

**TC4 ER-2 Test Flight: July 9, 2007**  
*Tentative Flight Plan*

**Flight Scientists:** S. Platnick, P. Newman

**Sortie:** TBD

**Pilot:** Denis Steele

**Takeoff (DFRC):** 0920 PDT (estimated)

**Landing (DFRC):** 1530 PDT (estimated)

**Duration:**  $\approx$  6:10

**Objectives:**

1. Second instrument check (exceptions: EDOP and MTP).
2. Fly towards upper/mid-level cloud systems off southern Baja in search of TC4-like scenes.
3. Underfly Aqua satellite for:
  - a. S-HIS and MAS radiometric calibration comparisons with MODIS clear sky (S-HIS, MAS) and cloudy sky (MAS) scenes of opportunity.
  - b. Comparison of S-HIS (cloud top properties) and MAS (cloud top properties, optical/microphysical properties) cloud retrievals with MODIS, CPL, and CRS.
4. Test of REVEAL system for CPL and AMPR (S-HIS connection not completed as of test flight).
5. Test of UHF Guard Channel interference (thought to be grounding loop in right wing pod – correction from 7 July flight summary notes). Note: VHF Guard Channel will be used during Cost Rica operations.
6. Overfly JPL Table Mountain Facility at request of Ken Jucks for the UV-Vis spectrometer comparison purpose.

**Satellite Coordination:**

Aqua: Overpass at 1404:30 PDT (2104:30 UTC) off Channel Islands (see map).

**Flight Plan Summary (see map and waypoint table):**

Fly south along Baja coast to WP 6. Expect mid/upper-level clouds along the way from convective activity on the Mexican mainland. Southern most portion of leg is expected to encounter mid/upper-level from oceanic convection.

Fly towards Channel Islands to intercept Aqua overpass (3 legs).

Overfly Table Mountain on route back to DFRC.

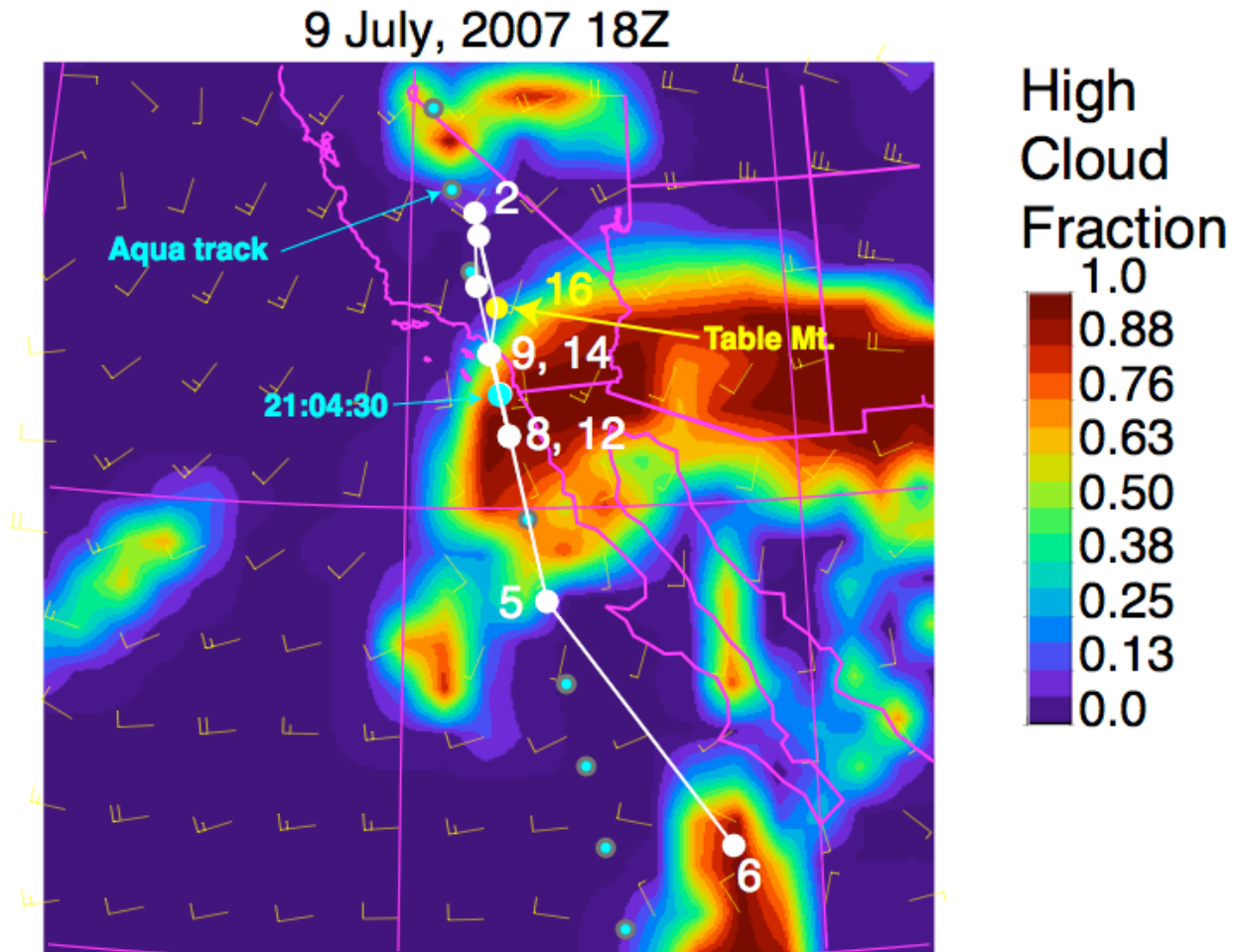
Note: High wind forecast for DFRC after 1500 Local.

### **Expected Cloud Conditions during Flight:**

Boundary layer marine stratocumulus along southern coastal CA and Channel Islands. Cirrus and/or mid-level clouds off Baja California, in addition to boundary layer stratocumulus.

NCEP high cloud forecast (12 hour forecast from 0600Z, valid at 1800Z 2007-07-09) is shown in the figure with the flight track superimposed. Forecast calls for upper level clouds towards the southern end of the Baja peninsula (verifying in GOES-WEST IR loop at 1400Z). Winds barbs at 200 hPa are also superimposed on the map. The winds are generally weak, with some possible advection of high cloud at the northern end of Baja towards Southern California (again, some evidence of this behavior in the GOES IR imagery).

Proposed Plan:



## Proposed Waypoints:

PT #	LAT	LON	GMT TIME	SZA	ALT (kft)	DIST (nmi)
1	34° 55'N	117° 53'W	16:45	43.5	0.0	0.00
2	36° 28'N	118° 16'W	17:24	36.2	60.0	94.23
3	36° 28'N	118° 16'W	17:39	33.3	65.0	0.00
4	34° 51'N	118° 13'W	17:56	29.5	65.0	96.64
5	32° 30'N	117° 35'W	18:17	24.0	65.0	144.45
6	27° 58'N	116° 27'W	18:58	13.2	65.0	278.60
7	22° 29'N	112° 05'W	19:58	5.8	65.0	405.10
8	27° 58'N	116° 27'W	21:01	16.9	65.0	405.10
9	31° 35'N	117° 22'W	21:34	24.0	65.0	222.40
10	33° 22'N	117° 53'W	21:51	27.4	65.0	110.45
11	33° 22'N	117° 53'W	21:52	27.7	65.0	0.17
12	32° 28'N	117° 37'W	22:02	29.7	65.0	55.62
13	31° 34'N	117° 22'W	22:10	31.5	65.0	55.49
14	31v 34'N	117° 22'W	22:13	32.1	65.0	0.00
15	33° 22'N	117° 52'W	22:32	35.9	65.0	110.92
16	34° 23'N	117° 41'W	22:42	38.2	65.0	61.42
17	35° 58'N	118° 10'W	22:57	41.0	65.0	97.58
18	35° 58'N	118° 10'W	22:57	41.0	65.0	0.00
19	34° 55'N	117° 53'W	23:28	47.4	0.0	63.80

### COMMENTS ABOUT THIS FLIGHT:

No special maneuvers during this flight

## ER-2 Science Instrument Payload and Status:

Instrument	Status	Notes
<b>CPL</b> Cloud Physics Lidar		
<b>CRS</b> Cloud Radar System		
<b>EDOP</b> ER-2 Doppler Radar		<b>not integrated for flight</b>
<b>AMPR</b> Advanced Microwave Precipitation Radiometer		
<b>CoSSIR</b> Compact Scanning Sub-mm wave Imaging Radiometer		
<b>MAS</b> MODIS Airborne Simulator		
<b>S-HIS</b> Scanning High Resolution Interferometer		
<b>IR Radiometer</b> Broadband flux radiometer (nadir & zenith)		
<b>SSFR</b> Solar Spectral Flux Radiometer (nadir & zenith)		
<b>MVIS</b> video camera		
<b>MTP</b> Microwave Temperature Profiler		<b>not integrated for flight</b>

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