

**Jetstream-31 (J31) Flight Report for INTEX-ITCT
Flight 21 - 3 August 2004**

DC-3 lidar comparison legs, profiles over Ron Brown and its sonde, aborted Langley calibration.

Cabin Crew: Livingston, Pommier, Schmid.

Overview

This was the 15th J31 flight out of Pease. Goals focused on measuring AOD and fluxes while underflying the DC-3 lidar, profiling over the ship and a Langley calibration. The first two goals were met. Langley plot had to be aborted due to increasing clouds in all directions.

J31 and its instruments performed well

Flight Path, Timing, and Measurements

Flight path is shown in Figure 1 below. Take off at 2002 UT. Long wait on runway due to start-up problems with POS. Very hot in cabin. AATS-14 CPU temperature exceeded 58C.

Climbed through some mid level clouds to 1.6 km some mid level clouds. Contacted DC-3. And flew 2 V-shaped legs (200 ft and 5200 ft) in reverse direction to the DC-3. Temporal and spatial coordination was perfect. We were in constant radio contact with DC-3. Results of the coordinated segment are shown in Figure 2.

Proceeded to ship arrived at 200 ft, fly-by moved away slightly due to better cloud conditions. Spiraled up to 6.9 km near ship. Requested radio-sonde (launched 2136UT)

Started Langley runs but aborted due to increasing clouds in all directions.

Touchdown at 2152 UT.

Instrument status

AATS-14 survived high CPU T without problems

POS: problems at startup up likely due to operator error.

Nav/Met: OK

SSFR:OK

J-31 Flight 21, August 3

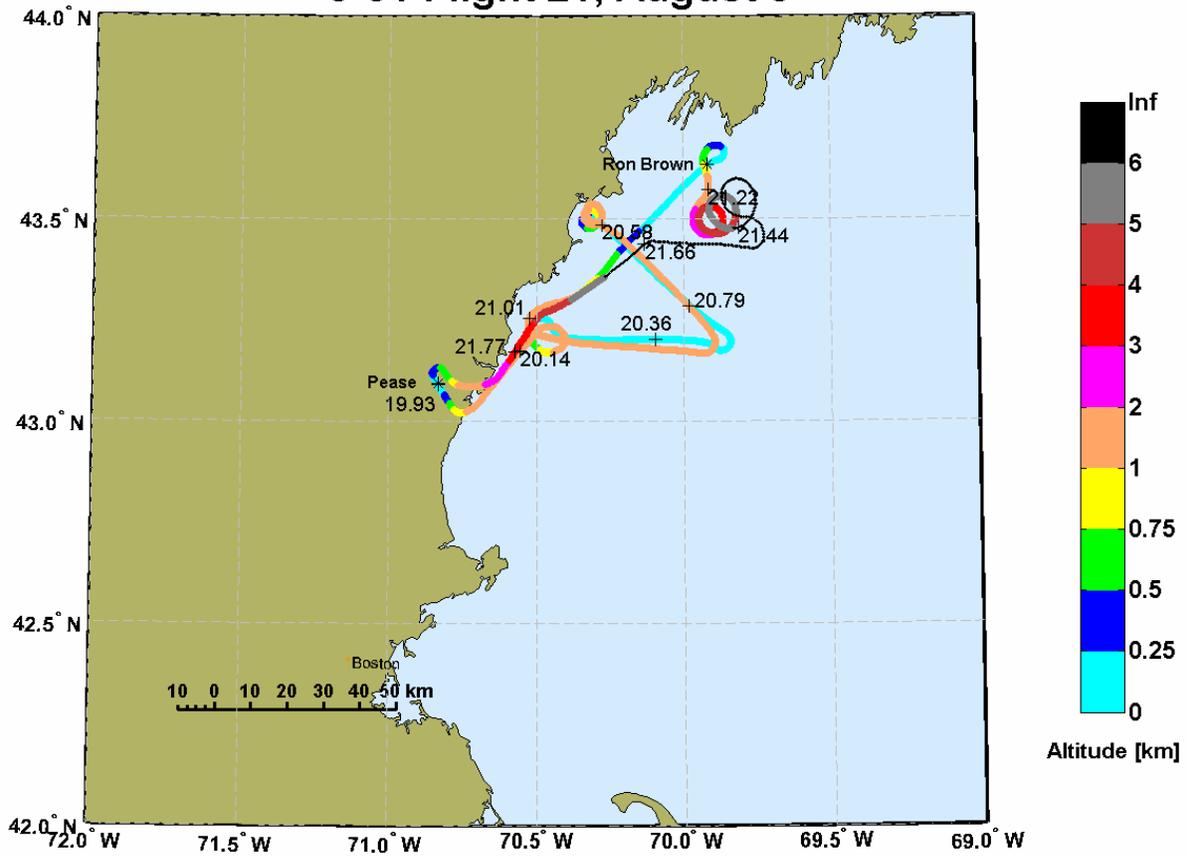


Figure 1. Flight track of J-31, Flight 21, August 3, 2004.

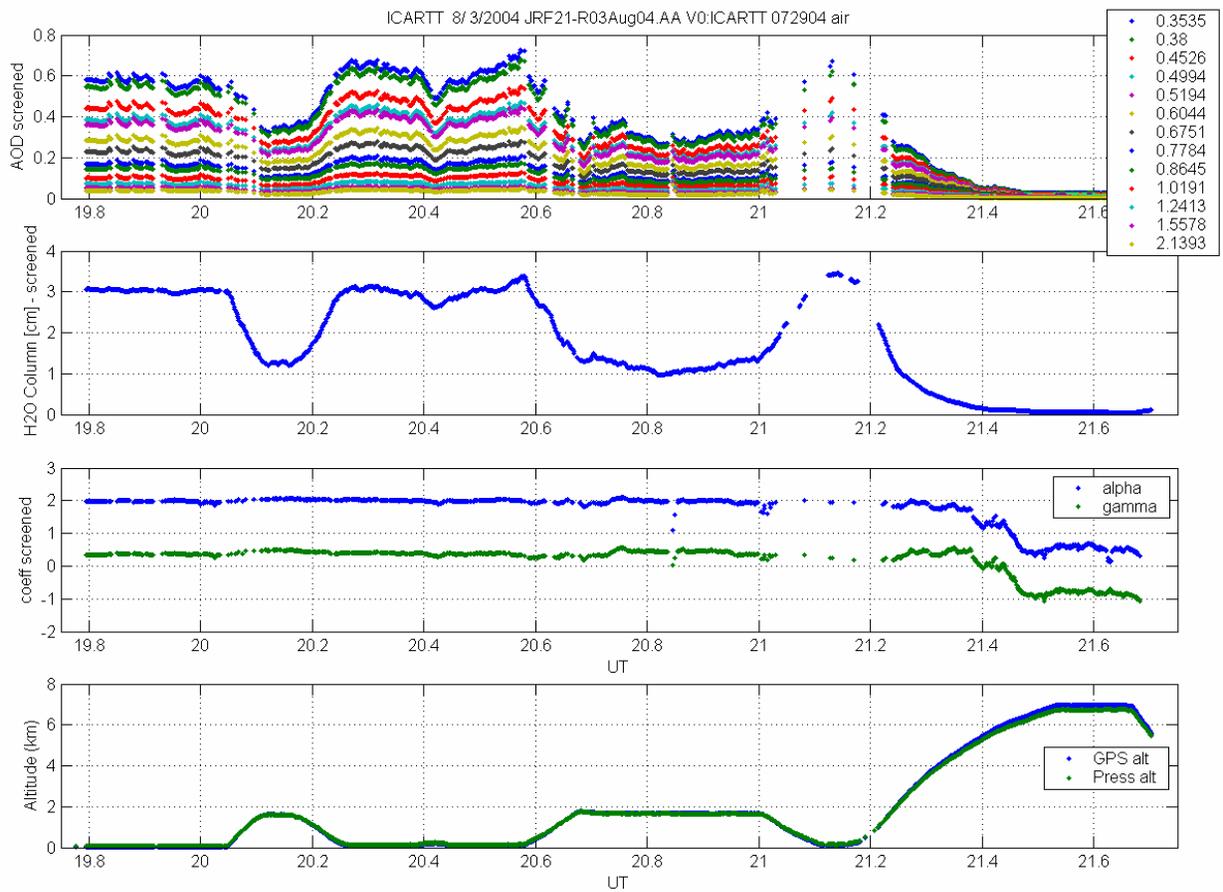


Figure 2. Time series of AATS-14 retrieved AOD, water vapor column, spectral coefficients and flight altitude for J-31 Flight 21, August 3, 2004.

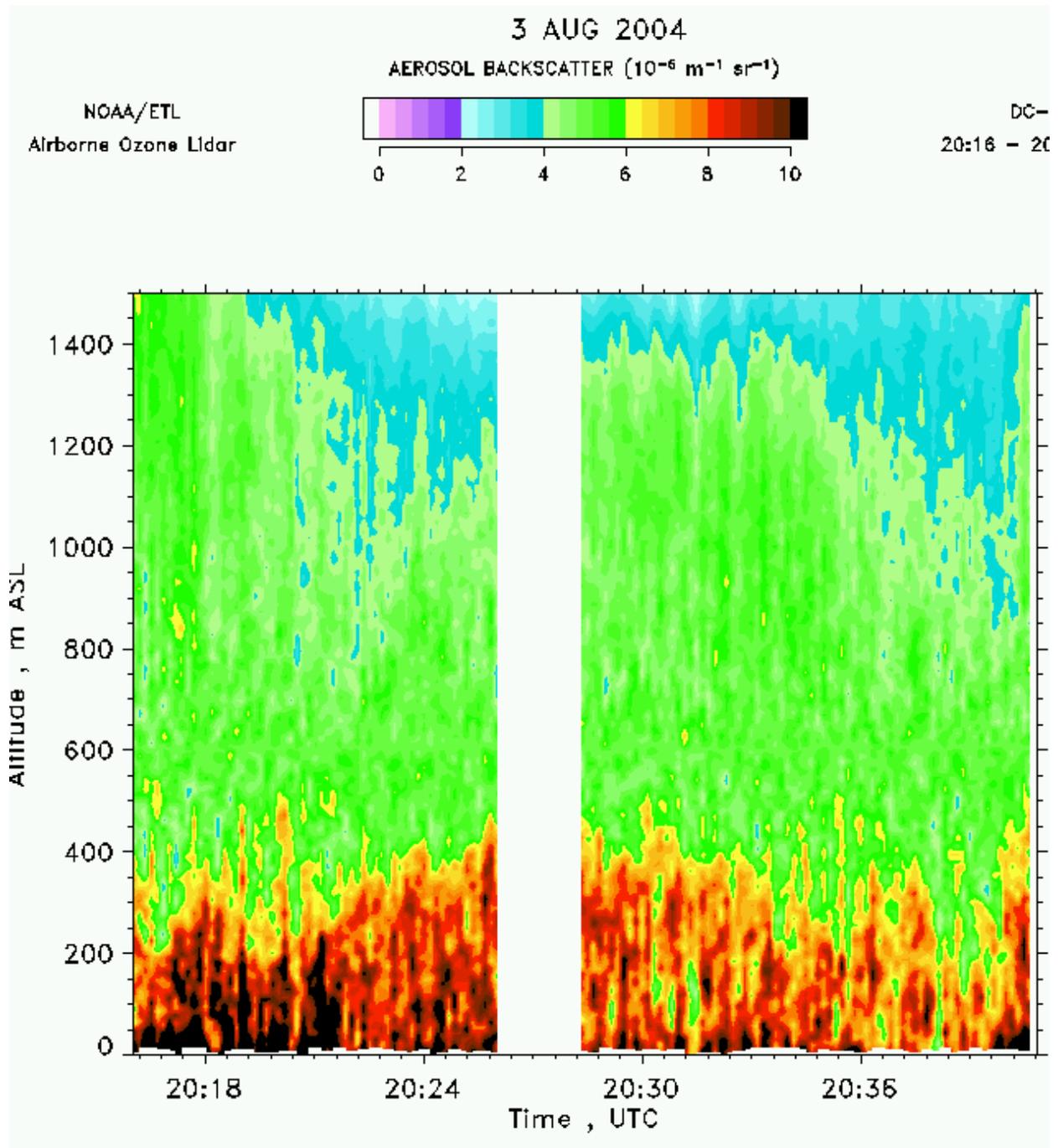


Figure 3. Aerosol backscatter from downward looking DC-3 lidar during coordinated V-shaped level legs (Courtesy of C. Senff and M. Hardesty).

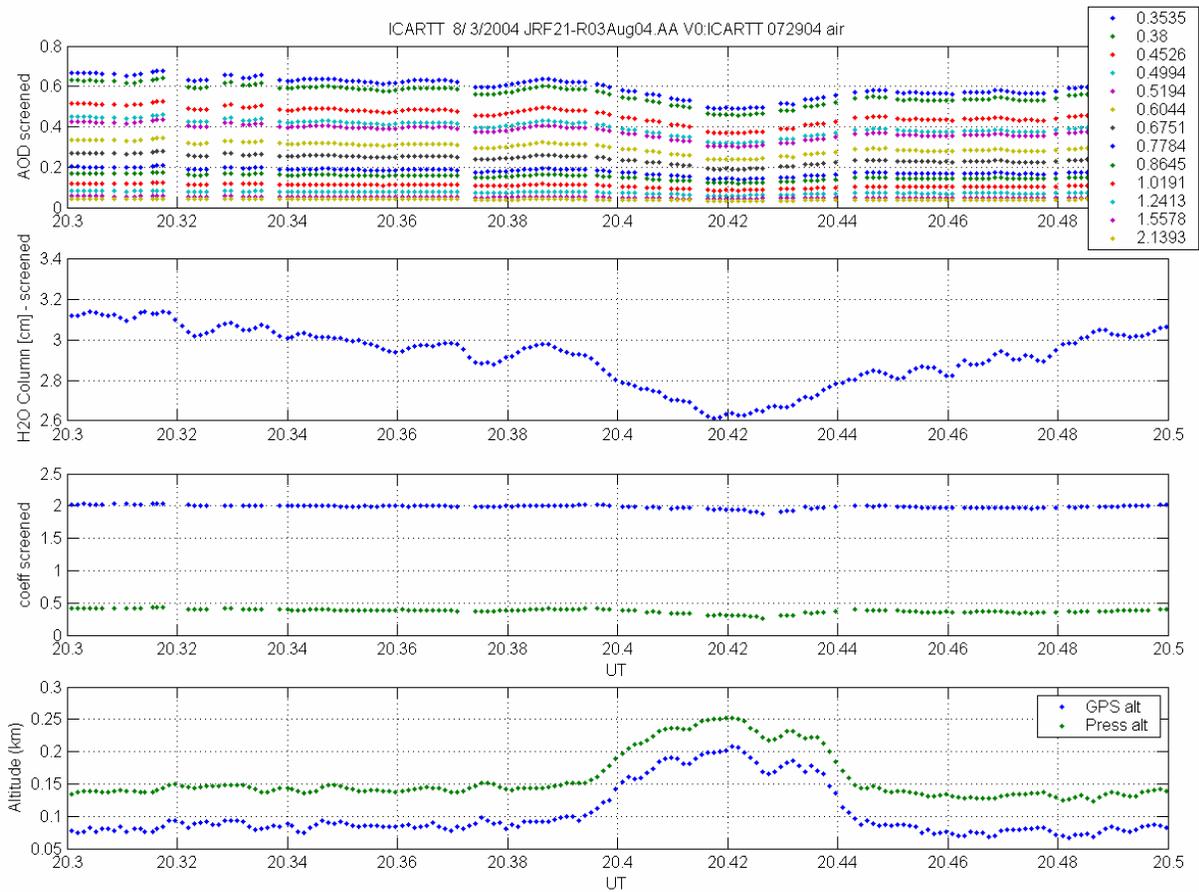


Figure 4. AATS measurements during coordinated V-shaped level legs.

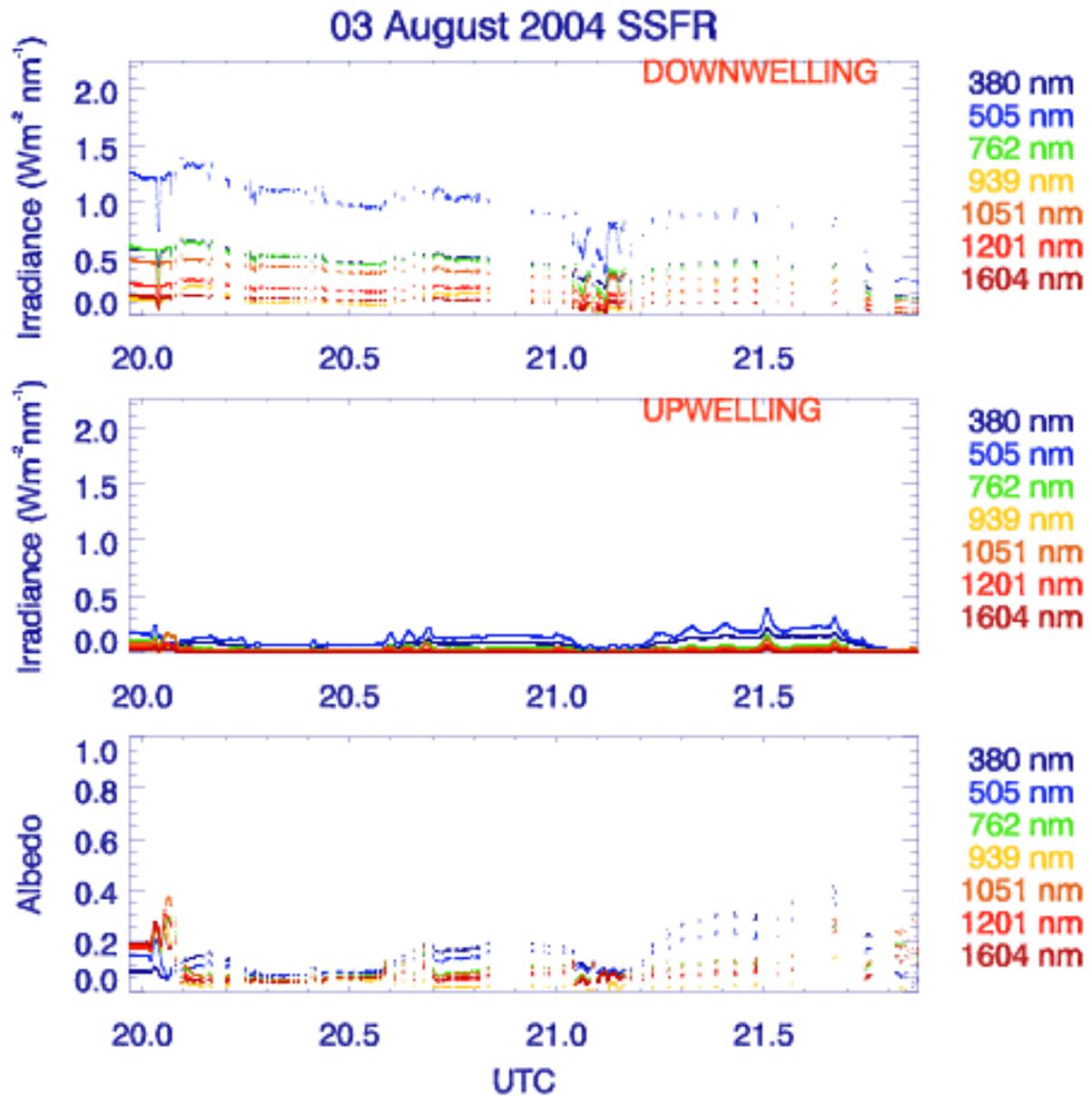


Figure 5. Time series of SSFR-measured downwelling and upwelling irradiance and albedo for J31 Flight 15, July 26, 2004. The downwelling (and albedo) has been filtered to remove data when the aircraft attitude deviated by more than 3% from level. The fact that J31 was in a spiral for some of the flight produces the speckled pattern in the downwelling and albedo time series.