ER-2 Flight Summary

Mission: Mission 10
Flight Scientists: M. King, P. Newman

Sortie: 02-955
Date: Sunday, 28 July 2002
Pilot: K. Broda

Takeoff: 1330 EDT (1730 UTC)
Landing: 1950 EDT (2350 UTC)
Duration: 6:20

Objectives:

The ER-2 took off at 1730 UT (1330 EDT) and proceeded to the first waypoint just east of Andros Island: (A) 24°30'N, 77°W. After arriving at (A), the ER-2 turned NNW towards (B) 27°42'N, 77°45'W and flew 200 nautical miles along this track. This A-B track followed along the Aqua satellite nadir track. Aqua overflew this track at approximately 1427 EDT (1827 UT). The ER-2 was supposed to maintain coordination with the Proteus, but that aircraft was grounded by an engine start motor failure. After arrival at (B), the ER-2 turned SW towards (C) 25°32'N, 79°58'W immediately off the east coast of Florida. The ER-2 then turned westward towards (D) 25°58'N, 82°01'W off of the Florida west coast. At 1843 UT, the ER-2 passed over the eastern ground site and at 1850 passed over the western ground site. After completing another pass over these sites, the ER-2 turned northward and made a pass at a convective system that was building up between the western ground site and Lake Okeechobee (east of Naples). At about 2000 UT, the ER-2 was briefly vectored off of this system to coordinate with the Twin Otter and the Citation on a system that was south of the western ground site over the Gulf. The ER-2 then returned north to continue working the system that was between Lake Okeechobee and the western ground site. The plane landed at 2350 UT. The environmental conditions included extraordinary incursions of CCN of presumably Saharan dust origin.

The 1800 UT sonde showed relatively dry conditions throughout the troposphere with winds predominantly out of the ENE at 25-30 kts.at levels above 200 hPa. The anvils that developed in the late afternoon had cirrus blow-off that roughly followed this flow. The tropopause was located near approximately 150 hPa on this flight at a temperature near –67°C.

Satellite or fixed coordination:

Satellites (relative to eastern site):

Aqua – 1827 UTC, VZA = 26.32°

Western ground site:

PARSL, Everglades National Park, Gulf Coast Visitor's Center
25 50.7 N, 81 23.15 W
Overpasses of Western Site
18:50:24 UT, Min dist.= 0.76 km
19:09:51 UT, Min dist.= 0.92 km
20:11:46 UT, Min dist.= 0.37 km

Eastern ground site:
Kendall-Tamiami Airport
25 39.3 N, 80 25.9 W
Overpasses of Eastern Site
18:43:02 UT, Min dist.= 1.84 km
19:18:21 UT, Min dist.= 2.08 km

Aircraft coordination:

Nominal take off times (local): P-3B (1400), WB-57 (1430), Twin Otter (1430), Citation (1530).

WB-57: In situ sampling along the E-W flight line underneath the ER-2 between 2000 and 2240 UTC, primarily between 13 and 15 km.

Citation: In situ sampling along the E-W flight line underneath the ER-2 between 1950 and 2010 UTC, primarily between 9 and 11 km.

Twin Otter: low altitude sampling of in-flow air along the E-W flight line underneath the ER-2 between 1950 and 2145 UTC, primarily at 1 km.

Summary/highlights:

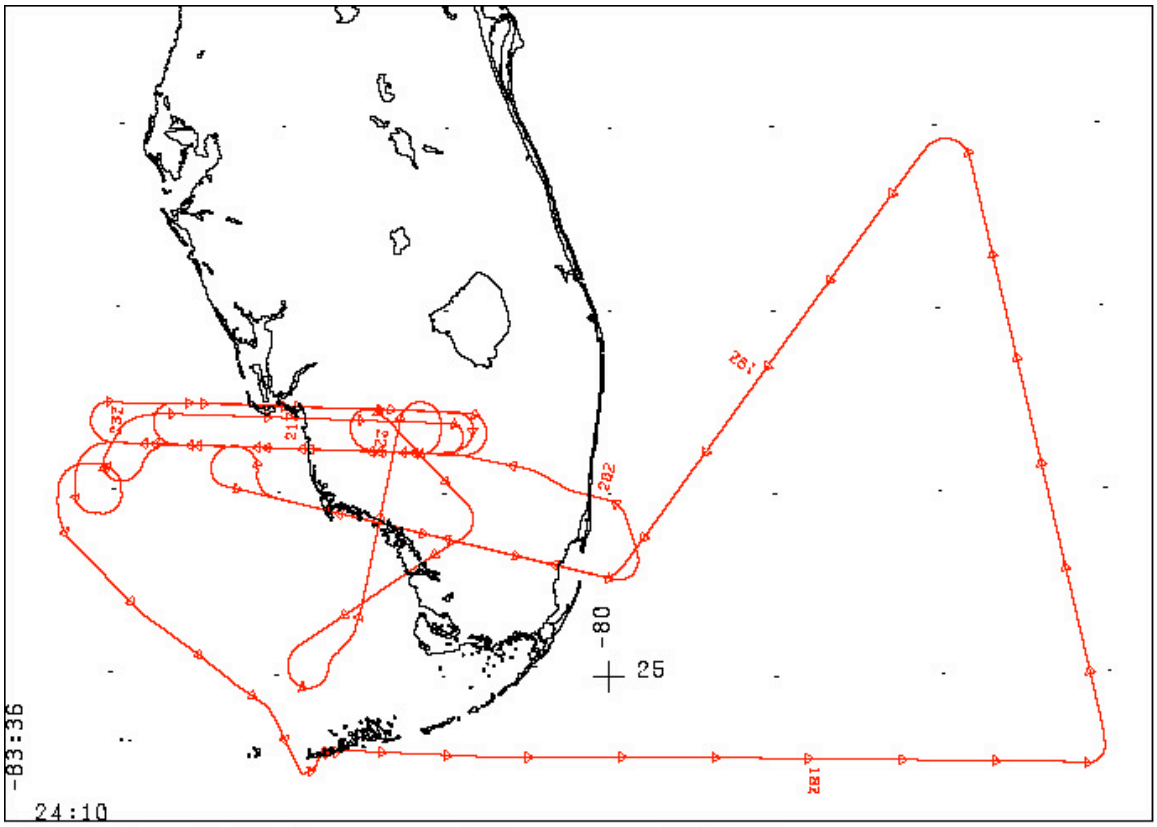
- Dropsondes: 8 sondes dropped

Sonde	*Rel. time*	*Rel. long.*	*Rel. lat.*
1	18:16:53	77° 02.4′	24° 40.0′
2	18:21:32	77° 09.7′	25° 12.5′
3	18:27:17	77° 18.7′	25° 51.3′
4	18:32:56	77° 27.9′	26° 30.6′
5	18:38:10	77° 36.4′	27° 06.5′
6	18:44:04	77° 46.0′	27° 46.5′
7	22:16:19	82° 22.9′	26° 14.8′
8	22:55:35	82° 21.7′	26° 14.8′

ER-2 science instrument payload and status:

Instrument	Status	Notes
CoSSIR Conical Scanning Sub-mm wave Imaging Radiometer	G	
CPL Cloud Physics Lidar	G	
CRS Cloud Radar System	G	
EDOP ER-2 Doppler Radar	G	
JLH JPL Laser Hygrometer	G	
MAS MODIS Airborne Simulator	P	Lost liquid N_2 in port 3 dewar at 22:36 UTC
MMS Meteor. Meas. System	G	
MTP Microwave Temperature Profiler	G	
RAMS Radiation Meas. System	G	
SSFR Solar Spectral Flux Radiometer	G	
Dropsonde	G	

G = good; P = partial data collected; F = failure, no data; NA = status not available at time of writing



FLIGHT 02-966 20 JULY 2002 A/C 809 CRYSTAL/FACE
LAMBERT CONFORMAL PROJECTION: SP1 = 23.9 SP2 = 27.3 CM = -80.2 ROTATED BY 0.0
17:25:00 TO 23:50:00 UT SCALE 1:2.88E+08 TIME TICK EVERY 5.00 MINUTES