

Science Flight Report

Operation IceBridge Arctic 2010



Flight: 10
Mission: North-West Coastal 01

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	900
Flight Request	10P002, 10P007
Date	Thursday, May 20, 2010 (Z)
Purpose of Flight	Operation IceBridge Mission North-West Coastal 01
Take off time	11:00 Zulu from Thule Air Base (BGTL)
Landing time	17:27 Zulu at Thule Air Base (BGTL)
Flight Hours	6.7
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational, except ATM T3.
Significant Issues	None.
Accomplishments	<ul style="list-style-type: none"> • Low-altitude survey (1,500 ft AGL) of Yngvar Nielsen Glacier and Upernavik Northwest Glacier along the Baffin Bay segment of the northwest Greenland coast and 4 coast-parallel lines spaced 10 km apart. • ATM, DMS, MCoRDS, accumulation, Ku-band and snow radars were all operated on the survey lines. • Gravimeter was in operation throughout the entire flight. • Completed all planned survey lines. • Conducted a ramp pass at 2000 ft AGL over Thule Air Base for ATM instrument calibration.
Geographic Keywords	Yngvar Nielsen Glacier, Upernavik Northwest Glacier, Baffin Bay, Northwest Greenland, Thule
ICESat Tracks	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"/>	57 GB	T2 only
MCoRDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.0 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	285 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	285 GB	None
Accumulation Radar	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	260 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	113 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	80 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a new design to map the near-coastal area of the upper Baffin Bay coast with a combination of all low-altitude sensors. The coast-parallel lines of today's mission NW Coastal 01 are separated by 10 km. A second mission, NW Coastal 02, has lines spaced 10 km apart that are located in between today's flight lines resulting in a 5 km line spacing for the combined missions. On the inland side, the survey area connects to the 10 km lines of the LVIS Northwest mission that we have flown on March 29, 2010 with the LVIS instrument on the DC-8 (Science Flight F05, Flight Number 100207, Flight Request Number 108013). We also add new profiles along the center flowlines of the Yngvar Nielsen and Upernavik Northwest Glaciers. Some of the coast-parallel flight lines had to be shortened near Thule Air Base because of the airspace that is closed off around the BMEWS radar site.

The weather decision this morning was not straight forward. Satellite imagery indicated fog and low clouds over Baffin Bay that could potentially extended inland into our survey area. The imagery also indicated possible medium elevation clouds underneath a widespread system of high clouds. The model indicated very few to no clouds in the area and base on our good experience with this model over the past several months here we decided to launch. We encountered small pockets of dense ground fog over the glaciers near the coast as expected. The fog that has been visible over the North Star Bay at Thule this morning and extending almost to the runway was not a problem for return as expected. The NE Greenland Ice Stream area had better weather today but the ash cloud covers the entire area from the surface to FL200 making it impossible to fly into this area. The weather over the Canadian Ice Caps was marginal to poor today.

With today's flight we have completed all high-priority mission plans of both, the DC-8 and the P-3 campaign.

Individual instrument reports from experimenters on board the aircraft:

ATM: T2 worked well throughout the entire flight and only lost less than 1% of surface returns due to dense fog. The T3 laser was not in operation on today's flight.

MCoRDS: The MCoRDS system worked well and collected 2.0 TB of data.

Snow and Ku-band radar: Both systems worked well and collected each about 285 GB of data.

Accumulation Radar: The system worked well and collected 260 GB of data.

DMS: DMS worked well and collected 113 GB of data.

Gravimeter: System worked normally. No problems.

NW Coastal 01

6.7 hrs at 250 knots groundspeed

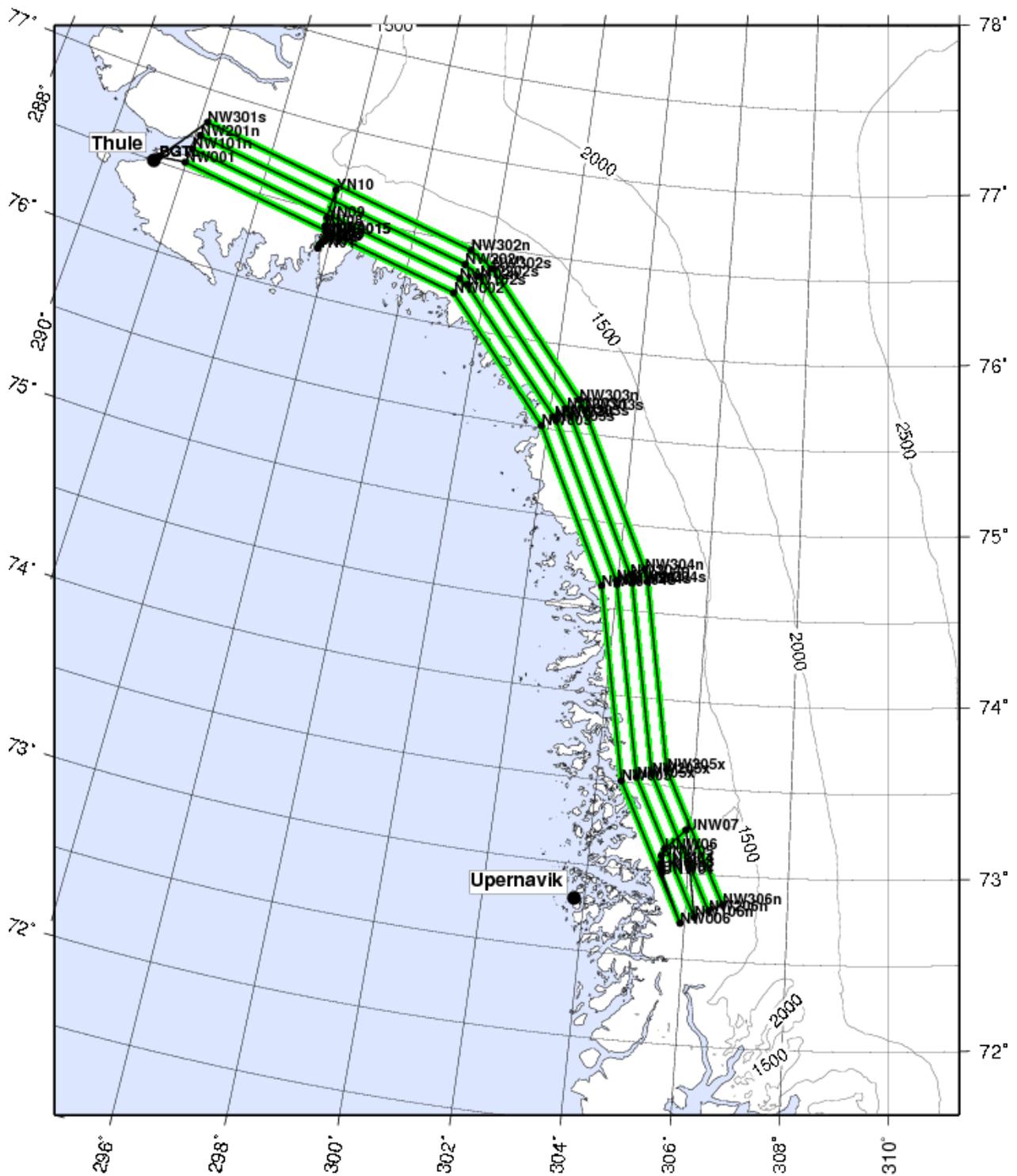


Figure 1: Waypoints and survey area of Flight 10 from John Sonntag.