DC-8 exited the cirrus into mostly clear sky (below).



After the ER-2 landed, the DC-8 obtained samples in the boundary layer in clear air to the west of the convective system we were studying earlier in the flight.



At 500 ft, flying over the ocean to the west of the system we studied (below left). A screen shot of the DC-8 nadir camera shows the shadow of the DC-8 against the ocean waves.



Instrument Notes

- NO instrument failed at start; turned off for rest of flight.
- PALMS did not get data for first 75% of flight due to inlet issues.

Science Notes

- Very successful coordination of ER-2 and DC-8 during sampling of cirrus blown off a large convective system to the west that was largely stationary. Cloud tops above the DC-8 were ~48 kft. Thus, the DC-8 was sampling the falling cirrus particles, not the air that was detraining from the system
- Following cirrus sampling, the DC-8 observed the marine boundary layer to the west. We observed several aerosol layers just above the marine boundary layer.