07/19/02

FC:

Summary: A large-scale anticyclone in the Gulf is controlling the upper-level flow, with 40-knot NE winds at 150 hPa. Weak, low-level flow and movement of mid-level dry air into the region suggest early development of convection on the SE coast followed by more intense mid-afternoon development over the middle of the peninsula and west coast. The local forecast calls for good weather conditions over Boca Chica, allowing recovery of the planes in the late afternoon and early evening.

Aircraft: All

Log:

1657:	Take-off
	Go toward cell at 26 50N 81 53W
1748:	Pass a small cell
1752:	Return leg
	No targets in the area
1805:	Turn radar off for lack of targets
1909:	Turn towards center of FL to work on line
	ELDORA up
	25 40N 80W (G) and 25 30N 80 50W (F)
1945:	Come past Miami and approach to fly line north of Miami
1948:	Storm on radar
	Tops ~ 11km, reflectivity ~ 45dBZ
1959:	Turn around
	Try to extend further to SW
2006:	Get storm again
	Tops ~ 10km, reflectivity ~ 45dBZ
2019:	Can not get straight legs for dual-Doppler analysis
2023:	Turn around again
	Storm not doing very much
2030:	Turn
	Not much on this pass
2036:	Break out to sample nice single cell
2054:	Flying a small cluster of developing cells between east and west ground sites
2118:	Return to base
	No useful data today
2146:	Land

Mission Reports:

Citation: The Citation took off at 1836Z. Cirrus was spotted overhead with non-uniform density. Several E-W legs were flown at altitudes of 25, 27, 29, and 31 kft through thin, patchy cirrus remnants of Atlantic-side convection. Following that, another group of legs was flown from the western ground site to a point 30 miles east at altitudes of 31, 33, and 35 kft, sampling a cirrus deck along the way. They then flew a NE-SW oriented line starting at 35 kft altitude. This line took them into a fresh anvil that they descended through in subsequent legs at 33, 31, and 29 kft. These legs took them to the southeast of some newly forming convection beginning around 2136Z. They stepped down on further legs to 27 and 25 kft, where the lower leg took them through some fallout cirrus. The final part of the flight was a spiral up through the convective deck from 25 kft to about 35 kft. They exited the cloud on the spiral at 33.5 kft, but were back in it by the top of the spiral, noting that the

SW side of the anvil was higher than the NE side. The Citation landed at 2246Z. One notable science achievement of the flight was that ice nuclei measurements were successfully made with the CFDC.

Twin Otter: The Twin Otter made two flights. The first left from Key West at about 1548Z. They flew up near the western ground site and profiled two clouds with fairly low bases (around 3 kft). N-POL characterized these systems as initially having convective tops at 18 to 20 kft that subsequently collapsed below 10 kft. They landed in Naples around 1748Z. The second flight departed Naples around 1901Z and was made at about 11.5 kft altitude, below an anvil layer. They were able to fly a leg through the cloud remnant where the convective turret generating the anvil had been earlier. They returned to base at about 2137Z.

Proteus: The Proteus took off at 1639Z and flew an Aqua overpass along a track parallel to the east coast of Florida under relatively clear skies over the ocean. The overpass time was 1834Z. The track took the Proteus north to the Savannah, GA vicinity, and then they turned around and headed south and then SW over the Florida peninsula, crossing over Lake Okeechobee. Two NE-SW legs were flown over the southwestern peninsula in coordination with the ER-2 and WB-57F flight tracks. The Proteus landed at 2338.

ER-2: The ER-2 took off around 1700Z and flew legs back and forth along a NE-SW oriented line over the western ground site. The eastern end of the leg took them into a cirrus deck in the western Atlantic, where they dropped a sonde at 1811Z. A second sonde was dropped through scattered cumulus on the western end of the track at 1855Z. Three more sondes were dropped over this western point at 2113Z, 2222Z, and 2255Z. They coordinated with a TRMM overpass at about 2013Z, overflying the top of a central-Florida thunderstorm at the time of the overpass. The pilot described the cirrus overflown as an initially small complex dissipating to the west of Miami. He reported later flying over a solid cirrus shield for a couple of hours that thinned by the end of the flight to a non-uniform "blob" of clouds.

WB-57F: The WB-57F flew west of Key West and spiraled up to about 58 kft before proceeding toward Florida and then onto a NE-SW oriented line over the western ground site. The first pass east over Florida was at 58 kft altitude, and the return pass to the west was down at about 48.5 kft (slightly above the tropopause). On the next leg back toward the east, they saw their own contrail, which they flew back through at 47.7 kft before continuing to the eastern point. On the subsequent return west, they still had not seen much in the way of clouds, so they were released from this flight path and went to look for some. They found some convective systems south of this original line, which they orbited several times. At about 2105, they managed to fly directly into an anvil and then through the collapsing generating convective cell and out the other side.

P-3: The P-3 took off at 1657Z. They did not find much for most of the flight, but got into some convective activity near Miami between about 1945Z and 2014Z, flying several legs at 5000 ft, profiling with the ELDORA. They returned to base at 2146Z.

Summary: The plan was to sample some aged anvil outflow from the Atlantic over the continent. Most of this disappeared by around 1800Z. Late-afternoon convection over central Florida and then near the western ground site provided opportunities to study anvil outflow along the west coast. *In situ* measurements from the Citation, Twin Otter, and WB-57F should give some useful profiling of both the anvil outflow and the structure of the convective regions. The Proteus had a successful Aqua overpass flight off the east Florida coast prior to aligning with the other high-flying aircraft for a couple of legs.

Flight Path & Focus: rf08

No Lines