Science Flight Report
Operation IceBridge Arctic 2012

Flight: **F27**
Mission: **Disko Bay 01**

Flight Report Summary

Aircraft	**P-3B (N426NA)**
Flight Number	28
Flight Request	12P006
Date	Saturay, April 21, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission Disko Bay 01
Take off time	10:22 Zulu from Kangerlussuaq (BGSF)
Landing time	17:40 Zulu at Kangerlussuaq (BGSF)
Flight Hours	7.4 hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None.
Accomplishments	• Low-altitude survey (1,500) of glaciers and ice sheet profiles. • ATM, snow, Ku-band, accumulation radar, MCoRDS gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines. • Pitch and roll maneuvers for snow and Ku-band radar. • Ramp pass at 5,000 ft AGL at Kangerlussuaq.
Geographic Keywords	Disko Island, Jakobshavn Glacier, Nuusuaq Peninsula, Eqip Sermia, Kangilerngata Sermia, Sermeq Kujalleq and Store Glaciers, Sermeq Avangnardleq
Satellite Tracks	ICESat tracks 0085,1320,0300,1282,0204
Repeat Mission	yes

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	☑	☒	☒	74 GB	None
MCoRDS	☒	☒	☒	1.8 TB	None
Snow Radar	☑	☒	☒	GB	None
Ku-band Radar	☑	☒	☒	GB	None
Accumulation Radar	☑	☒	☒	180 GB	None
DMS	☑	☒	☒	100 GB	None
KT-19 Skin Temp.	☑	☑	☑	9.3 MB	None
Gravimeter	☑	☑	☑	1.5 GB	None
Magnetometer	☑	☑	☑	510 MB	None

Mission Report (Michael Studinger, Mission Scientist)

This is a new mission, built around many ATM lines and several new lines in the Jakobshavn Basin and other sites around Disko Bay. First, we reoccupy the north-south lines of the 10 km lower Jakobshavn grid flown almost every year since 1997 to track inland migration of Jakobshavn Glacier thinning. Next we occupy the central flowline of Jakobshavn Glacier itself, which in this case is an improved design of that difficult-to-fly line, first flown in 2011. From there we proceed into Disko Bay along a straight line intended to provide a solid tie with shipborne bathymetry for gravity inversion purposes. Next we fly transects of small ice caps on Disko Island and the Nuusuaq Peninsula for the first time. Then we reoccupy center flowlines of Eqip Sermia, Kangilerngata Sermia, Sermeq Kujalleq and Store Glaciers, which were all last flown in 2009, and Sermeq Avangnardleq, which has not previously been flown. Finally we refly several ICESat tracks in the upstream area of these glaciers.

The weather was perfect today.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both ATM systems worked well and collected good data along the entire line in cloud free conditions. ATM collected a total of 7.0 hours of science data with 100% coverage.

MCoRDS: The MCoRDS system worked well.

Snow and Ku-band radar: The snow and Ku-band radars worked well on the primary system.

Accumulation radar: Worked well today.

Gravimeter: Worked well.

Magnetometer: Worked well and used the SGL data logger today without problems.

DMS: DMS worked well and collected 14000 frames.

KT-19 skin temperature sensor: System worked well.

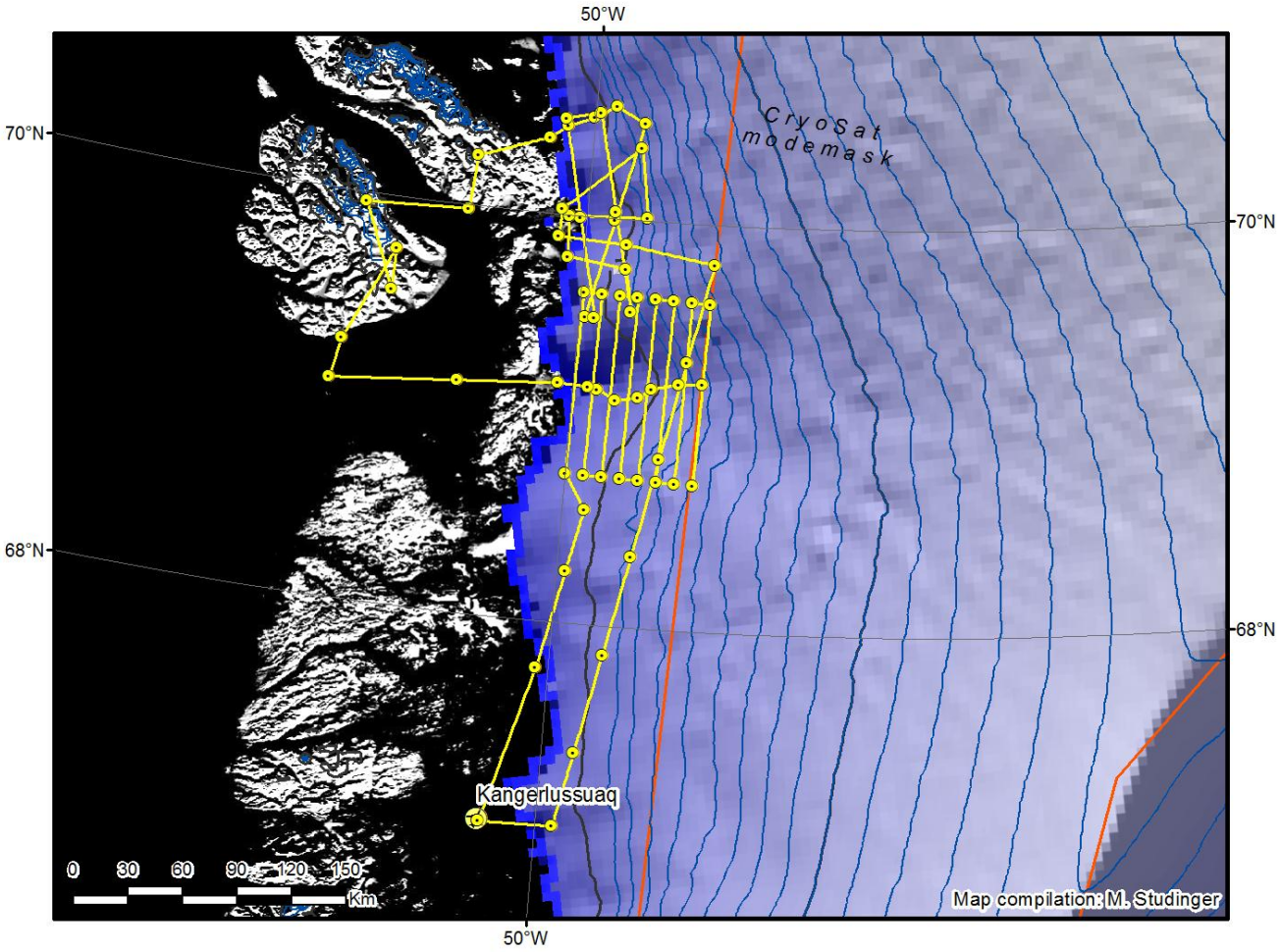

Figure 1: Today's mission plan (yellow).