

**Jetstream 31 (J31) Flight Report for INTEX-B/MILAGRO  
Flight VER07 flown 11 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 characterization of urban albedo over the T0 site in Mexico City. See planned and actual flight maneuvers and track in Figures 1 and 2.

Engine on: 1547 UT

Engine off: 1900 UT

Takeoff: 1612 UT

Land: 1853 UT

1735 UT Terra overpass

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

Pilot Summary

Good flight, all worked well, ATC fantastic.

Discussion of flight

Flight Scientist: Looked good on way out. High aerosol burden over coastal plain—good measurements. Free of cirrus til ~70 mi from MC. Ci increased toward MC. 3 CAR orbits at 16,000', the transit alt. 3 CAR orbits at 14,000' both heights over T0, lots of scattered ci above. Scrubbed rest of maneuvers over MC—headed for VER to do AATS spiral down. Return @ 17,000'. Seemed most aerosols were over coastal plain. AATS spiral over airport down to 3,000', then ramp west to 2300'. Left because of lots of birds. 1 CAR orbit to w of airport, 2300'—not good quality because of bird-avoidance maneuvers.

Dubious to plan things near airport because of birds—better to go offshore (even 1 nmi).

Need observer at T0 we can call before planning anything more like this—for cloud conditions & instrument status.

Coordination within cabin & between cabin & cockpit excellent—pilots enjoyed it.

Instrument Performance & Status

AATS: Performed well. Good hi-alt data on transit. Ci ended that in MC area. Excellent comparison w 18Z sonde at VER down to 1 km. Static pressure fixed before flight (small kink in tubing). AOD(500 nm) ~0.3 at airport. ~0.007 at max altitude.

CAR: No issues, start to end. Good data.

RSP: Inst worked fine. Transit data very useful.

SSFR: Everything worked fine. Temperatures fine.

POS: OK.

Navmet: Data look real good. Total & static pressure tracked as expected. Difference between GPS alt & pressure alt as expected. See Figure 3.

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

1612 Takeoff, climb to 16,000' on 300deg heading for first leg. Lots of haze over coastal plain.  
AATS says ~0.3. No cirrus.

1716 Arrive Mexico City

1717 Start CAR circles @ 16,000'

1728 End CAR circles @ 16,000'

1731 Start CAR circles @ 14,000'

1743 End CAR circles @ 14,000'

Rest of pattern scrubbed because there is too much cirrus over MC.

Return to VER and do AATS spiral over airport down to 1 kft. See comparison of J31 water vapor profiles to VER sonde in Figure 4.

1833 Start spiral

1845 End spiral. Broke off spiral because of traffic.

1846 2,000', Start CAR circles

1848 End CAR circles—too many birds.

1853 Land

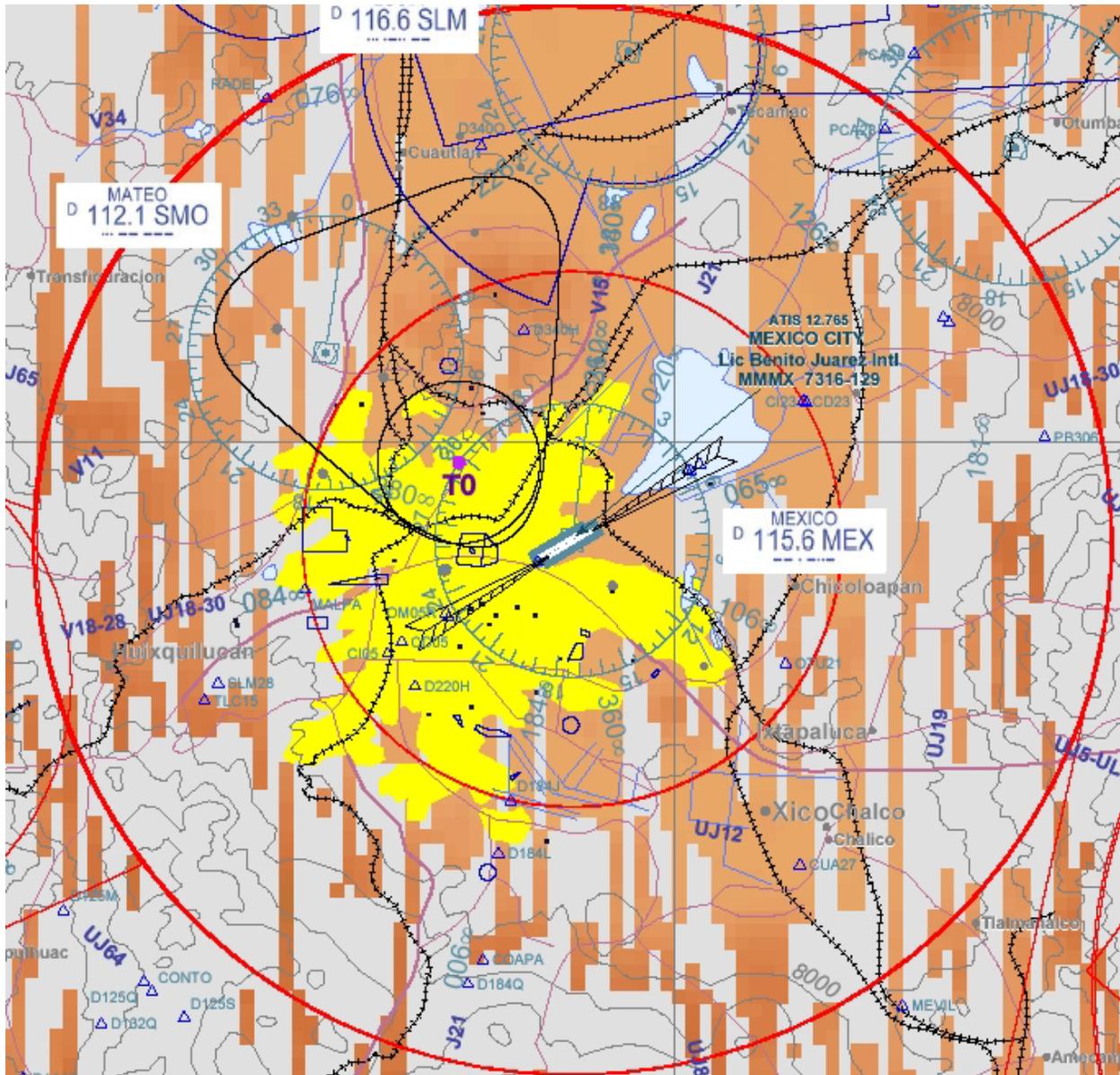


Figure 1. Planned flight maneuvers, J31 Flight VER07, 11 March 2006.



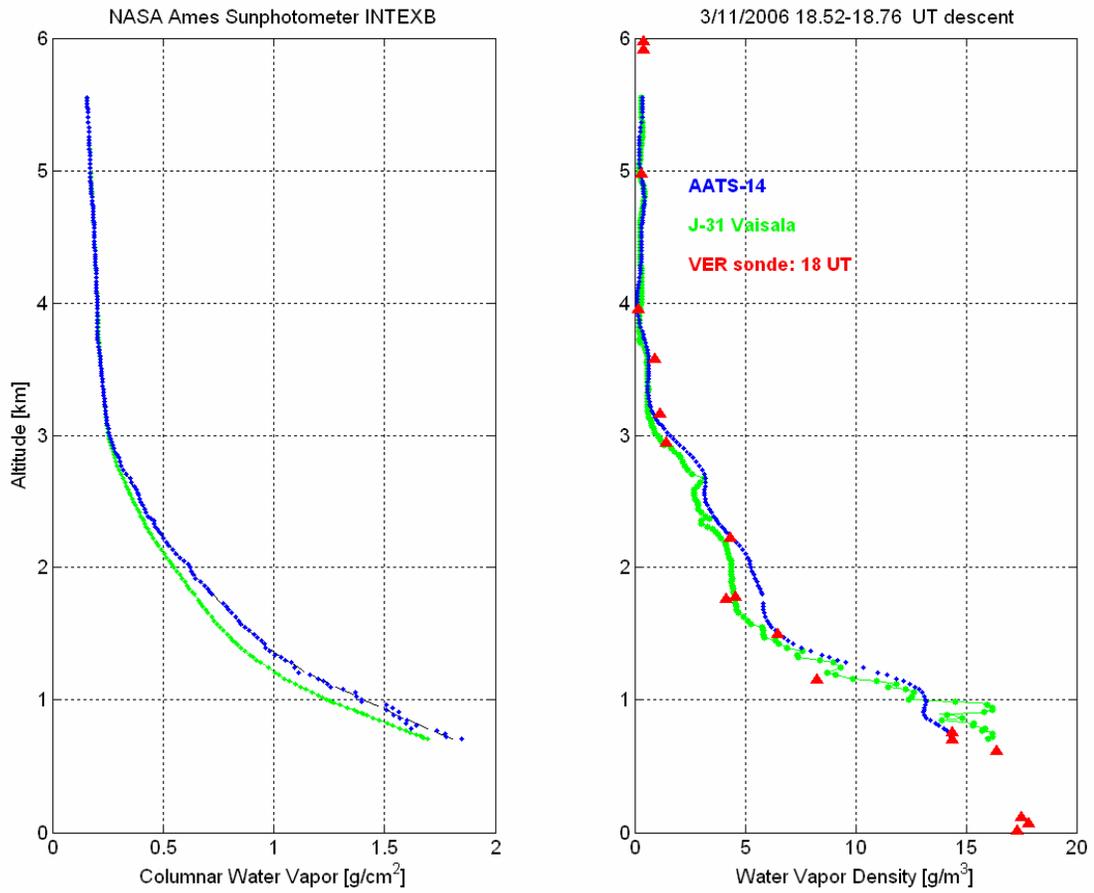


Figure 4. **Left frame:** Comparison of vertical profiles of columnar water vapor measured on the J31 radiometrically (AATS-14) and in situ (Vaisala). **Right frame:** Vertical profiles of water vapor density derived by vertically differentiating spline fits to the column water vapor profiles in the left frame. Also shown is water vapor density measured by the 18Z radiosonde at Veracruz airport (VER).