

Flight Report for 3 August WB-57 Flight

Takeoff: 1215 UT

Recovery: 1640 UT

Objectives:

- Transit the aircraft to San Jose Costa Rica.
- Porpoise through the tropical tropopause layer (TTL), measuring water vapor, isotopes, tracers, and aerosols, as well as upper tropospheric clouds (if present).
- Coordinate in time and space with the DC-8 below and the ER-2 above for the final third of the flight.
- Zoom climb to maximum altitude over MROC before spiraling down over the airfield, coordinated with a frostpoint hygrometer balloon launch.

Report:

The planned route was basically a straight line between EFD and MROC. The aircraft headed took off 15 minutes late and dodged convective systems on the climb-out. Cruise altitude was reached about 45 minutes after takeoff, and they headed along the straight-shot flight path toward MROC. After reaching the Yucatan peninsula, the aircraft began ascending and descending between 45 and 55 kft at 1500 ft/min. In all three cycles through the TTL were executed. Over MROC, the coded tropopause was at about 53 kft and the cold point was at about 55 kft. A zoom climb to 59 kft was executed over MROC followed by a slow (1000 ft/min) spiral down over the airfield.

Real-time information from the lidars onboard the DC-8 and ER-2 indicated cirrus up to about 15-16 km where the WB-57 was spiraling. We should get our first TTL cirrus data from this transit, in addition to the tracer profiles. Successful data collection was reported by 19 instruments; 5 failed during or before the flight.

Flight: 20070803 transit flight

Launch: 1215 UT

Recovery: 1640 UT

Pilot: Bill Rieke

Backseat: John Bain

<i>Instrument</i>	<i>Status</i>
MMS	OK
NAV recorder	?
Reveal A	failed in flight
FCAS, NMASS	OK
SP2	OK
Ozone New (UAS)	not present in Costa Rica
Ozone	OK
PT	OK
Frost point water vapor	<i>failed – needs gain adjustment</i>
JLH Water Vapor	OK
HW Harvard Water Vapor	OK, <i>chopper failed last hour</i>
ICOS	OK
HOXItope	OK
CLH Total Water	failed on upload
CO ₂	OK
NO/NO _y	NO_y channel hard fail NO channel fail on upload: 400 Hz dist.
CAFS	OK
2DS,CPI, CEM (Transmissometer)	2DS, CPI OK; <i>CEM frosted over</i>
CAPS, CSI, CPP	OK
PANTHER	OK
WAS Whole Air	OK
ARGUS CO, CH ₄	OK
MTP	removed: weight limit right pod

