

Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: F10

Mission: Jakobshavn 02 / Thule-Kangerlussuaq

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	010
Flight Request	11P006
Date	Thursday, March 31, 2011 (Z)
Purpose of Flight	Mission Jakobshavn 02 / Thule-Kangerlussuaq
Take off time	11:06 Zulu from Thule Air Base (BGTL)
Landing time	18:40 Zulu at Kangerlussuaq (BGSF)
Flight Hours	TBD
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	<ul style="list-style-type: none"> • Low-altitude survey (1,500 ft AGL) of ICESat ground track 0300 and an 8 day orbit. • Centerline surveys of Rink and Kangerdlugssup Glaciers. • Pass over Swiss Camp and ablation line. • Flew 4 passes over Russell Glacier for MCoRDS instrument testing. • ATM, MCoRDS snow and Ku-band radars, accumulation radar, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines.
Geographic Keywords	Greenland Ice Sheet, Rink Glacier, Kangerdlugssup Glacier, Jakobshavn Glacier, Russell Glacier
ICESat/CryoSat Track	ICESat track 0300 and old 8 day orbit (no number).
Repeat Mission	2009 and 2010.

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"/>	66 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.5 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	360 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	370 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	100 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	59.3 GB	None
POS/AV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	80 MB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TBD	None, but issues wit HF

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is new design which serves to reposition the P-3 from Thule to Kangerlussuaq. It is similar to a 2009 and a 2010 IceBridge flight. The primary science objectives are to (a) complete the basic Jakobshavn grid, specifically the east-west lines, (b) repeat longitudinal surveys of the Rink and Kangerdlugssup Glaciers, and (c) occupy ICESat ground track 0300 and an old 8 day ICESat orbit.

While flying over Swiss Camp we started to see noise on the MCoRDS system and John Paden suspected that a CReSIS Twin Otter may be over Jakobshavn Glacier emitting radar data. We decided to turn off our radar in order to not interfere with the CReSIS Twin Otter because our lines are repeat lines that have been flown before with radar. We notified the cockpit about the potential presence of another aircraft in the survey area at the same flight elevation. The cockpit confirmed after radio communications that indeed a CReSIS chartered Twin Otter is over Jakobshavn Glacier. We deconflicted the flight paths as possible and turned our radar on when we were far enough away from the CReSIS Twin Otter. We included 4 passes over Russell Glacier before landing in Kangerlussuaq to enable more MCoRDS instrument testing.

The weather was good most of the day but we lost some data over the coastal areas of Jakobshavn due to clouds that were further inland from what we had hoped. I was a very small area only over the main channel of Jakobshavn Glacier, the lines outside were not obscured.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both systems worked well. Data loss over coastal areas of Jakobshavn due to clouds.

MCoRDS: The MCoRDS system worked well.

Snow and Ku-band radar: The snow and Ku-band radars collected 100% data along the line.

Accumulation radar: was not operated while MCoRDS was on because of system interference.

Gravimeter: Worked well. No issues.

Magnetometer: worked well.

DMS: worked very well.

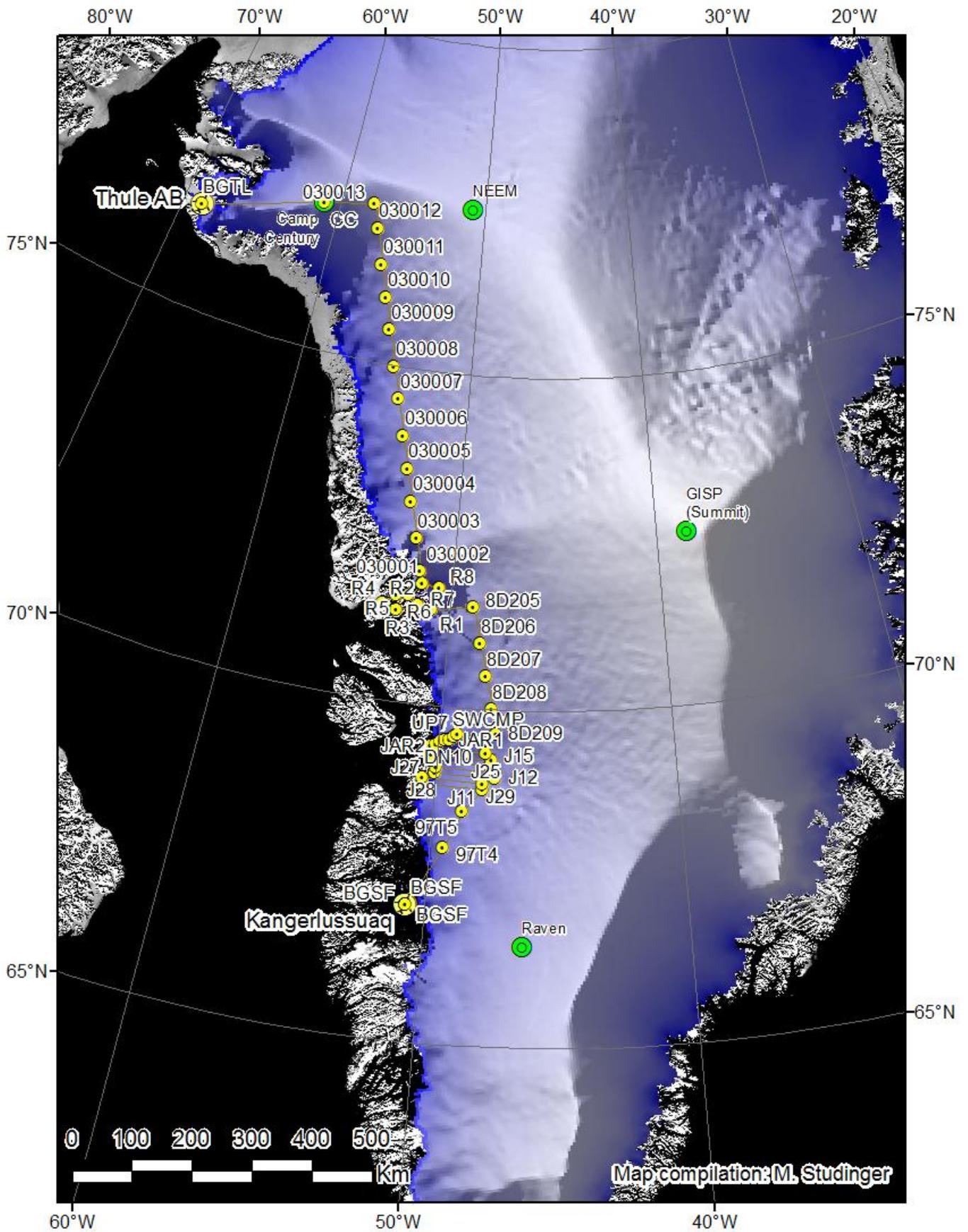


Figure 1: Mission plan for today's transit from Thule to Kangerlussuaq.

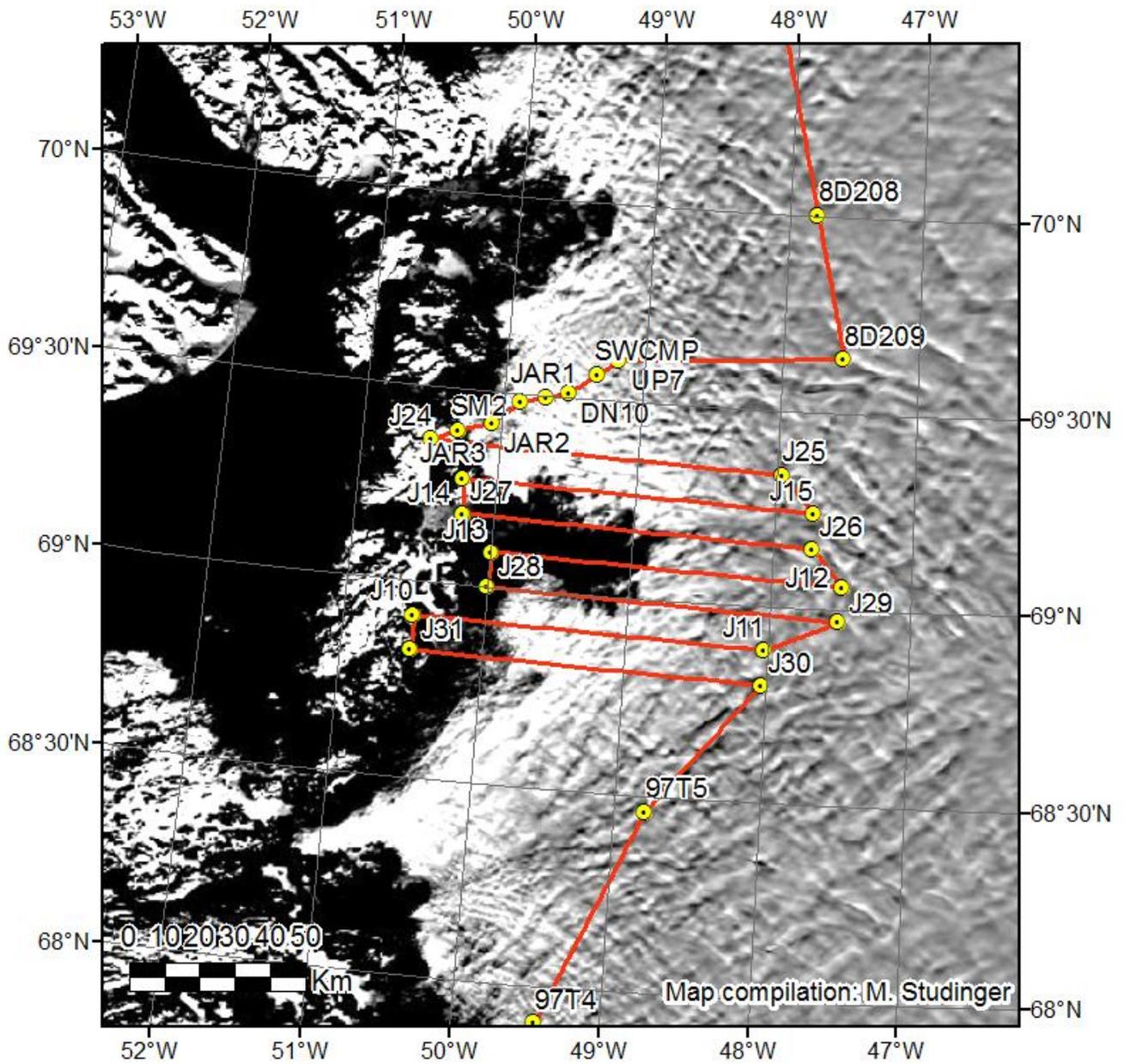


Figure 2: Flight plan over Swiss Camp and Jakobshavn Glacier.