
Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: F40
Mission: NW Coastal 05

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	040
Flight Request	11P006
Date	Monday, May 16, 2011 (Z)
Purpose of Flight	Mission NW Coastal 05
Take off time	11:04 Zulu from Thule Air Base (BGTL)
Landing time	18:41 Zulu at Thule Air Base (BGTL)
Flight Hours	7.8 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 lines along the NW coastal areas.• ATM, MCoRDS, accumulation, snow and Ku-band radars, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines.• Pitch maneuvers over fjord for snow and Ku-band radar.
Geographic Keywords	NW Greenland, Upernavik Isstrom (NW branch and N branch).
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 type="checkbox"/>	<input type="checkbox"/>	62 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.9 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	370 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	370 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	290 GB	None
DMS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	138 GB	Switched to backup.
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"/>	640 MB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	480 MB	None

Mission Report (Michael Studinger, Mission Scientist)

The lower parts of Baffin Bay and the coastal areas were still clouded in today and we stayed up on the ice sheet between the 1500 and 2000 m elevation contours, typically more than 70 km inland from the ice sheet margin and well away from the clouds. We also did two short glaciers runs along the NW and N branches of the Upernavik Isstrom in perfect conditions this time. Today's flight has expanded the areas covered by existing coast-parallel lines further inland. The coastal lines, that we started flying last year, are spaced 5 km apart. The four lines today were spaced 10 km apart to cover the area up to the 2000 m contour on the ice sheet, in order to establish a baseline for future airborne and satellite missions, which will allow us to determine how the thinning will propagate further inland.

Individual instrument reports from experimenters on board the aircraft:

ATM: worked very well.

MCoRDS: worked well.

Snow and Ku-band radar: The snow and Ku-band radars worked well.

Accumulation radar: worked well.

Gravimeter: Worked well. No issues.

Magnetometer: worked well.

DMS: switched to backup camera. Short data gap.

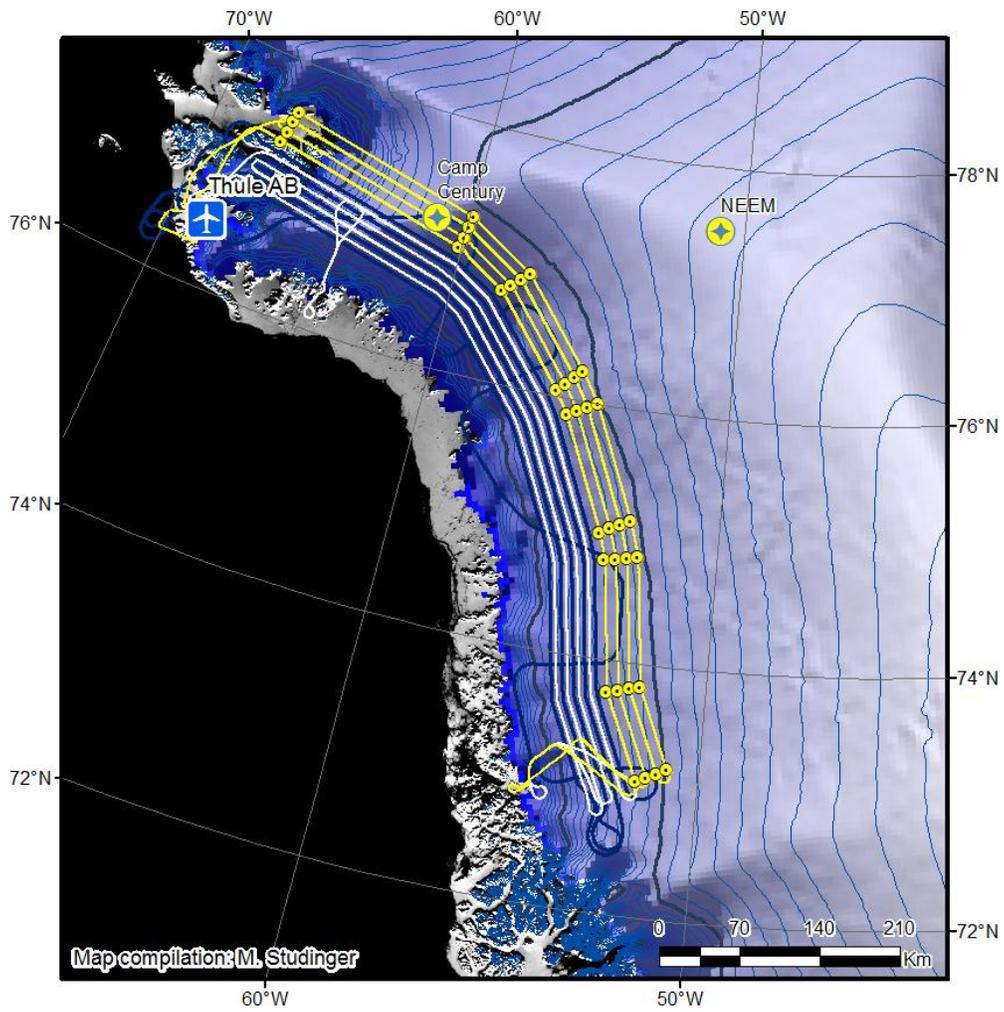


Figure 1: P-3 trajectory of today's flight (yellow) together with the DC-8 trajectory from March 29, 2010 (red) and last week's P-3 mission (white).

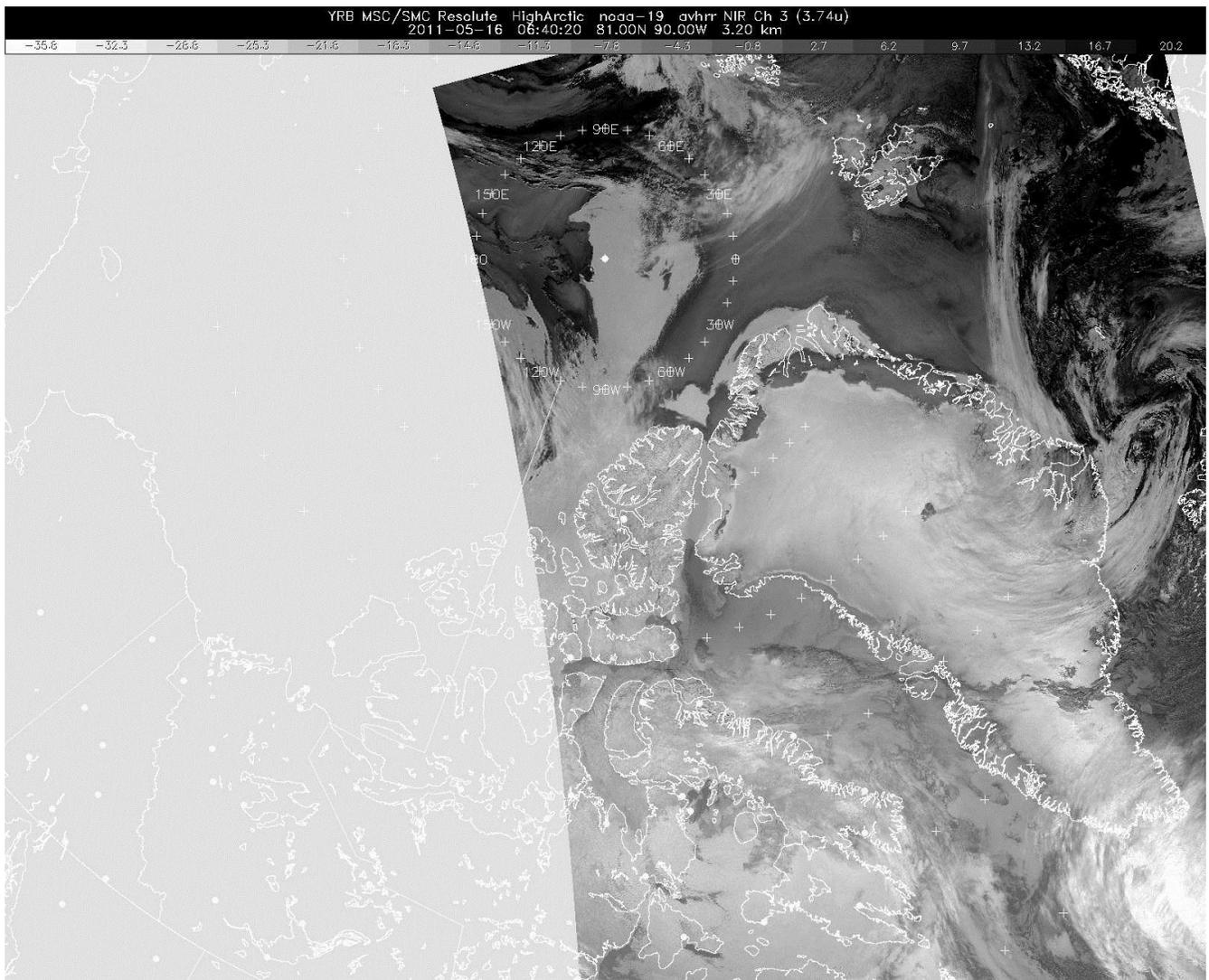


Figure 3: Short-wavelength IR satellite image downloaded shortly before takeoff.