

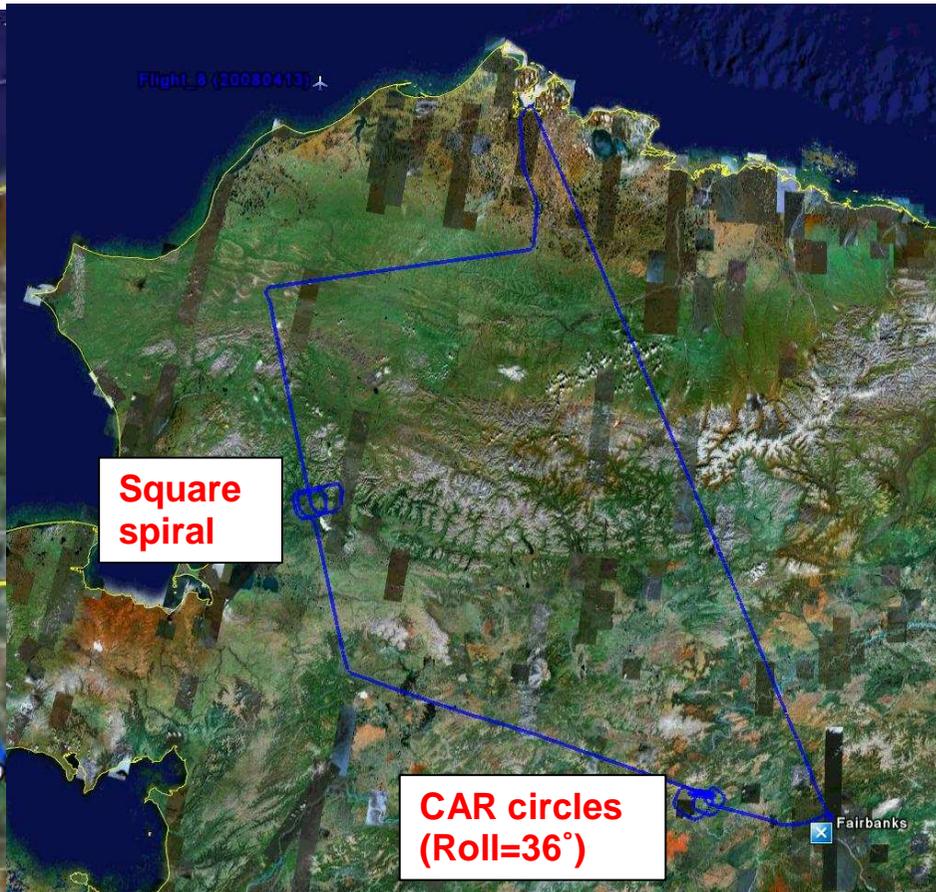
Flight Report
ARCTAS P-3B Data Flight 8, flown 13 Apr 2008
Submitted by Phil Russell

Goals:

1. Measure surface albedo/BRDF at Elson Lagoon (or other designated albedo/BRDF site).
2. Sample predicted aerosol & CO transported into area.
3. Measure AOD(l,z), ext(l,z), & aerosol radiative effects in spirals and stack along CALIPSO/OMI track, including OP time.
4. Coordinate with B-200 during 1-3.



Planned flight track



Actual flight track

Takeoff 1925 UT. Land 0035 UT.

Accomplishments

- Many in situ measurements of aerosol & CO during an important transport episode to test model predictions
- Measured albedo & BRDF of “cloud of opportunity”
- Excellent instrument performance, including AATS tracking through clouds & in tight circles
- Excellent A/C & pilot performance of maneuvers: square spirals, CAR circles (Roll=36°), altitude & course changes, etc.
- Good phone communication, B-200 to ground (FAI)
- Good pilot-to-pilot radio communication, B200-P3B
- Good headset communication, cabin-mission manager-pilots (problem early in mission)

Accomplishments were limited by clouds and fog, which prevented albedo and BRDF measurements at Elson Lagoon and AOD(λ, z) measurements on the CALIPSO/OMI track. Poor P-3B Iridium phone communication and a lack of current, valid cloud imagery prevented saving flight hours and choosing to work in a good area encountered while en route to Barrow.

Instrument Reports

- AATS-14. Only interesting science was takeoff and initial profile from Fairbanks. Tracked well until last 45 minutes. Most of the flight ruined due to high cirrus. Highest AOD 0.16 or so out of Fairbanks. Tracked well during first 5 CAR circles (despite 36 degree bank turns). Overall good flight.
- AERO3X. Made progress instrument-performance wise. Aethalometer and f(RH) ran with no problem. Maintained flow regime during lower flight legs. Extinctions read for blue and red range when at low altitude, but blue only when higher (above 8000'). Aethalometer shut off during CAR circles. Need 20 to 30 minutes to remove the AERO3X from the plane.
- BBR. Worked fine whole flight. Complicated day, so unclear what was gotten scientifically.
- CAR. CAR instrument performance was great the entire flight. Science-wise, complicated initially due to cirrus, broken clouds, mixed clouds. Hard to get a spot. Pleased with the BRDF measurements and sure to get good science out of it.
- CCN. Worked fine. Did not observe any strange stuff.
- COBALT. Very good flight. CO from 110 to 210 and did see some structure in pollution layers. Interesting flight. Wants to work current driver issue tomorrow morning from 8 to 11.
- HIGEAR. Everything ran well. SP scattering channel running better. Got some juicy pollution.
- AMS. Ran well – better than ever. Saw some interesting stuff early.
- PDS. Everything worked fine.
- REVEAL. Iridium had a problem in the northern latitudes, but it is working now. Link was up and had B-200 and weather maps. System functional as long as geomagnetic storms don't interfere.
- SSFR. Worked well. Running with a new integration time (lowered) due to saturation issues in the spectrometer but there were still a handful of saturation issues so may need to go lower.

WFF Flight Report

Aircraft :	NASA P-3B
Operating Site(s) From / To :	PAFA
Flight Date :	April 13, 2008
Flight Number / Data Flight # :	554 / 8
Time out:	1919 (Z)
Time in:	0045 (Z)
Flight Time :	5.4
Flt Request # / PI:	8P301/ Phil Russell
Purpose of Flight :	Data [X] Ferry [] Functional Check [] Other []
Sensor Payload :	ARCTAS
Comments :	Today's science flight was successful, although due to cloud presence not all science objectives were met. Despite the clouds, consensus was that much useful data were gathered. The aircraft and all instruments are in an up status. Next possible flight date is Tuesday April 15.

SUBMITTED BY: Cate Fairchild 13 April, 2008

Flight Hours for ARCTAS Campaign

Flight	Date	Aircraft Flight #	Data Flight#	Duration (hr)	Remaining Hours*
<i>Total Allocated</i>					75
Engineering Check Flt 1	3/14/2008	535		2.8	72.2
Engineering Check Flt 2	3/24/2008	537		2.3 (1.0)*	71.2
Project Check Flight 1	3/25/2008	536	1	3.0	68.2
Project Check Flight 2	3/27/2008	538	2	3.4	64.8
Transit to Yellowknife	3/31/2008	541	3	7.6	57.2
Transit to Fairbanks	4/1/04	542	4	6.5	50.7
Functional check flight	4/5/08	546		0.5**	50.7
Science flight	4/6/08	545	5	8.6	42.1
Science flight	4/8/08	548-1	6	8.6	33.5
Science flight	4/9/08	548-2	7	8.7	24.8
Science flight	4/13/08	554	8	5.4	19.4
Return Transit+	TBD			9.5	9.9

+ Estimating 9.5 hours for return transit

* Science only charged 1 hour for ECF #2

** Science not charged for 4/5/08 functional check flight