Science Flight Report
Operation IceBridge Arctic 2012

Flight: **F21**
Mission: **Geikie 03**

Flight Report Summary

Aircraft	**P-3B (N426NA)**
Flight Number	22
Flight Request	12P006
Date	Monday, April 16, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission Geikie 03
Take off time	10:32 Zulu from Kangerlussuaq (BGSF)
Landing time	18:29 Zulu at Kangerlussuaq (BGSF)
Flight Hours	8.3 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 1,000 ft AGL at Kangerlussuaq.
Geographic Keywords	Geikie Plateau
Satellite Tracks	ICESat 0129,0180,0218,0248
Repeat Mission	None

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	☑	☒	☒	80 GB	None
MCoRDS	☒	☒	☒	2.2 TB	None
Snow Radar	☑	☒	☒	750 GB	None
Ku-band Radar	☑	☒	☒	750 GB	None
Accumulation Radar	☑	☒	☒	192 GB	None
DMS	☑	☒	☒	88 GB	None
KT-19 Skin Temp.	☑	☑	☑	10.7 MB	None
Gravimeter	☑	☑	☑	1.5 GB	None
Magnetometer	☑	☑	☑	350 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a new design intended to collect data along a 40 km east-west grid pattern over the Geikie Peninsula, which is an extension of the north Greenland master grid pattern. It also flies an inverted V pattern of ICESat tracks, to complement the one farther west to be flown in mission Geikie 01. We transited to and from the area along central Greenland master grid lines.

Thanks to the high pressure ridge along the northeast coast of Greenland, the weather was great as expected. We only lost 5% of ATM data because the range of the lasers was exceeded over steep topography and some ice fog.

Both, the DMS and ATM T4 window had fluid on the outside at the aft end that was slightly obscuring the camera and lasers but not causing any significant issues. We are investigating the source of the fluid.

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 7.5 hours of science data with 95% coverage. 5% of data was lost because the range of the lasers was exceeded over steep topography and because of ice fog.

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 LDEO data logger today without problems.

DMS: DMS worked well and collected 18730 frames on the primary system today.

KT-19 skin temperature sensor: System worked well.

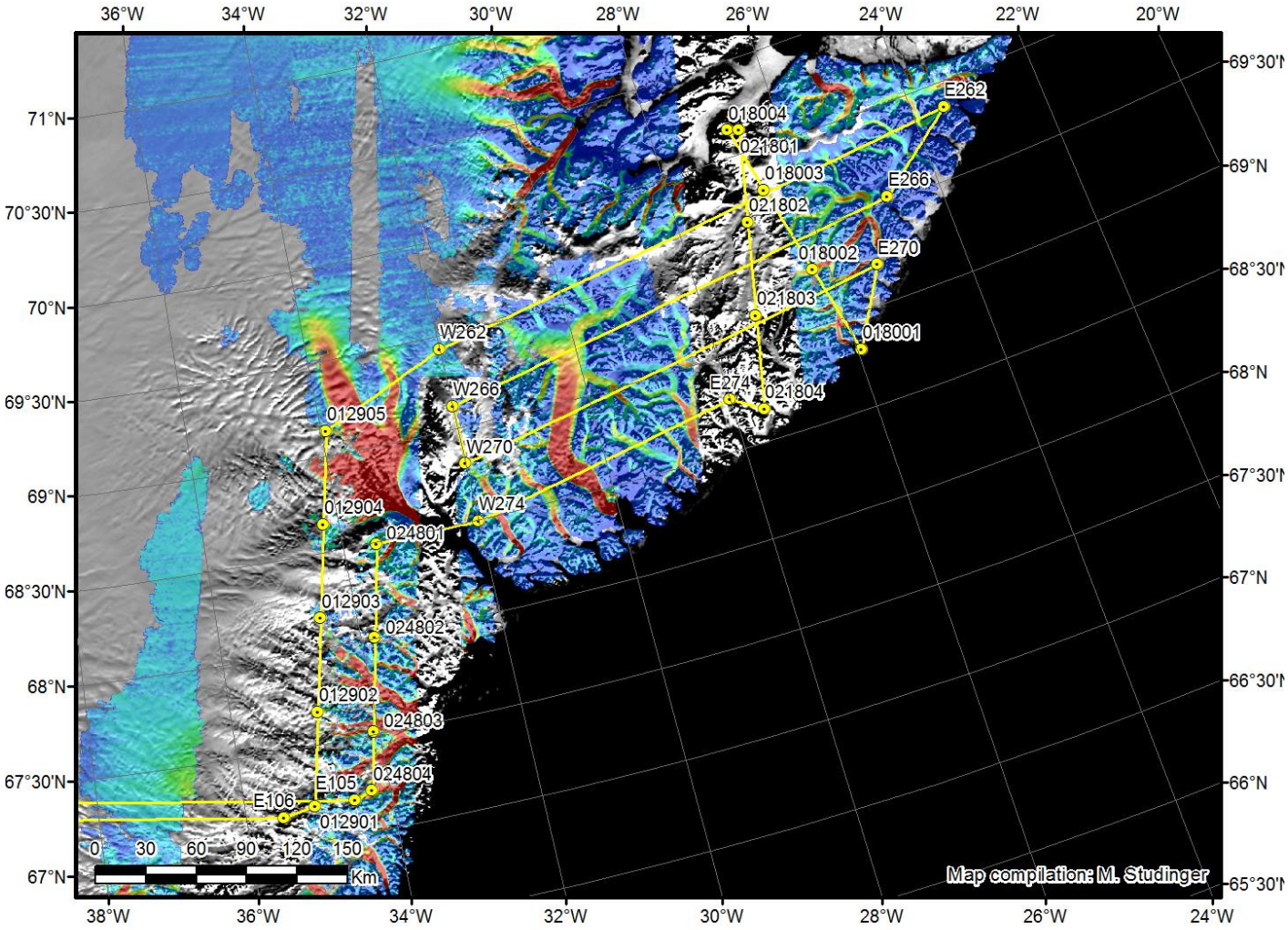

Figure 1: Today's mission plan (yellow).

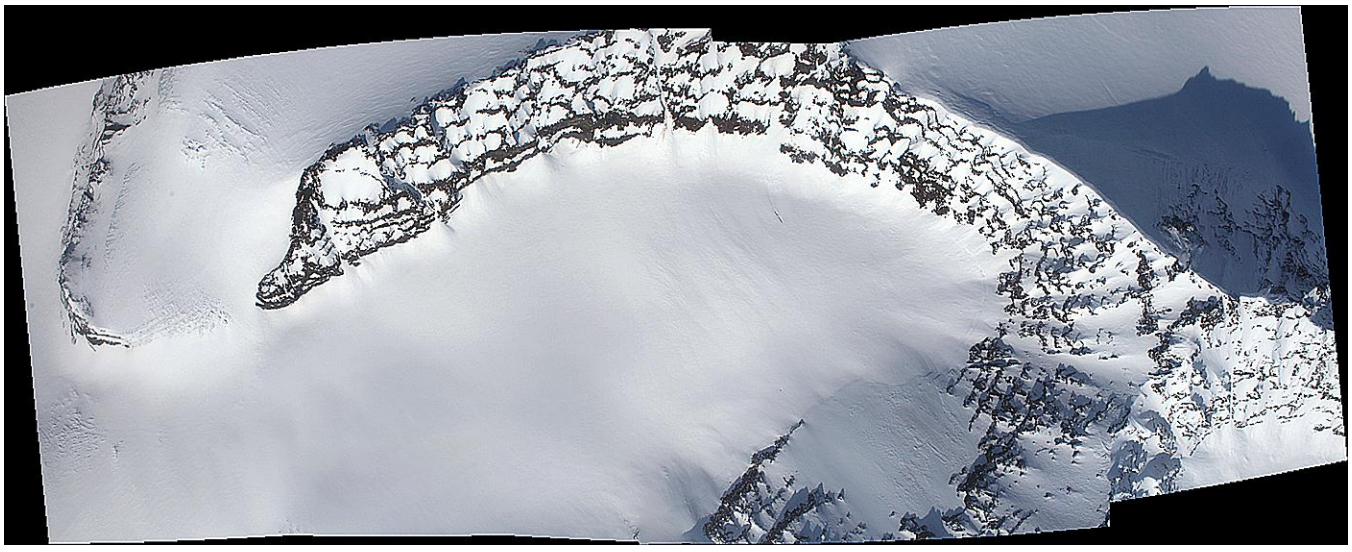

Figure 2: DMS mosaic from today's flight from James Jacobson/DMS.