

King Air B200 Flight Report

Aircraft :	LaRC B-200 King Air (N529NA) (Operating as NASA529)
Operating Site(s) From / To :	Yellowknife to Yellowknife (with CALIPSO track to the NW then fire operations near Uranium City)
Flight Date :	6/30/2008
Flight Number :	R-150
Take Off Time :	1205 Local (MDT), 1805 UTC
Landing Time :	1745 Local (CDT), 2345 UTC
Flight Time :	5.7 hours
Principal Investigator:	Rich Ferrare
Purpose of Flight :	Data [X] Ferry [] Functional Check [] Other []
Sensor Payload :	HSRL, Digital Camera, and RSP
Summary :	Third ARCTAS II research flight. Flew the CALIPSO track and sampled fire plumes with P-3 in area south of Yellowknife toward the Cold Lake restricted areas.

Objectives:

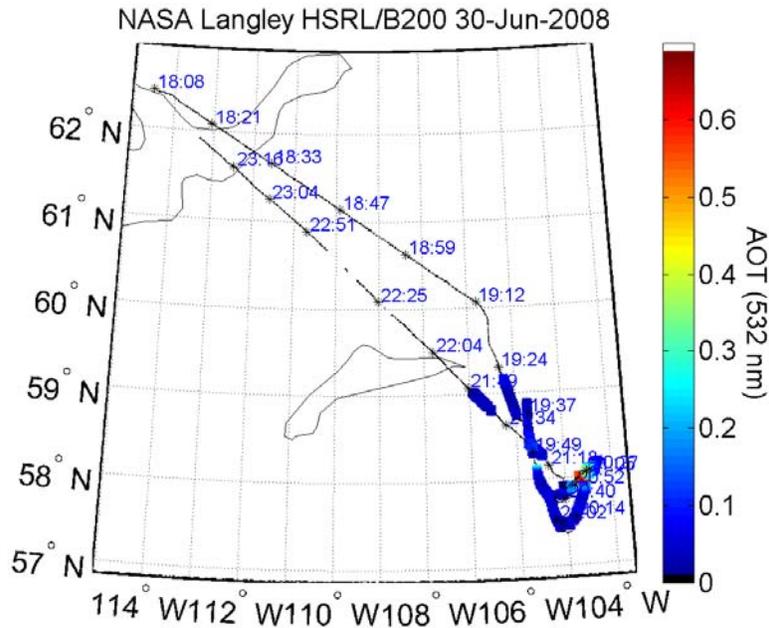
- Underflight of CALIPSO with P3
- Coordinated patterns with P3 over fires in Lake Athabasca area.

The B200 took off at 1205 LT, 1805 UT, and, due to a tailwind, arrived at the rendezvous location with the P3 on the CALIPSO track 20 minutes early. The B200 flew a holding pattern along the track until it synched up with the P3 at 1346 LT (1946 UT). While on the CALIPSO track, the P3 called a change of plan from plan B to plan D. The B200 proceeded to the appropriate points in the P3 Plan D and remained over the P3 for three passes SW-NE through a smoke plume from fires between Lake Athabasca and Reindeer Lake. The B200 broke off the pattern at 1512 LT (2112 UT) to return to base with adequate fuel reserves. The return was flown at 24kft instead of the nominal 28 kft due to strong headwinds.

The HSRL and RSP instruments worked well. The IMU seemed to be reporting false heading values at times. This will have to be further analyzed after the mission to determine when/where it was providing erroneous values (e.g., while stabilizing after turns). The data downlink and "chat" to the aircraft malfunctioned for much of the flight. The problem was traced to the low bandwidth internet connections at Yellowknife and Cold Lake.

The skies were reported to be free of cirrus along the CALIPSO track by the pilots and the HSRL operator, making this a useful flight for RSP retrievals and joint RSP-HSRL retrievals. A smoke plume was encountered along the CALIPSO track which should make a useful case to study the spatial scales on which CALIPSO daytime data can be used to identify smoke plumes.

A flight track map and some data images follow.



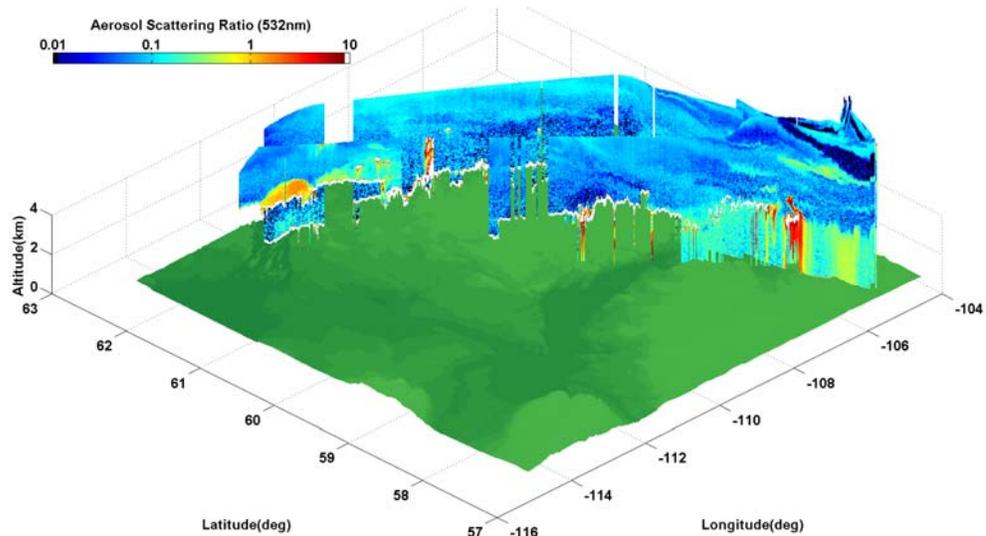


Figure 2. 3-D rendering of 532 nm aerosol scattering ratio along the flight track.

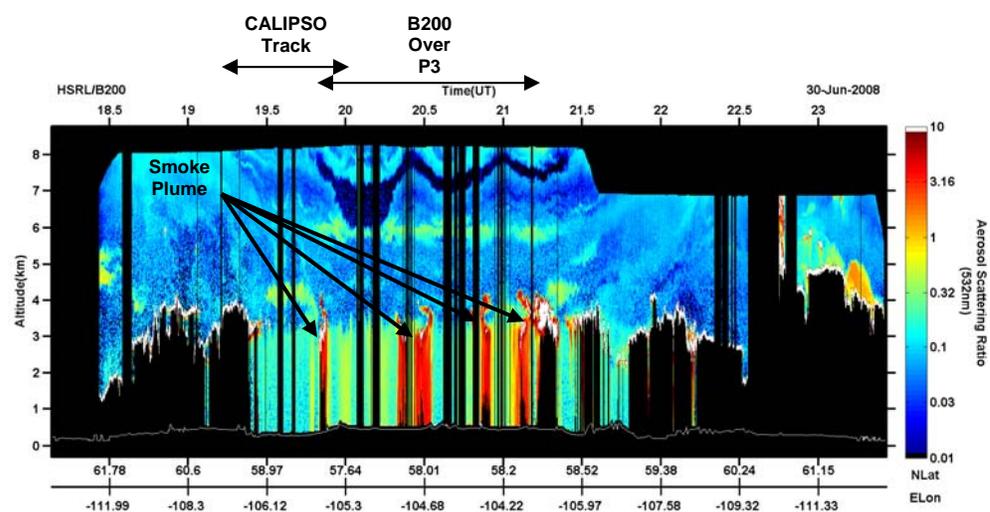


Figure 2. 532 nm Aerosol scattering ratio.