

11 19980830-NASA-LPS

DC-8 MISSION SCIENTIST REPORT (EJZ)

30 AUGUST 1998

Takeoff 194921 UTC/30 Aug Landing 033617 UTC/31 Aug

*Mission objectives:*

1) Begin by documentation of storm structure in Danielle through execution of two figure-fours to 100 nm radius at 35000'. Coordinate closely with ER-2, more loosely with the NOAA P-3 (NOAA 43) doing the 100 nm radius pattern, and still more loosely with NOAA 42 operating along six radials of 300 nm each.

2) Major objective of mission follows the figure 4's: an 11-pointed sawtooth pattern crossing the (formerly!) clear "inflow" area from the northeast quadrant, through southeast, and around to the southwest side.

3) After completion of (1) and (2) above, the DC-8 leaves the pattern close to Andros Island, does a leg along and just east of Andros, coordinated with the ER-2.

*RESULTS:*

All DC-8 objectives were satisfied. The early departure of the ER-2 and the need to turn off E-DOP was a disappointment, as there was no EDOP data over Danielle, and of course the ER-2 did not go to Andros.

Danielle gradually developed a better-organized inner core structure at DC-8 altitude. Even on the first pass (W-E), there was a circular radar eye (DC-8 radar) of about 40 nm diameter and some noticeable updrafts in the west wall cloud on entry. Throughout the two figure-four patterns, the best convection appeared on the west semicircle, sometimes with light-moderate turbulence. No lightning was observed in the eyewall, although some was later observed in the "clear slot" on the SE side at large radius from more isolated storms. The wind eye was fairly well-marked by 30-40 knot winds at radii of 25-30 nm.

The large sawtooth pattern encountered more clouds than had been anticipated; during the 8-9 hours that elapsed since mission planning the clear area on the east and south sides had filled in considerably. (This could have been flown first, had not the Andros overpass been scheduled for after dark, which constrained the flight planning for the main mission.) Despite the cloud increase, most of the pattern obtained good data, especially at 19000' on the NE side, and at 21000' on the south side. The Andros overpass was made as scheduled, but I do not know whether the cloud conditions were considered suitable.