

Takeoff 183600 UTC Sept 13, land 025700 UTC Sept 14

Platform scientists Liz Ritchie and Ed Zipser. Main objective was to do a pattern centered on the expected center location of a persistent disturbed area of weather in order to investigate tropical cyclogenesis processes (Fig. 1a). This mission was a follow-up on the previous day's mission in order to maintain time-continuous observations. Similar to the previous day's mission, observations indicated that the surface trough feature persisted and not tightened into a complete circulation yet (Fig. 1b). The overriding scientific issue with this system was why it was failing to develop over several days, when all necessary conditions seemed to be present.

In terms of operations, the flight concept was relatively simple. There was no coordination required with either other NASA aircraft or Tri-agency aircraft. The DC-8 flight pattern was a butterfly pattern centered on 16.4°N, 79.5°W. The center of the pattern was updated early during the flight to 16°N, 80.5°W at the request of the Mission Scientists on the ground at FLL.

There was some small amount of deep, organized convection in the system and a few areas of persistent lightning. Figure 2 shows a pass through some organized convection from early in the flight from the APR2, and Fig. 3 shows a second APR2 cross-section through an area of considerable convection, and lightning to the northeast of the developing disturbance that was sampled on the return to FLL (Fig. 1b – circled area). By the end of the mission, the target had evolved into a huge area of disturbed weather extending over 10° of latitude and 14° of longitude (Fig. 1b).

All instruments worked well. Twenty-one dropsondes were released. One dropsonde had a problem with temperatures early on, and will require post-processing to recover the winds. All other dropsondes worked well. Skew-Ts of the dropsondes were created in-flight and were used by the platform scientists to better understand the kinematic structure of the disturbance while they were flying it – an extremely useful tool. On the return to FLL an MMS calibration maneuver was completed.

Figures:

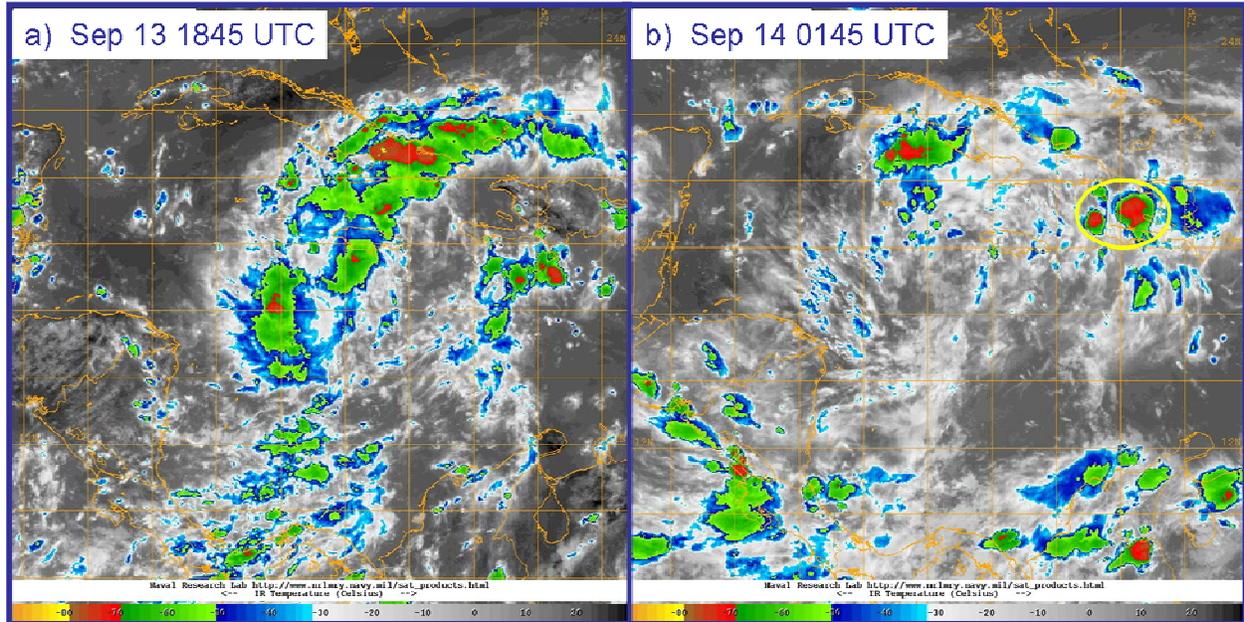


Figure 1: Color-enhanced infrared imagery courtesy of the Naval Research Laboratory (http://www.nrlmry.navy.mil/sat_products.html) for a) September 13 at 1845 UTC; and b) September 14 at 0145 UTC showing the weather disturbance PGI44L flown during this mission. The circled area in b) is the area flown at the end of the mission where static charge built up on the DC8 wings.

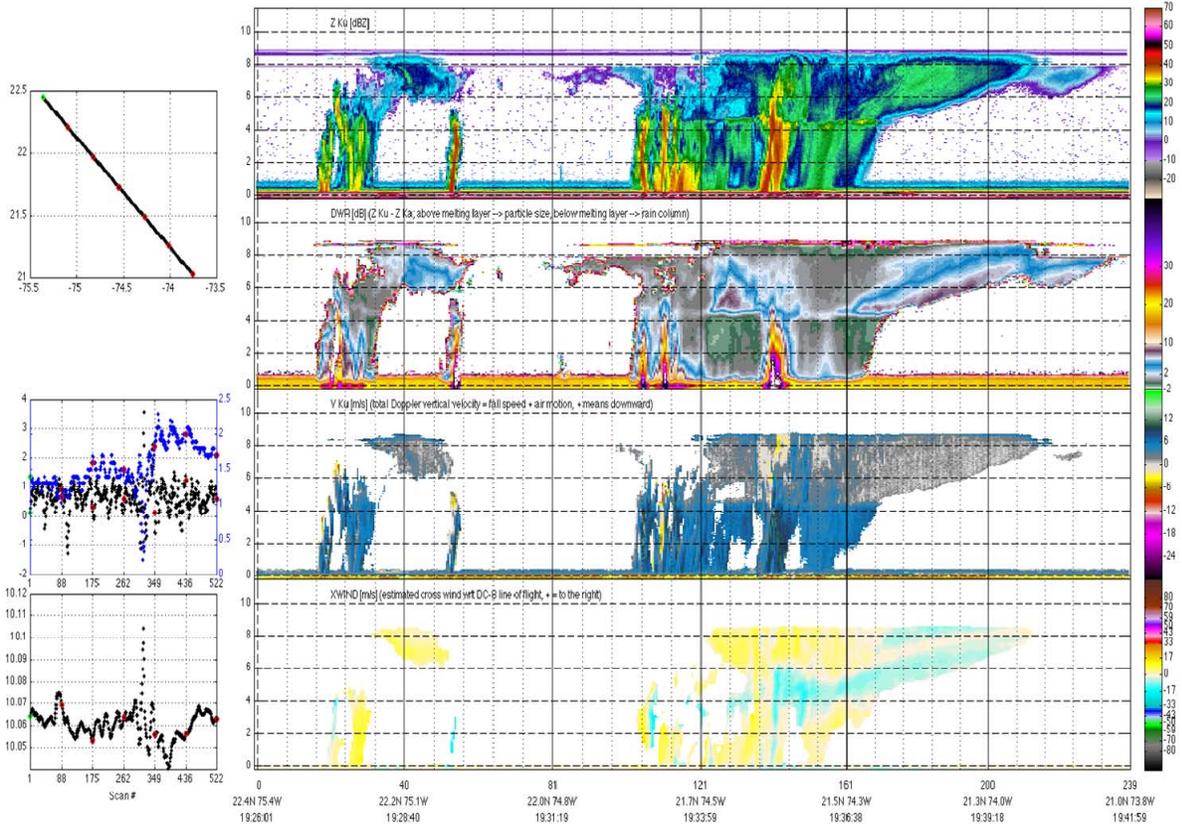


Figure 2: Quicklook cross-section from the APR2 instrument on the DC8 from a pass through some organized convection. Note this image has not been quality controlled.

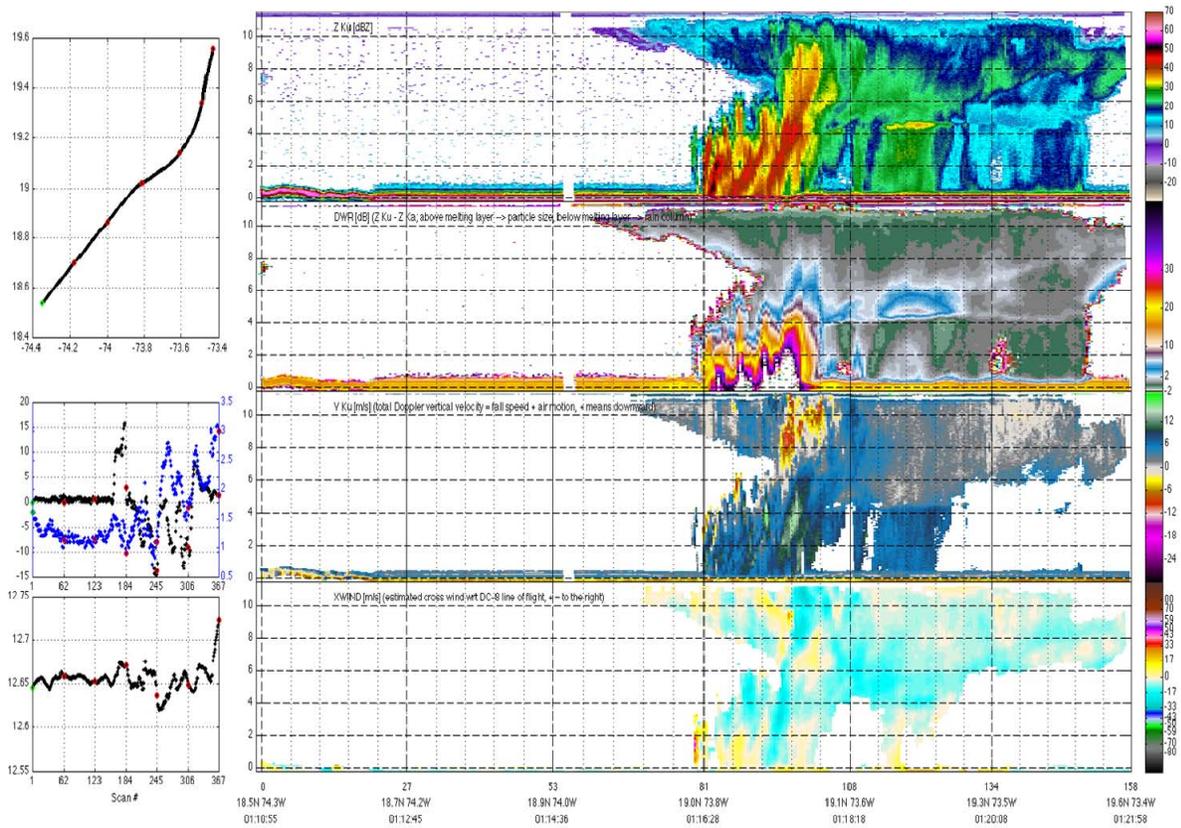


Figure 3: Quicklook cross-section from the APR2 instrument on the DC8 through the convective cell circled in Fig. 1b. Note this image has not been quality controlled.