
Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: F18
Mission: Russell 02 mop-up

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	018
Flight Request	11P006
Date	Wednesday, April 13, 2011 (Z)
Purpose of Flight	Mission Russell 02 mop-up
Take off time	10:15 Zulu from Kangerlussuaq (BGSF)
Landing time	16:09 Zulu at Kangerlussuaq (BGSF)
Flight Hours	6.0 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 24 grid lines on Russell Glacier spaced 500 m or more apart.• Completed two north-south oriented tie lines lines.• ATM, MCoRDS snow and Ku-band radars, accumulation radar, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines.• Ramp pass at 2,000 ft AGL for ATM calibration.• Pitch maneuvers over fjord for snow radar.
Geographic Keywords	Russell Glacier
ICESat/CryoSat Track	None.
Repeat Mission	None.

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"/>	49 GB	Dirty laser beam.
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.9 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	300 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	300 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	233 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	59 GB	None
POS/AV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	480 MB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	360 MB	None

Mission Report (Michael Studinger, Mission Scientist)

The forecast for all missions from Kangerlussuaq was poor today, with the exception of Russell Glacier just outside Kangerlussuaq. We expected the weather to deteriorate during the day with precipitation and low clouds, but had enough of a window to start flying Russell Glacier until the conditions turn bad. This mission is a new mission, whose purpose is to greatly densify the 2 km grid flown over the Russell Glacier area in 2010 to 500 m spacing in the cross-flow direction. We already started on a previous mission on April 8, 2010 to fly some of the southern grid lines and completed the remaining 24 lines north of that today. We also flew two north-south trending tie lines. Together with last year's lines we have a 500 m grid of Russell Glacier that together with borehole data and GPS velocity measurements will make a great data set for the ice sheet modeling community to advance our understanding of land terminating glaciers.

Individual instrument reports from experimenters on board the aircraft:

ATM: The laser beam of the wide-swath ATM scanner showed weaker power than normal from condensation and liquid inside the scanner head. Last night, the ATM team drained a significant amount of fluid from the laser head. No data was lost today.

MCoRDS: The MCoRDS system worked well.

Snow and Ku-band radar: The snow and Ku-band radars collected 100% data along the line.

Accumulation radar: worked well.

Gravimeter: Worked well. No issues.

Magnetometer: worked well.

DMS: worked very well.

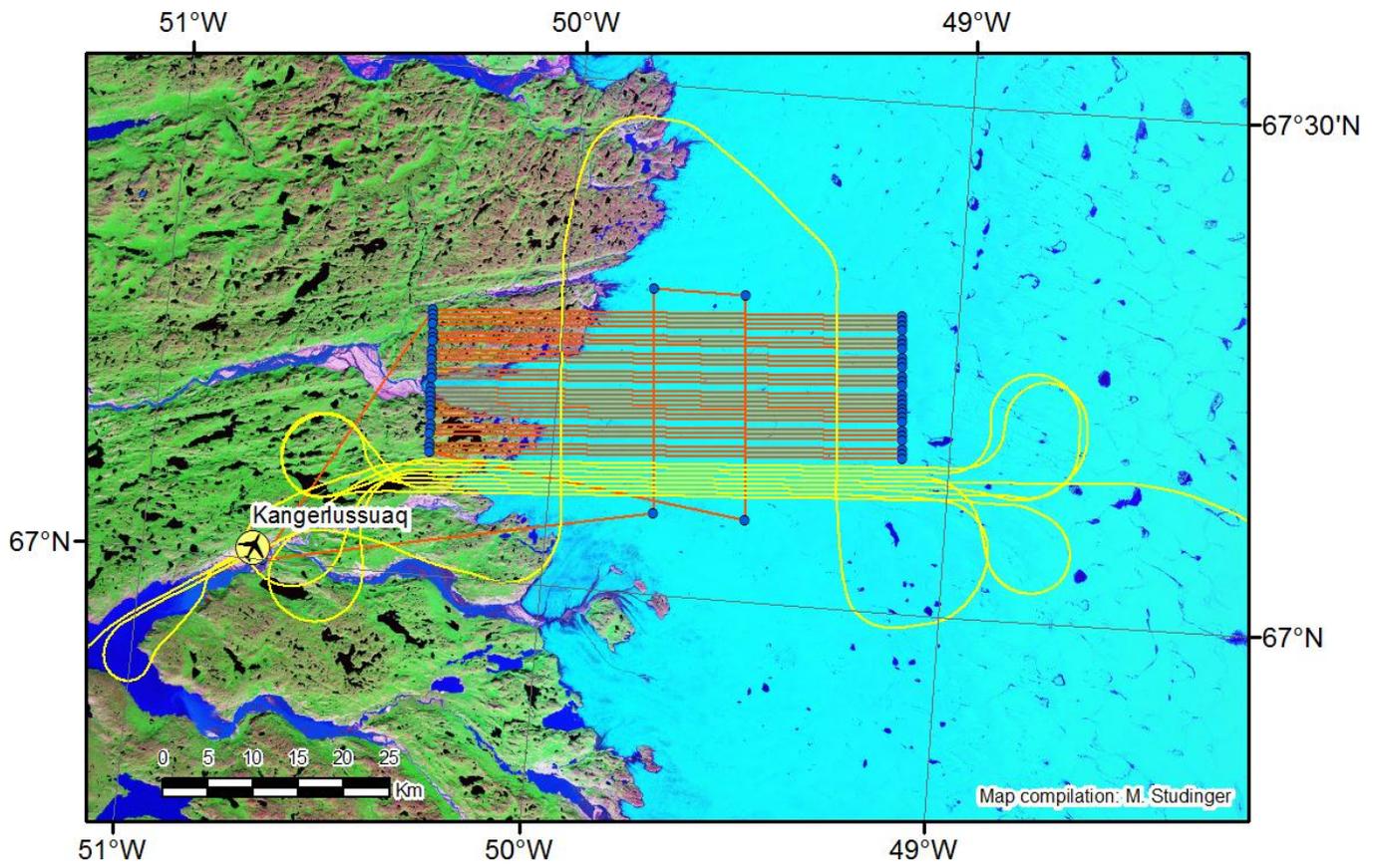


Figure 1: Mission plan for today's flight (red) together with P-3 trajectory from April 8, 2011 (yellow).

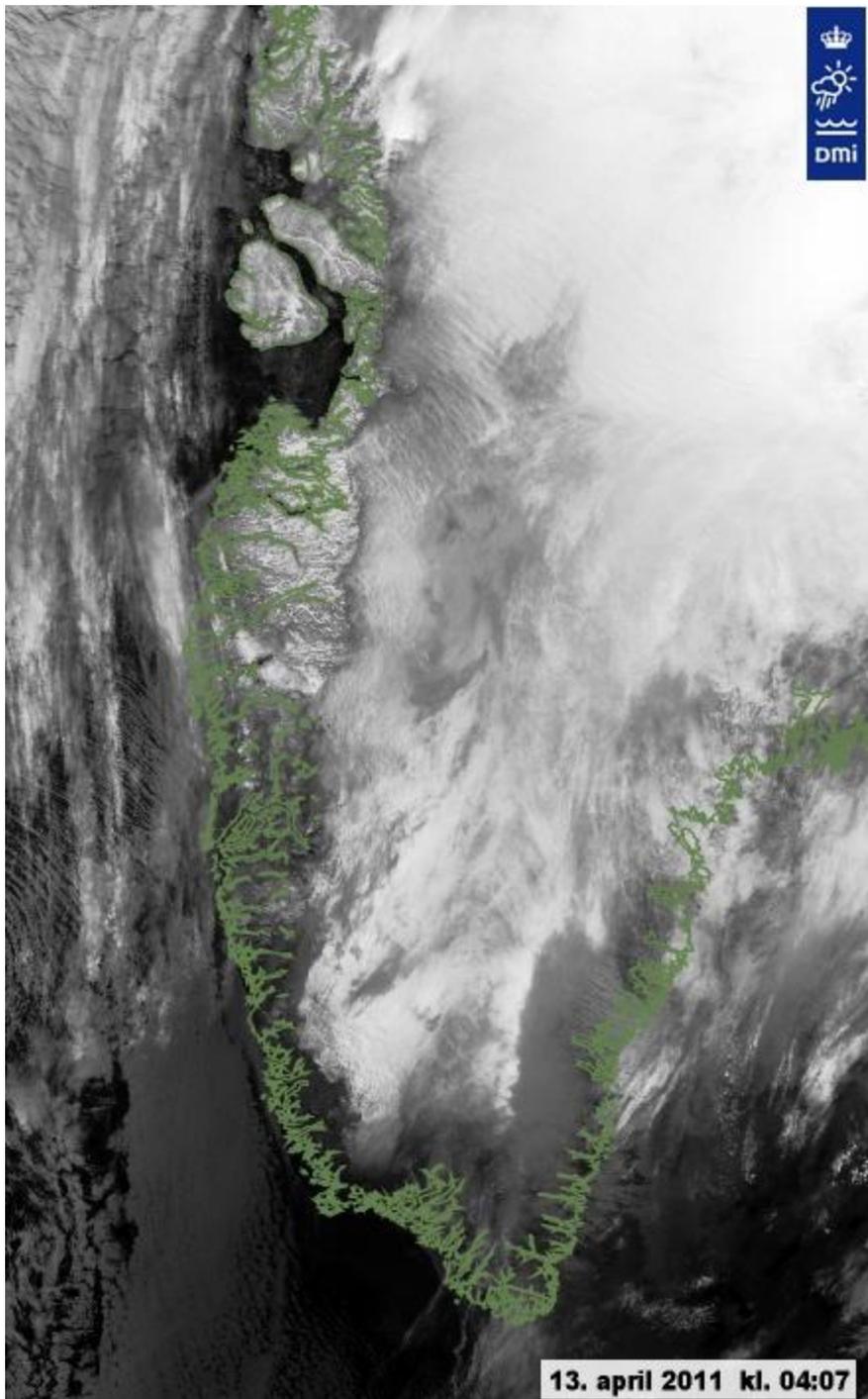


Figure 2: IR satellite image downloaded before flight showing poor conditions almost everywhere.