
Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: F16
Mission: SE Glaciers Mopup 01

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	016
Flight Request	11P006
Date	Monday, April 11, 2011 (Z)
Purpose of Flight	Mission SE Glaciers Mopup 01
Take off time	10:32 Zulu from Kangerlussuaq (BGSF)
Landing time	16:06 Zulu at Kangerlussuaq (BGSF)
Flight Hours	3.8 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 several glaciers along the SE costal areas.• ATM, MCoRDS, snow and Ku-band radars, accumulation radar, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines.• Ramp pass at 1,500 ft AGL at Kangerlussuaq airport for ATM and snow radar instrument calibration.
Geographic Keywords	SE Glaciers.
ICESat/CryoSat Track	ICESat track 0040.
Repeat Mission	2010.

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"/>	42 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.15 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	265 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	265 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	220 GB	Drive stall b/c turbulence
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	55 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"/>	400 MB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	100 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today was the first day the SE of Greenland was cloud-free since we arrived and had an aircraft available. We decided to take advantage of this rare opportunity. The issue with southeast Greenland is that it is mostly covered in clouds from the Iceland low. One way to get it cloud free is to have a strong wind from the ice sheet that together with the rugged topography results in often turbulent conditions. Last year, we flew this mission in very similar conditions with winds around 35-40 kts and severe turbulence warning. The forecast for today was the same, however, we experienced 50 – 70 kts winds during the glacier runs that caused severe turbulence, like the P-3 had not experienced before. Despite the difficult conditions we were able to survey all planned glaciers in the cloud-free area south of 65N. The amount of windblown snow was extreme and often reduced visibility for flight operations. Today's data will be a good data set to evaluate the potential impact of windblown snow for ICESat-2 laser altimeter measurements.

We were able to collect a good data set in difficult conditions in an area that is known for difficult weather conditions.

Individual instrument reports from experimenters on board the aircraft:

ATM: ATM system worked well. The extreme turbulence swich both lasers off at some point during the flight.

MCoRDS: MCoRDS had difficulties starting up and the issues were not resolved until we reached the southern end of the 2000 m traverse route. After that MCoRDS worked well.

Snow and Ku-band radar: Performed well.

Accumulation radar: Worked well. Disk stall due to extreme turbulence

Gravimeter: Worked well.

Magnetometer: Worked well.

DMS: Worked well.

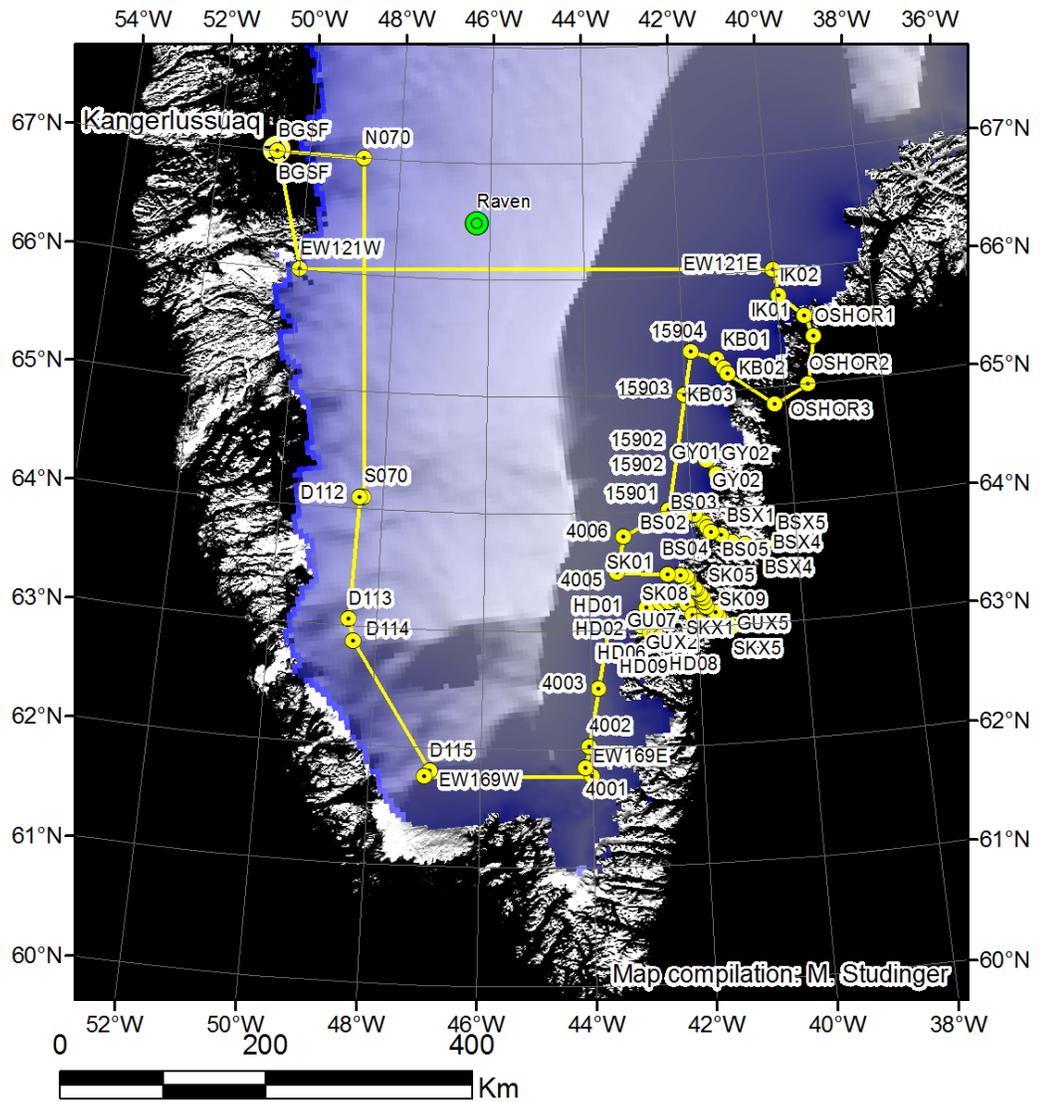


Figure 1: Mission plan for today's mission SE Glaciers Mopup.

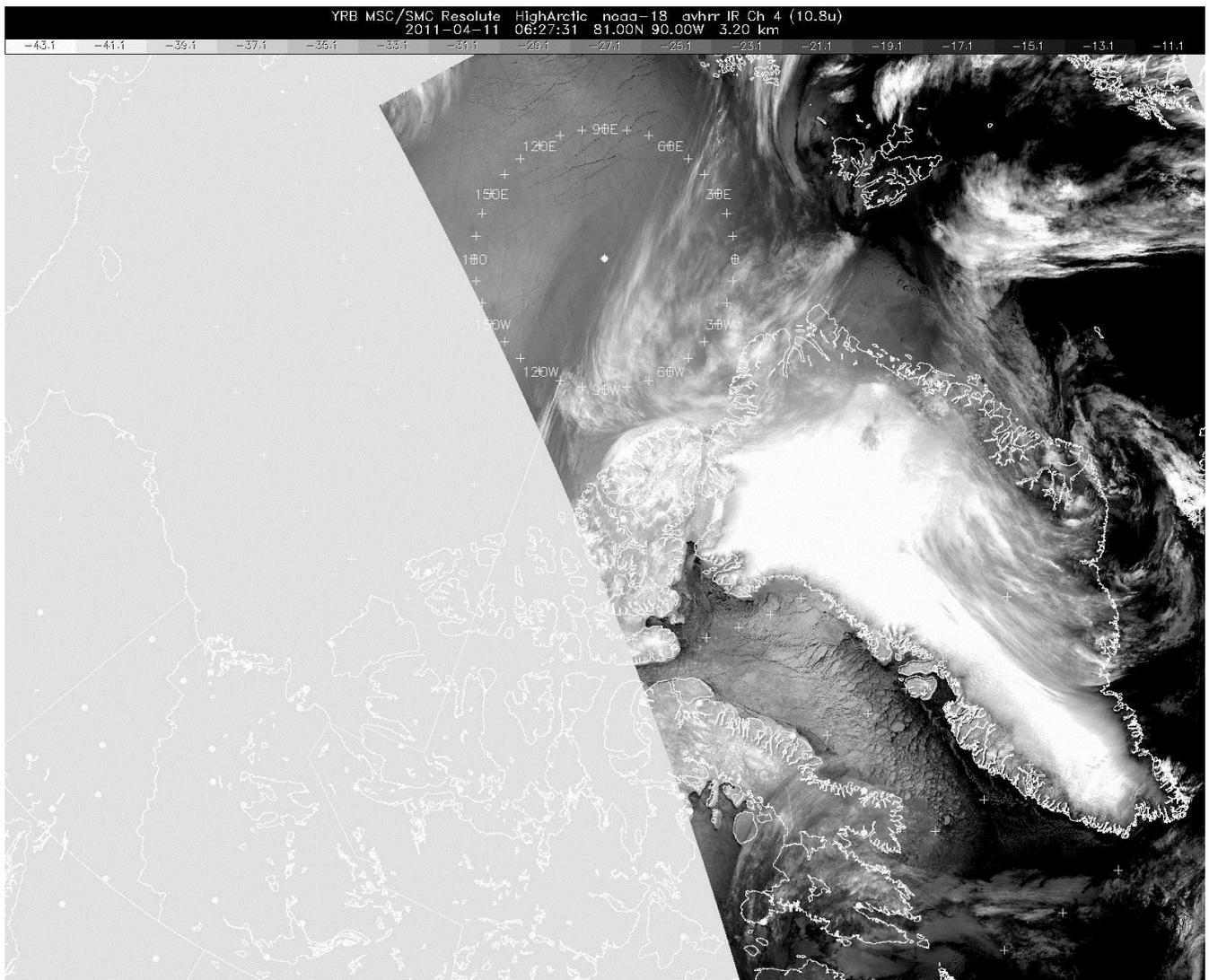


Figure 2: IR Satellite image downloaded shortly before takeoff showing SE Greenland coastal areas cloud free up to 65N.