Preliminary Science Flight Report
Operation IceBridge Arctic 2011

Flight: **F25**
Mission: **Umanaq 02**

Flight Report Summary

Aircraft	**P-3B (N426NA)**
Flight Number	025
Flight Request	11P006
Date	Saturday, April 23, 2011 (Z)
Purpose of Flight	Mission Umanaq 02
Take off time	10:24 Zulu from Kangerlussuaq (BGSF)
Landing time	16:59 Zulu at Kangerlussuaq (BGSF)
Flight Hours	6.7 hours.
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	• Low-altitude surveys (1,500 ft AGL) of 6 coast parallel lines near Umanaq and one ICESat track. • ATM, MCoRDS, accumulation, snow and Ku-band radars, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines. • Ramp pass at 1,000 ft AGL for ATM calibration. • Pitch maneuvers over fjord for snow and Ku-band radar.
Geographic Keywords	Greenland.
ICESat/CryoSat Track	ICESat track 1320.
Repeat Mission	None.

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	☑	☒	☒	56 GB	None
MCoRDS	☒	☒	☒	1.5 TB	None.
Snow Radar	☑	☒	☒	260 GB	None
Ku-band Radar	☑	☒	☒	260 GB	None
Accumulation Radar	☒	☒	☒	256 GB	None
DMS	☑	☒	☒	109 GB	None
POS/AV	☑	☑	☑	2 GB	None
Gravimeter	☑	☑	☑	640 MB	None
Magnetometer	☑	☑	☑	480 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a new design, whose main purpose, along with Umanaq 01, is to extend the grid formed by the suite of Northwest Coastal missions from 2010 and this year to the south, and to connect to the Jakobshavn grid flights flown by CreSIS since 2008. We transit to and from the grid along the same ICESat track 1320 along the margin of the Greenland Ice Sheet to facilitate instrument self-consistency checking.

The weather in the area was good. We were able to fly below the high clouds all day and only got into clouds towards the interior of the ice sheet, but were able to survey the entire time.

Individual instrument reports from experimenters on board the aircraft:

ATM: worked very well and collected data on the entire line despite clouds.

MCoRDS: The MCoRDS system 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: worked very well. Some cloudy areas.

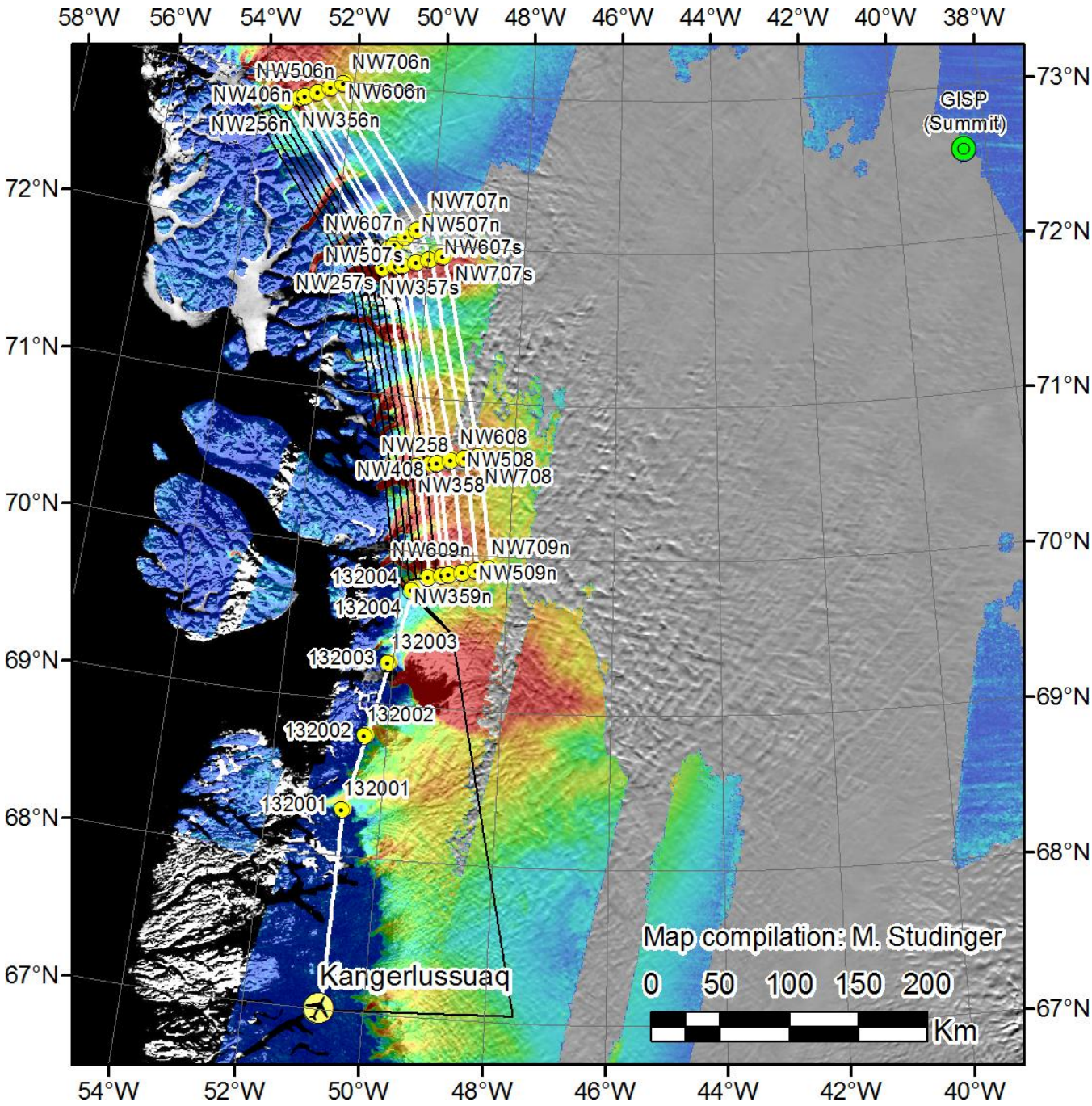

Figure 1: Mission plan for today's flight (white) with Umanaq 01 shown in black.

Figure 2: IR satellite image downloaded shortly before takeoff showing high and low clouds in the survey area.