

Science Flight Report

Operation IceBridge Arctic 2010



Flight: 08
Mission: Jakobshavn 02 – Transit BGSF - BGTL

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	896
Flight Request	10P002,10P007
Date	Monday, May 17, 2010 (Z)
Purpose of Flight	Operation IceBridge Mission Jakobshavn 02
Take off time	10:16 Zulu from Kangerlussuaq/Søndre Strømfjord Airport (BGSF)
Landing time	16:42 Zulu at Thule Air Base (BGTL)
Flight Hours	6.5
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 east-west oriented grid lines over Jakobshavn Isbræ. Surveys along the center flowlines of Rink Isbræ and Kangerdluqssuaq Glacier. Completed all planned survey lines. • Data collection over the Jakobshavn Ablation Region (JAR) Automatic Weather Stations (AWS) locations and over Swiss Camp. • Survey along an “old” 8-day ICESat line and ICESat track 300. • Survey along the repeat line from Camp Century to Thule Air Base. • ATM, DMS, MCoRDS, accumulation, Ku-band and snow radar were operated on the survey lines. Gravimeter was in operation throughout the entire flight. • Conducted a series of EMI/RFI tests along the Camp Century line for MCoRDS system. Sequential shut down of all science instruments except gravimeter. • Conducted a ramp pass at 4500 ft AGL over Kangerlussuaq/Søndre Strømfjord Airport for DMS instrument calibration. • Conducted a ramp pass at 2000 ft AGL over Thule Air Base for ATM instrument calibration.
Geographic Keywords	Jakobshavn Isbræ, Rink Isbræ, Kangerdluqssuaq Glacier
ICESat Tracks	300, 8-day orbit
Repeat Mission	Jakobshavn Isbræ, Rink Isbræ, Kangerdluqssuaq Glacier, Camp Century

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	52 GB	T2 only
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.4 TB	RFI issues
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	277 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	277 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	226 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	108 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	70 MB	None

Mission Report (Michael Studinger, Mission Scientist)

On today's flight we surveyed targets of opportunity along the transit route from Kangerlussuaq to Thule Air Base. The science portion of the flight is similar to an IceBridge mission from 2009. The primary science objectives are to fly the east-west lines of the Jakobshavn grid, and repeat surveys of the Rink Isbræ and Kangerdluqssuaq Glacier along their respective center flowlines. We also flew along the JAR-AWS-Swiss Camp line, over Swiss Camp, and along an "old" 8-day ICESat orbit. We then continued north on ICESat track 300 to Camp Century and Thule Air Base.

We conducted a second series of EMI/RFI tests on the Camp Century line in order to identify the source of the noise on the MCoRDS system. We sequentially powered down all science instruments on the aircraft, except the gravimeter, and power them back up in a different order. In addition to the first test last week, the power on the T2 laser was completely shut down.

Excellent weather conditions along the entire route allowed us to collect data on the ferry flight to Thule and complete all planned survey lines.

Individual instrument reports from experimenters on board the aircraft:

ATM: T2 worked well throughout the entire flight. The T3 laser was not in operation on today's flight.

MCoRDS: The MCoRDS system worked well and collected 1.4 TB of data with the bedrock visible on the quick look data for the most time. We conducted EMI test data for MCoRDS on the Camp Century line.

Snow and Ku-band radar: Both systems worked well and collected each about 277 GB of data.

Accumulation Radar: The system worked well and collected 220 GB of data.

DMS: DMS worked well and collected 108 GB of data.

Gravimeter: System worked normally. No problems.

Jakobshavn 02

6.6 hrs at 250 knots groundspeed

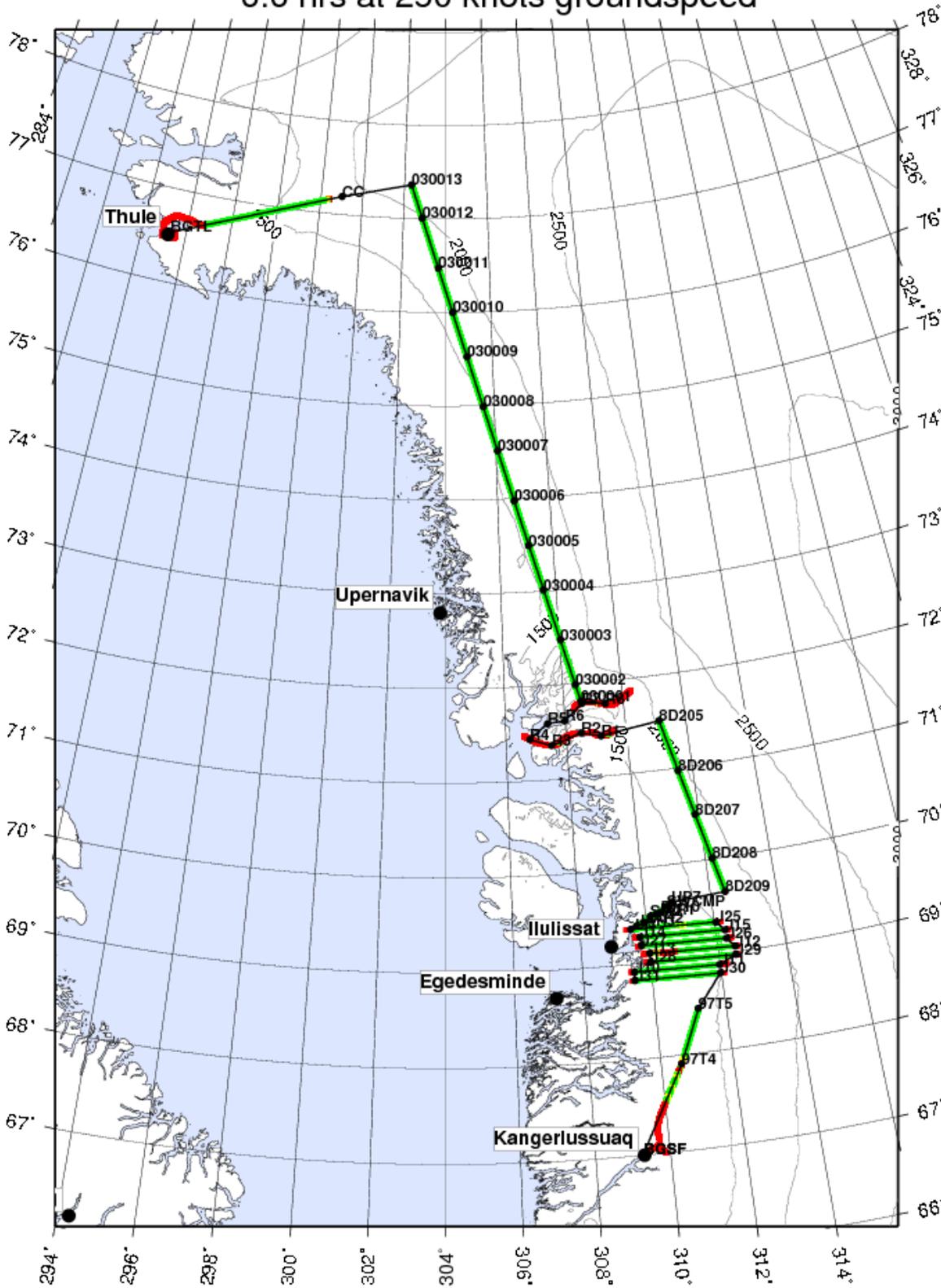


Figure 1: Waypoints and survey area of Flight 08 from John Sonntag.