Preliminary Science Flight Report
Operation IceBridge Arctic 2011

Flight: **F29**
Mission: **Petermann 03**

Flight Report Summary

Aircraft	**P-3B (N426NA)**
Flight Number	029
Flight Request	11P006
Date	Friday, April 29, 2011 (Z)
Purpose of Flight	Mission Petermann 03
Take off time	11:14 Zulu from Thule Air Base (BGTL)
Landing time	17:52 Zulu at Thule Air Base (BGTL)
Flight Hours	6.9 hours.
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	• Low-altitude survey (1,500 ft AGL) of a grid in the catchment area of Petermann Gletscher. • ATM, MCoRDS, accumulation, snow and Ku-band radars, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines. • Ramp pass at Thule at 2,000 ft AGL for ATM calibration.
Geographic Keywords	Petermann Gletscher.
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	☑	☒	☒	60 GB	None
MCoRDS	☑	☒	☒	1.6 TB	None.
Snow Radar	☑	☒	☒	350 GB	None
Ku-band Radar	☑	☒	☒	350 GB	None
Accumulation Radar	☑	☒	☒	280 GB	None
DMS	☑	☒	☒	110 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 with the main purpose to extend the 2010 Petermann 01 10-km-grid upstream in conjunction with Petermann 02. The weather south of Thule was poor today and we had to choose from mission plans with targets north of Thule. On Friday's the P-3 has to be in the hangar in Thule by 16:00 LT, because the Thule airport workers finish one hour earlier for the weekend break. This means we have to land one hour earlier and leave only time for a 6.5 hour science flight. For this reason we decided not to fly a high priority mission and chose a medium priority mission that could be shortened. We shortened the northeast corner of the survey grid that is outside the main catchment area to return to Thule before 14:45 LT to allow for one hour of post-flight GPS while the aircraft is not moving.

The weather in the area was very good as expected.

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: worked very well.

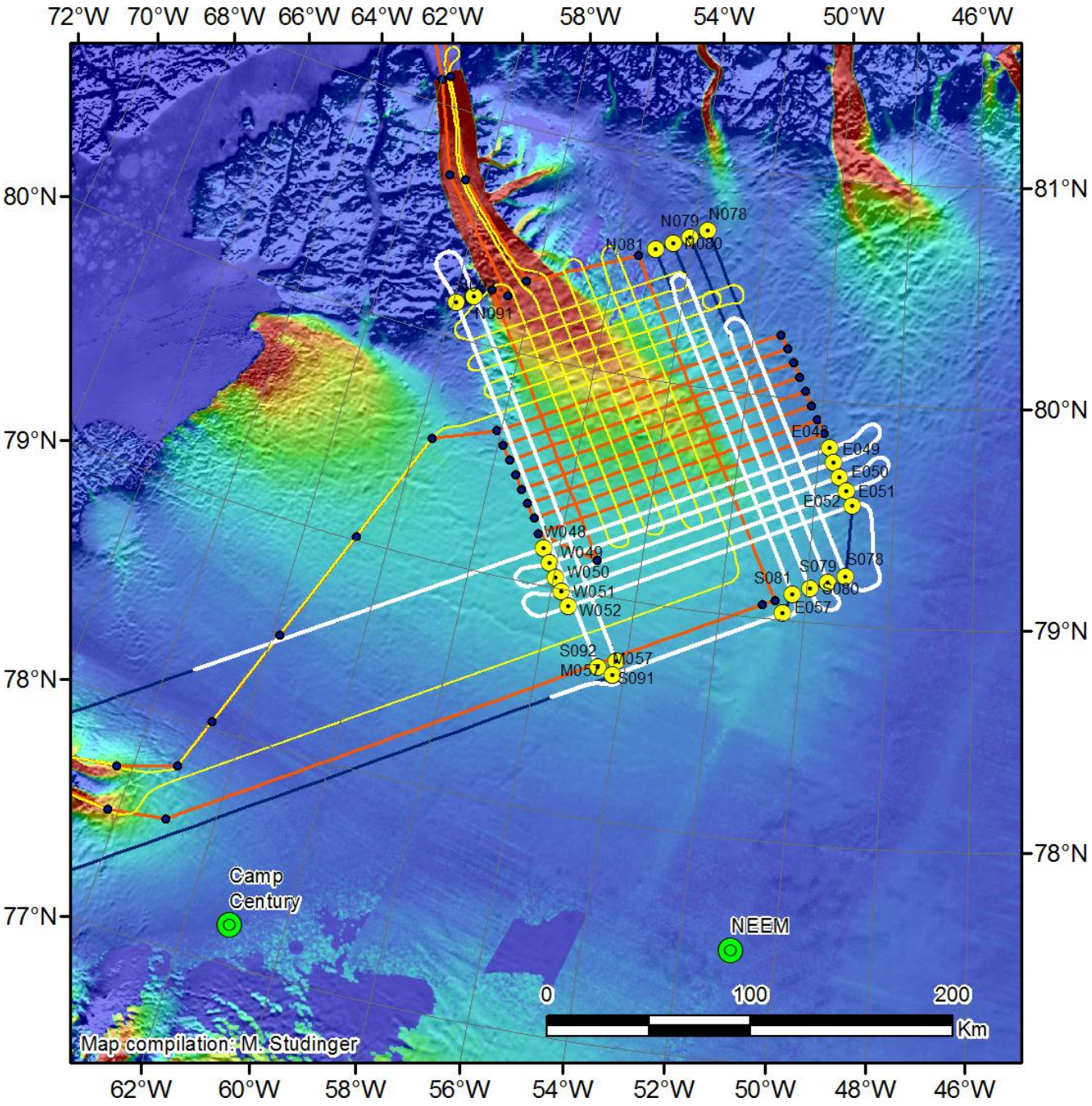

Figure 1: P-3 trajectory of today's flight in white with mission plan (blue) and DC-8 trajectory from the Petermann 01 mission from last year (yellow) and planned mission Petermann 03 (green).

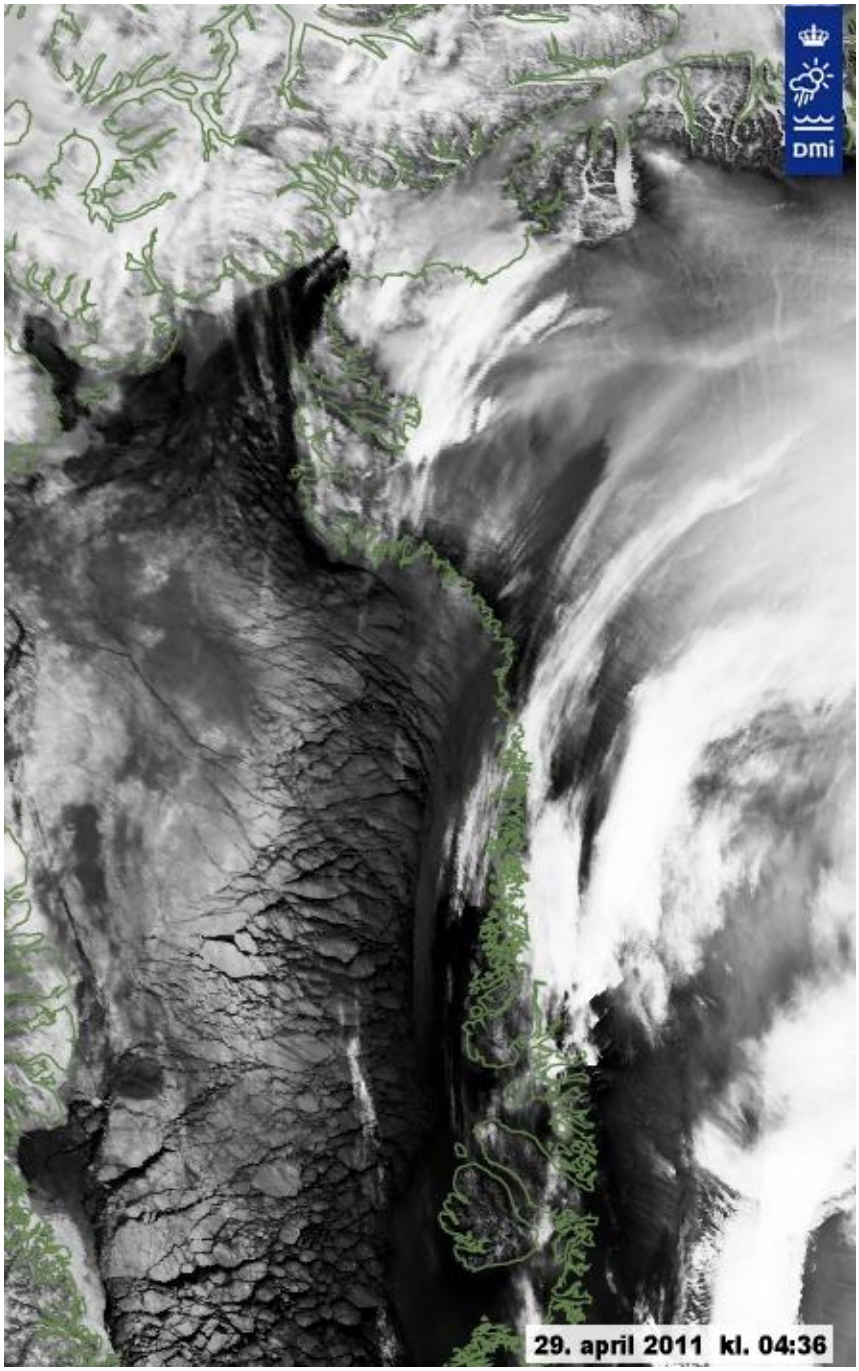

Figure 2: IR satellite image downloaded shortly before takeoff showing.