
Science Flight Report

Operation IceBridge Arctic 2012



Flight: F01
Mission: North Basin Transect/Thule-Fairbanks

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	2
Flight Request	12P006
Date	Wednesday, March 14, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission North Basin Transect/Thule-Fairbanks
Take off time	12:21 Zulu from Thule Air Base (BGTL)
Landing time	21:03 Zulu Fairbanks, AK (PAFA)
Flight Hours	8.7 hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	<ul style="list-style-type: none">• Low-altitude survey (1,500 ft AGL) of sea ice transects in the Arctic Ocean.• Completed entire mission as planned, without having to change altitude a single time.• ATM, snow and Ku-band radars, gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.• MCoRDS and accumulation radars were not in operation on this flight due to the sea ice mission.
Geographic Keywords	Arctic Ocean
ICESat Tracks	0329, 0328,0334
Repeat Mission	2009, 2010, 2011

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	62 GB	CAMBOT failure
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	350 GB	Running backup system
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	270 GB	Running backup system
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	160 GB	None
KT-19 Skin Temp.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10 MB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.5 GB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	130 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a near-exact repeat of the 2011 March 22 Arctic basin transect from Thule to Fairbanks, although much of that flight had to be flown direct to Fairbanks at high altitude because of exceptionally strong headwinds at low altitude. We also hoped to include a pass over the main BROMEX line near Barrow, but were short on time and had to drop this line. In addition to Level-1 Requirements 4.1.1.A.3a and b, the flight addresses sea ice level 1 baseline requirement 4.1.1.A.3c by providing data on the thickness gradient and distribution of perennial and seasonal ice across the Arctic Basin. The weather turned out to be what we had expected, with some clouds above us. We were able to underfly the clouds and stay at 1500 ft along the entire line having clear view of the surface at all times. We only had conditions like this in 2009 and never since. The contrast was very low and light conditions were dark due to cloud cover above us and low sun angle as can be anticipated during this time of the year.

Individual instrument reports from experimenters on board the aircraft:

ATM: The ATM systems worked well and collected good data along the entire line in cloud free conditions and along the high altitude transit over NW Greenland. The CAMBOT camera failed shortly before Barrow. The ATM team hopes to be able to buy a replacement camera in Fairbanks since the spare camera had to be left in Thule because of weight constraints. ATM collected 6.9 hours of science data.

MCoRDS: The MCoRDS system was not operated on this flight due to the sea ice mission.

Snow and Ku-band radar: The snow and Ku-band radars collected data along the entire line. The new system had a hardware failure and data was recorded on the backup system that has been used last year. The data acquisition on the Ku-band radar was accidentally turned off for more than one hour. The snow radar collected 5:50 hours of data and the Ku-band radar 4:30 hrs.

Accumulation radar: The system was not operated on this flight due to the sea ice mission.

Gravimeter: Worked well. No issues.

Magnetometer: worked well.

DMS: DMS worked well. No issues on the primary camera. The backup camera behaved flaky.

KT-19 skin temperature sensor: System worked well.

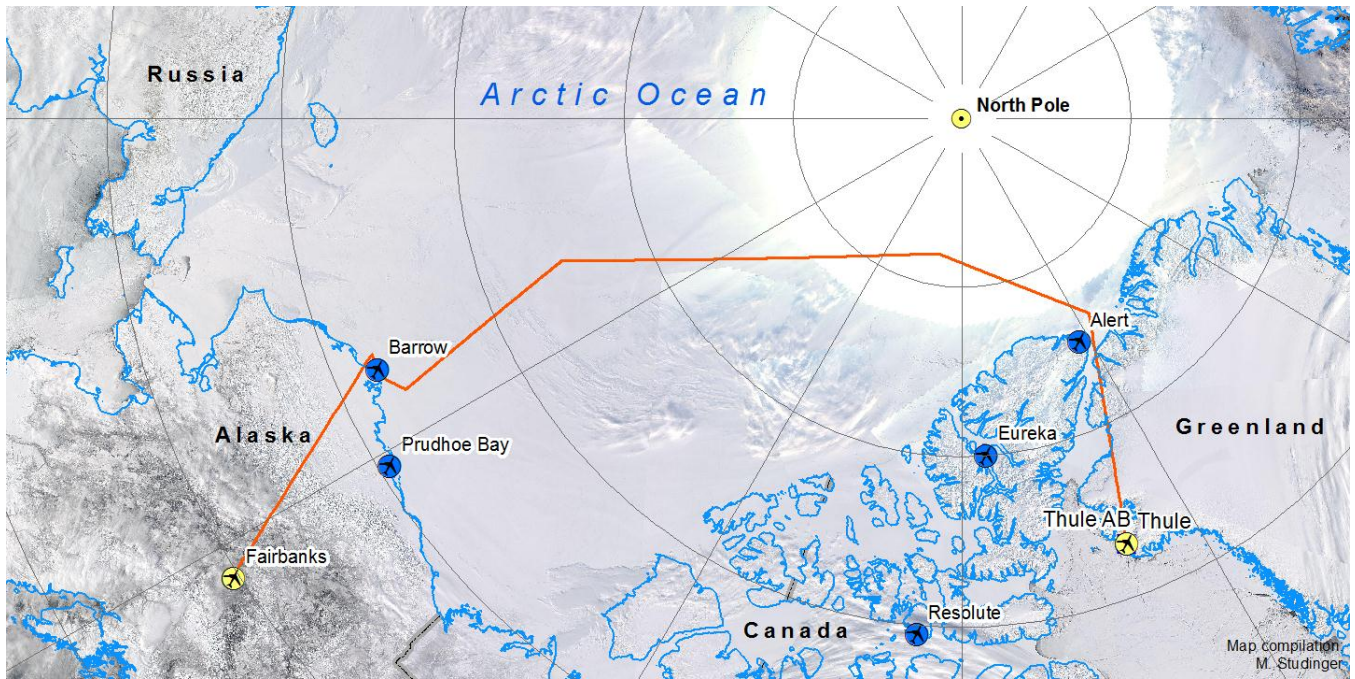


Figure 1: Today's sea ice mission plan.