

# TC4 ER-2 Science Flight: Aug 8, 2007

## Flight Report

**Flight Scientists:** S. Platnick, P. Newman  
**Sortie:** 07-9029  
**Pilot:** Denis Steele

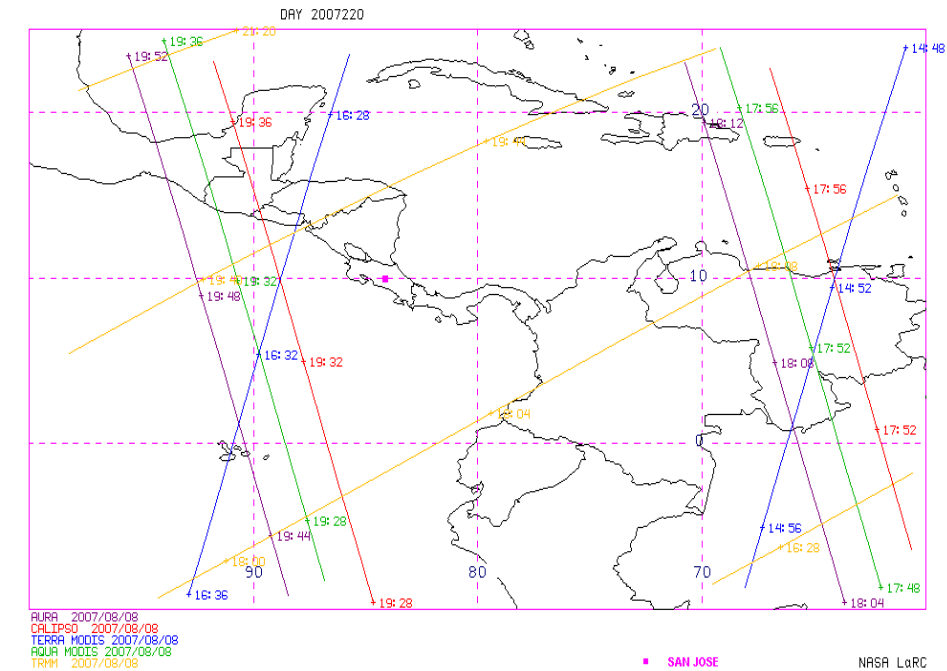
**Takeoff (MROC):** 1211 UTC (6:11 AM local)  
**Landing (MROC):** 1823 UTC (12:23 PM local)  
**Duration:** 6.2

### Objectives:

- Obtain coordinated overflights of cirrus outflow with the WB-57 and DC-8 for microphysical retrievals and radiative closure.
- Follow individual cell evolution (ER-2 only).

### Satellite Coordination:

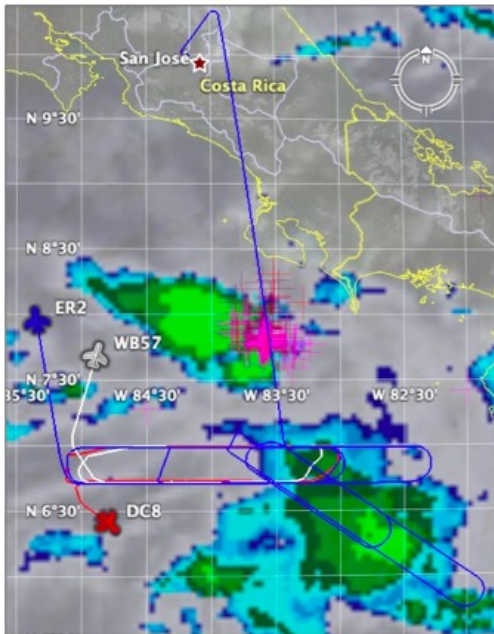
Terra overpass at 1630 UTC over Galapagos (see map below, courtesy M. Nordeen et al.). IASI overpass at 1444 UTC over the Columbian/Panamanian border (IASI track not shown on graphic).



**Flight Plan Summary (see RTMM maps):**

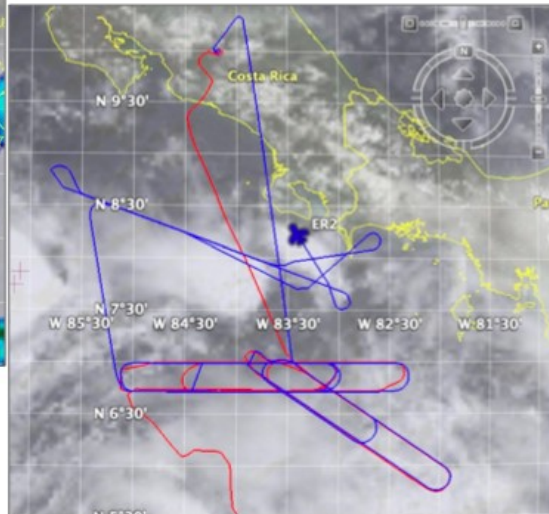
The DC-8, ER-2, and WB-57 took off at 6:00, 6:12, and 6:20 local, respectively. The starting racetrack was re-positioned south of western Panama along a NW-SE direction. On the last leg, the DC-8 was requested to lower its altitude sufficiently below the cirrus cloud base to allow DIAL to have good cloud base observations that could be used in conjunction with CPL on the ER-2 (request by M. Vaughn, LaRC).

All aircraft broke off from the racetrack at the western end; the DC-8 headed south for a BL run and onto Columbia while the WB-57 returned to San Jose. The ER-2 headed north in an attempt to overfly isolated developing systems just south of Costa Rica. After several passes over two cells, the ER-2 returned to San Jose.



1645 UTC  
(IR enhanced imagery)

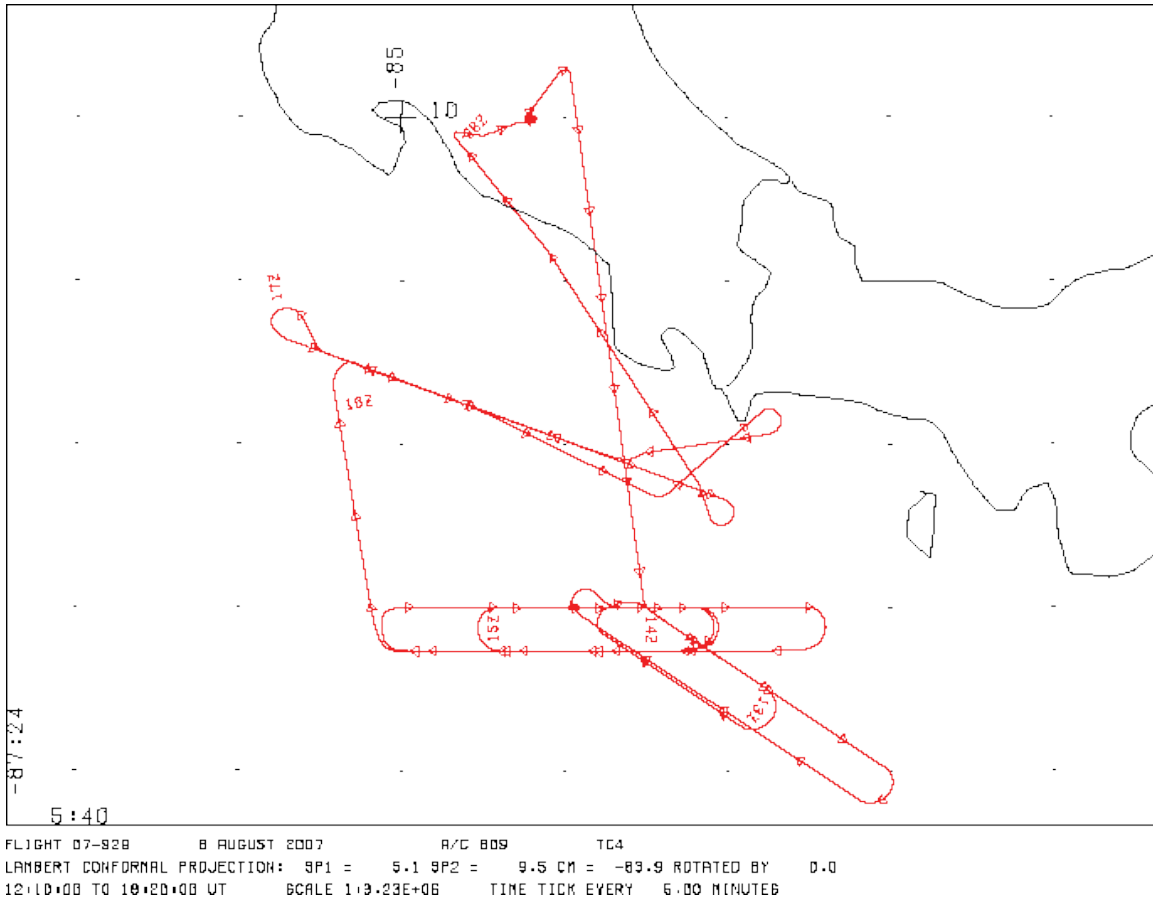
**8 Aug 2007  
RTMM**



1739 UTC  
(VIS imagery)

blue line: ER-2 flight track  
red line: DC-8 flight track  
GOES VIS and IR imagery

Flight track w/time code courtesy of NASA Ames Airborne Science & Technology Facility, R. Dominguez et al.



**Comments:**

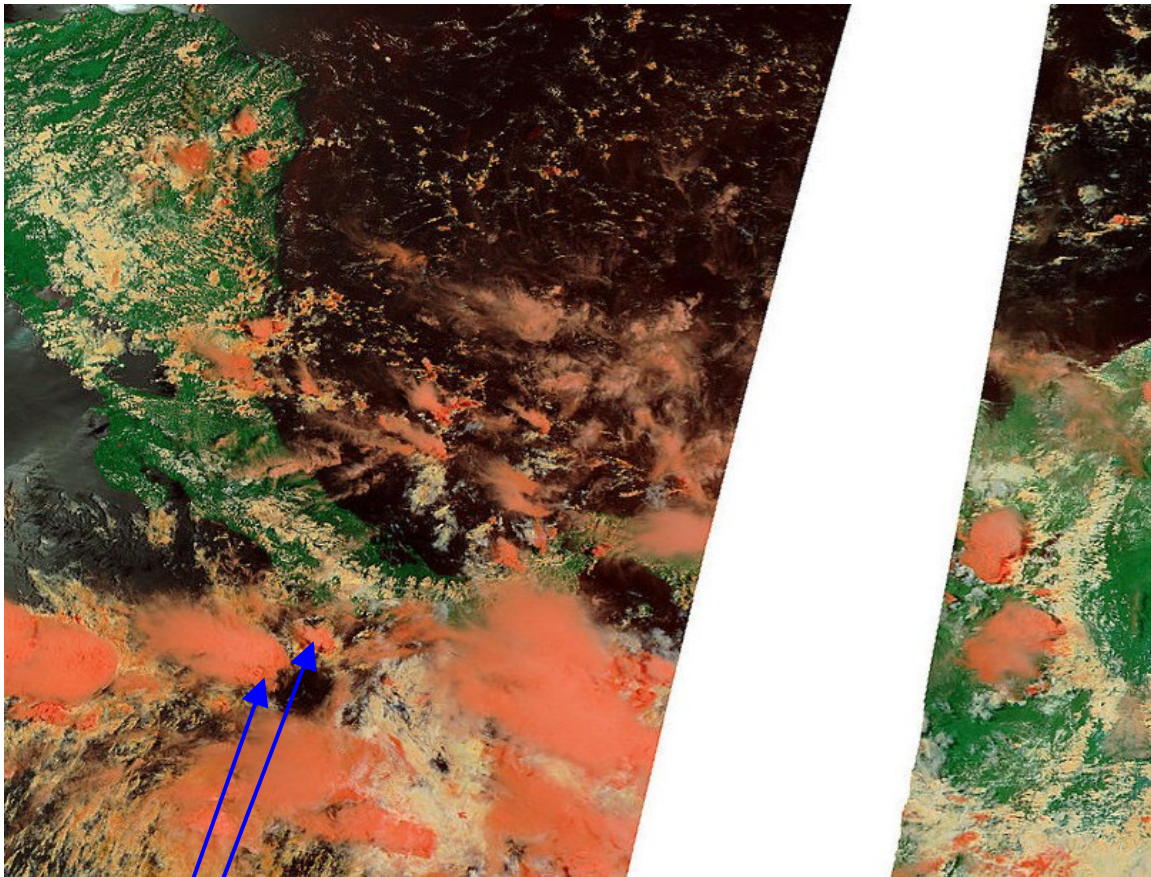
The aircraft transponder problem (see Aug 6 flight report) was fixed in time for the flight.

Pilot reported 30-45 knt winds out of the southeast, -77 C at 50 kft during initial climb and about -64 to -68 C at 65 kft; no turbulence, but light mock surf over the small cell at 1620 UTC.

## MODIS Terra QuickLook Imagery

MODIS Rapid Response (courtesy J. Schmaltz, GSFC): RGB = 0.87, 1.6, 2.1  $\mu\text{m}$

*White clouds indicate liquid water, strong coral/redish color clouds indicate ice, slightly redish clouds might indicate larger water droplets and/or ice particles and/or cirrus overlying water clouds.*



Anvil/cores worked at  
end of flight

## ER-2 Science Instrument Payload and Status:

Instrument	Status	Notes
<b>CPL</b> Cloud Physics Lidar	<b>G</b>	
<b>CRS</b> Cloud Radar System	<b>G</b>	
<b>EDOP</b> ER-2 Doppler Radar	<b>G</b>	
<b>AMPR</b> Advanced Microwave Precipitation Radiometer	<b>G</b>	
<b>CoSSIR</b> Compact Scanning Sub-mm wave Imaging Radiometer	<b>G</b>	
<b>MASTER</b> MODIS/ASTER Airborne Simulator	<b>P</b>	Port 4 (7-12 $\mu\text{m}$ bands) failed to take data
<b>S-HIS</b> Scanning High Resolution Interferometer	<b>G</b>	
<b>IR Radiometer</b> Broadband flux radiometer (nadir & zenith)	<b>G</b>	
<b>SSFR</b> Solar Spectral Flux Radiometer (nadir & zenith)	<b>G</b>	
<b>MVIS</b> video camera	<b>G</b>	
<b>MTP</b> Microwave Temperature Profiler	<b>G</b>	

**G = good; P = partial data collected; F = failure, no data**