ER-2 Flight Summary

Mission: CRYSTAL-FACE
Flight Scientists: S. Platnick, P. Newman

Sortie: 02-951
Date: Tuesday, 16 July 2002
Pilot: J. Barrilleaux

Takeoff: 1410 EDT (1810 UTC)
Landing: 2005 EDT (0005 UTC)
Duration: 5:55

Objectives:

Sea breeze was expected to develop convection over central Florida in mid-to-late afternoon. Strong ENE winds at 200 hPa and above were expected to advect cirrus blow-off across Florida to the Gulf. Takeoff (2 PM EDT) was timed to the development of the Cb, measurements of the cirrus blow-off, and coordination with eastern ground site observations.

ER-2 proceeded to waypoint A (25°38'N, 81°04'W) and flew an ENE ground track over the eastern ground site (25°40'N, 80°25'W) towards waypoint B (25°44'N, 78°33'W). Strong convection developed south of the Tamiami trail with blow-off being carried across Fla into the Gulf region to the west of Florida. NPOL re-directed the ER-2 into a shortened racetrack pattern oriented roughly E-W along the A-B track. This track was then superceded by NPOL for sampling of cirrus blow-off over the Gulf. Three dropsondes were pickled into this cirrus over the Gulf.

Satellite or fixed coordination:

Satellites (relative to western site):

Aqua – 1803 UTC, VZA = 60.91°
(Terra – 1634 UTC, VZA = 40.29°: before launch of aircraft)

Western ground site:
PARSL, Everglades National Park, Gulf Coast Visitor's Center
25 50.7 N, 81 23.15 W
Overpasses of Western Site
20:01:56 UT, Min dist.= 0.39 km
20:37:59 UT, Min dist.= 0.32 km

Eastern ground site:
Kendall-Tamiami Airport
25 39.3 N, 80 25.9 W
Overpasses of Eastern Site
18:52:24 UT, Min dist.= 1.59 km

19:44:14 UT, Min dist.= 2.47 km
20:19:46 UT, Min dist.= 1.56 km
20:57:13 UT, Min dist.= 1.70 km
21:22:30 UT, Min dist.= 0.26 km

Aircraft coordination:

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

WB-57: In situ sampling in regions of opportunity along the east-west flight line, and do a spiral profile over the Gulf west of the western ground site at the time of the ER-2 coordination.

Citation: In situ sampling in lower regions of anvil on the east-west flight line just south of the western ground site at an altitude below the WB-57F and ER-2 between 2100 and 2230 UTC.

Proteus: Remote sensing observations along east-west flight line just south of the western ground site at an altitude of 10 km between 1830 and 1900 UTC.

P-3B: Low altitude observations along east-west flight line just south of the western ground site at an altitude of 2 km between 2100 and 2300 UTC.

Summary/highlights:

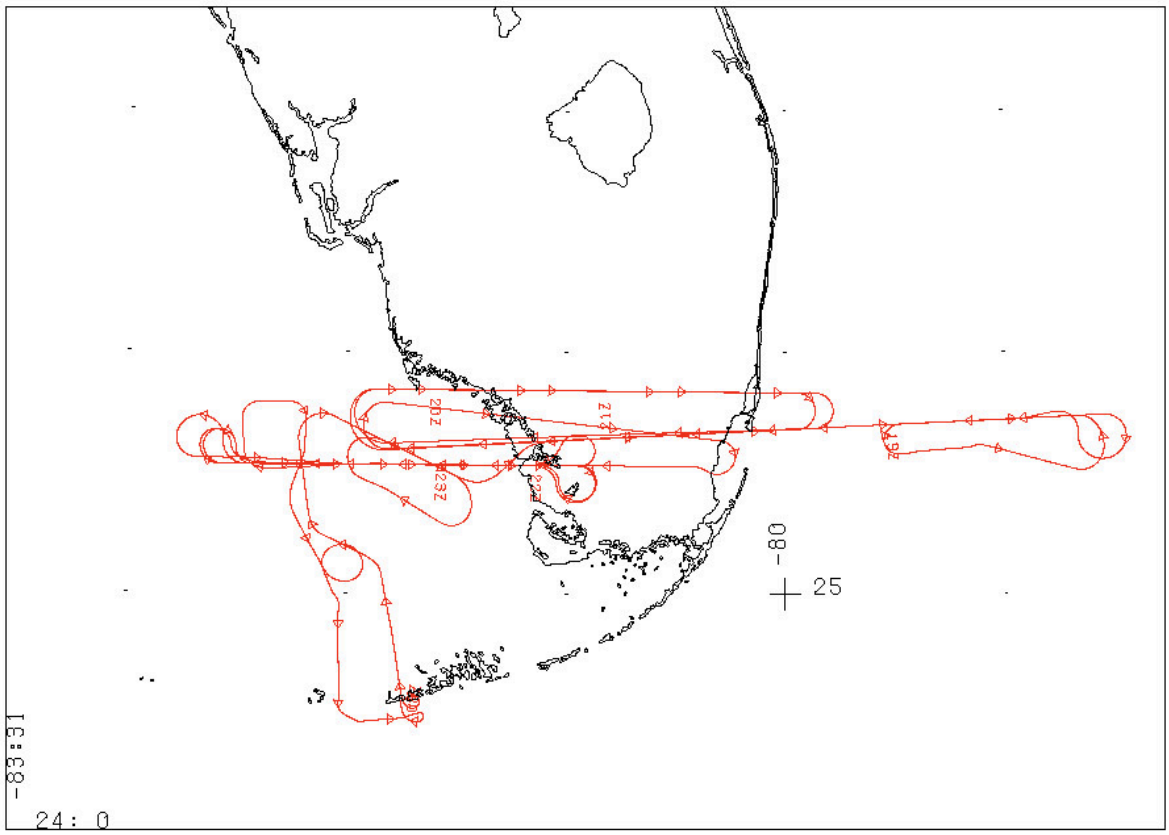
•Dropsondes: 4 sondes dropped

Sonde	*Rel. time*	*Rel. long.*	*Rel. lat.*	*Spl. Time*	*Spl long.*	*Spl lang.*
1	19:31:38	78° 44.9′	25° 43.6′	not available (sparse data)		
2	21:06:37	81° 39.6′	25° 36.4′	21:23:19	81° 44.7′	25° 35.8′
3	21:56:30	81° 33.9′	25° 32.0′	22:13:11	81° 38.5′	25° 31.2′
4	23:13:22	81° 39.4′	25° 32.1′	23:30:00	81° 45.1′	25° 31.1′

ER-2 science instrument payload and status:

Instrument	Status	Notes
CoSSIR Conical Scanning Sub-mm wave Imaging Radiometer	F	Failure at/near turn on at altitude
CPL Cloud Physics Lidar	F	Failure at/near turn on at altitude
CRS Cloud Radar System	G	
EDOP ER-2 Doppler Radar	G	
JLH JPL Laser Hygrometer	G	Best flight of the series so far
MAS MODIS Airborne Simulator	G	
MMS Meteor. Meas. System	G	
MTP Microwave Temperature Profiler	G	
RAMS Radiation Meas. System	G	
SSFR Solar Spectral Flux Radiometer	F	
Dropsonde	G	

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


20Z
21Z
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