

Jetstream 31 (J31) Flight Report for INTEX-B/MILAGRO
Flight VER09 flown 13 Mar 2006

A complete version of this report is posted at
<http://www.espo.nasa.gov/intex-b/flightplanningJ31.cgi>

Overview

Preflight goals focused on the MODIS/Glory Glint Scenario: executing RSP legs, SSFR flux divergence legs, AOD & water vapor profiles and transects, and CAR circles over the Gulf in the MODIS swath of small glint angles near the Tampico and Tamihua AERONET sun/sky photometers. See planned and actual flight tracks in Figures 1 and 2.

Engine on: 1519 UT
Engine off: 1920 UT

Takeoff: 1540 UT
Land: 1914 UT

1722 UT Terra overpass

Cabin crew: Cairns, Cumbane, Livingston, Martins, Pommier, Redemann (flight scientist)

Pilot Summary

Good flight. No problems. Couldn't combine VFR & IFR, hence couldn't have option of going to MC after heading for Tampico.

Discussion of flight

Flight Scientist: Reasonably good flight. Found Ci to north towards Tampico. Started maneuvers S of Point 2. Spiral descent to 200 ft. Picked good heading for lo run in terms of Ci. Had to pull up to avoid lo clouds. AOD variable 0.3 to 0.14. Spiral up at NE point, retraced lo leg at altitude 12,500 ft across the principal plane for MODIS glint studies. Leg extended over land. Maneuvered to get leg in principal plane. Descended to 200 ft. Looked for gradient—didn't find. Did CAR circles, but with clouds. Headed home, looked for cloud, overflow it, with AOD~0.17 above. 2 str & level principal planes for RSP & SSFR just above cloud top + 2 CAR circles.

Need better way than imagery to predict cirrus—any hint in imagery means significant cirrus for us.

Having flight planner (Martins) on flight is a plus for realtime decision making to maximize science.

Have SeaWiFS special processing for period 1-21 Mar. Should help to get ocean color below A/C.

Instrument Performance & Status

AATS: Did very well, tracked well. AOD 0.2 to 0.38, many changes.

CAR: Worked well.

RSP: Worked fine. Very nice cloud meas—should get nice size dists. Will try aerosol absorption above clouds. Lots of good data.

SSFR: Worked fine. Data look great so far.

POS: Worked like a champ, thanks to guidance from Bob before flight.

NavMet: Fine. Data look good. See Figure 3.

Flight Path, Timing, and Measurements (all times UT [VER local +6])

1542 16,500 ft, heading for pt. 2
1600 16,500 ft, stratus deck below
1620 Ci to the N, looking for clear spot
200 ft, spiral descent to 200 ft in clear spot S of 2
1640 200 ft, started low level leg, heading 60 deg
1645 1500 ft, up to avoid low level cloud
1658 200 ft, coming up on another cloud band, spiral up to avoid cloud band, AOD gradient
1700 spiral ascent to 12,000 ft
1712 12,500 ft, level for RSP leg, extensive Ci over right wing, some Ci over left wing, extending 6 nmi over land.
1740 12,500 ft, maneuvering to set up RSP princ. Plane
1747 12,500 ft, RSP leg in principal plane
1754 12,500 ft, maneuvering for clear spot
1800 spiral descent to 200 ft
1810 200 ft, leg for AOD gradient
1816 2,000 ft, start CAR circles, clouds to N, 1 big contrail during 2nd CAR circle, straight above
1824 2,000 ft, heading for VER, plan to look at low cloud deck
1838 top of cloud deck ~1800 ft, AOD ~0.17
1841 2,000 ft, CAR circles above cloud deck, 2.5 circles, straight at cloud top, 0.41 km, AOD ~0.18, RTB. Major plume over right wing.

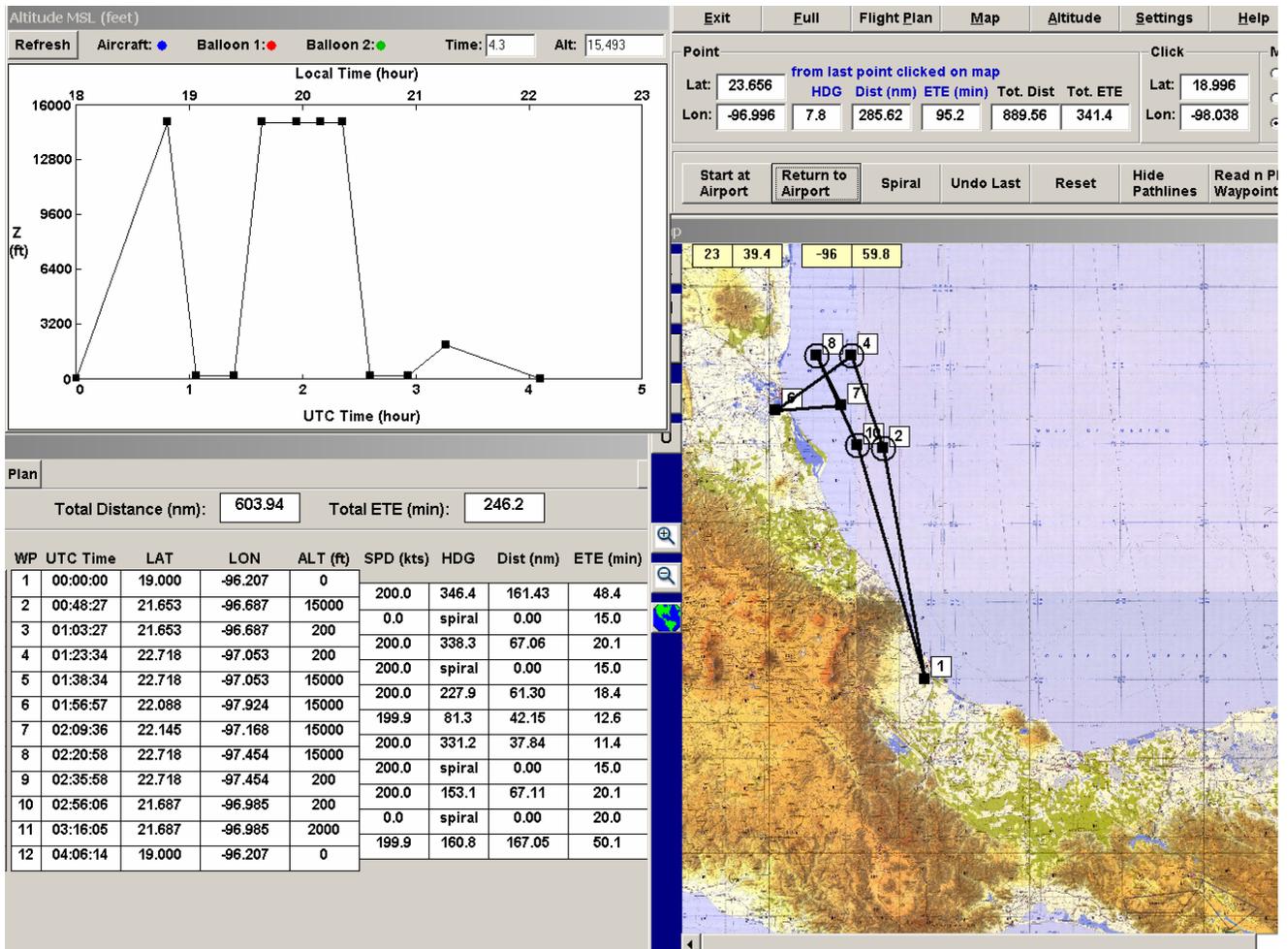


Figure 1. Planned flight track, J31 Flight VER09, 13 March 2006.

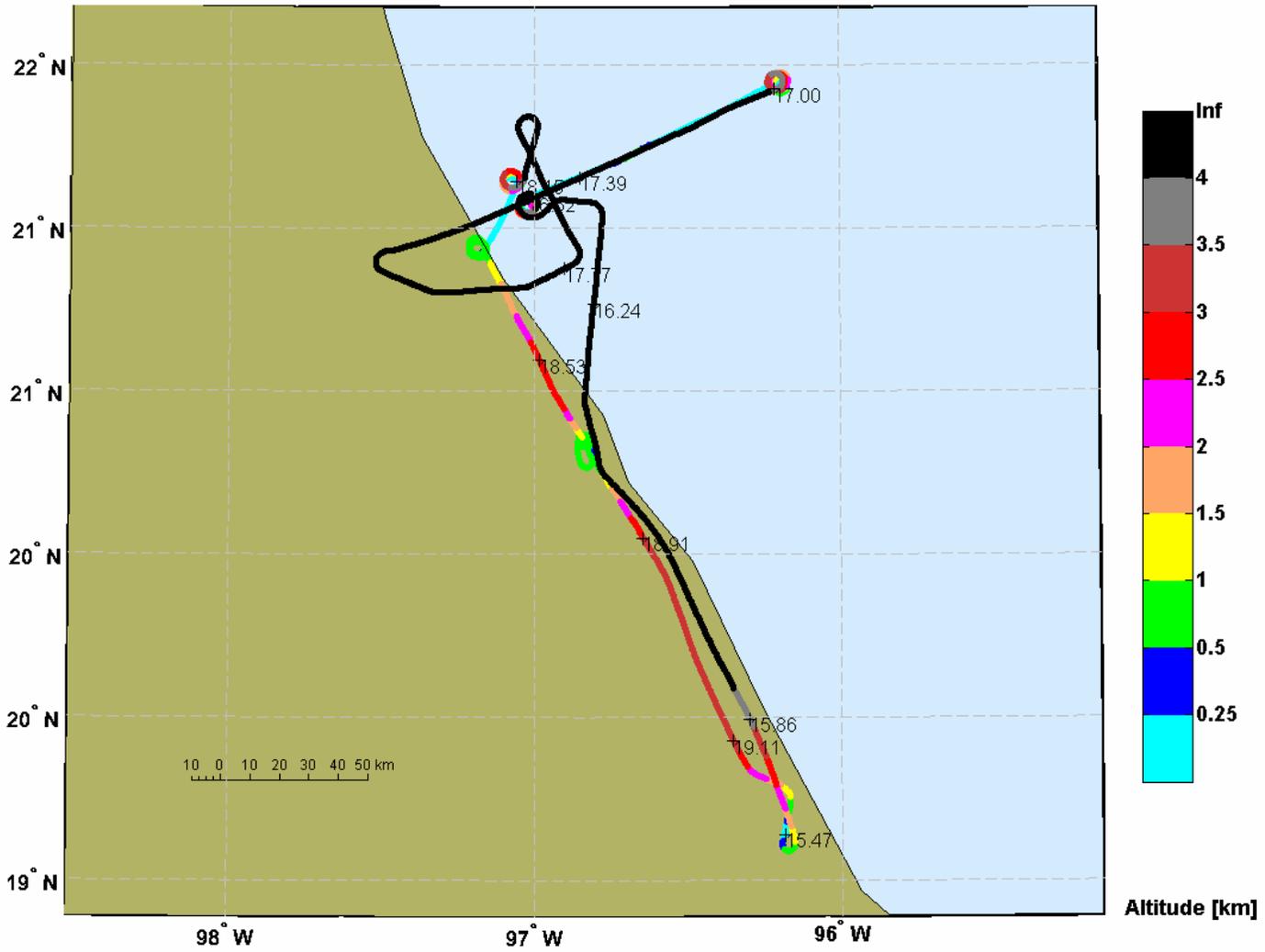


Figure 2. Actual flight track, J31 Flight VER09, 13 March 2006.

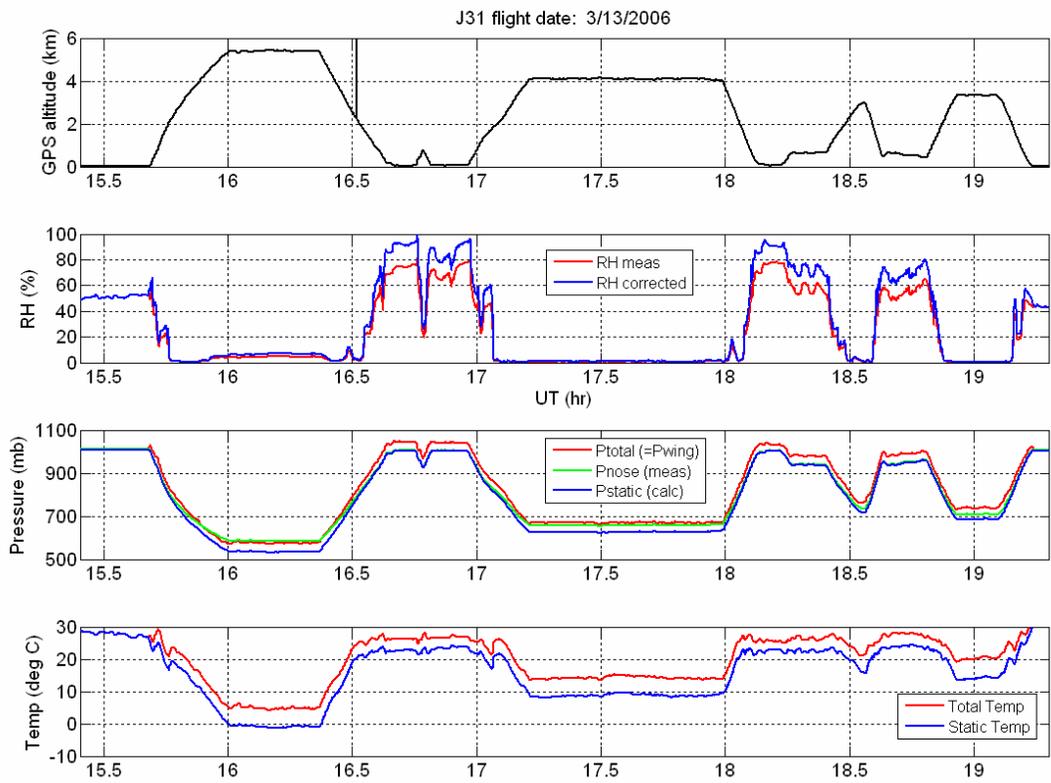


Figure 3. NavMet data, J31 Flight VER09, 13 March 2006.