

Science Flight Report

Operation IceBridge Arctic 2010



Flight: 03
Mission: Russell Glacier 01

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	891
Flight Request	10P002,10P007
Date	Monday, May 10, 2010 (Z)
Purpose of Flight	Operation IceBridge Mission Russell Glacier 01
Take off time	11:23 Zulu from Kangerlussuaq/Søndre Strømfjord Airport (BGSF)
Landing time	17:19 Zulu at Kangerlussuaq/Søndre Strømfjord Airport (BGSF)
Flight Hours	6.0
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 Sukkertoppen Isflade and Russell Glacier. ATM, DMS, accumulation and Ku-band and snow radar were operated on the survey lines. Gravimeter was in operation throughout the entire flight. • Collected MCoRDS radar data for testing and system fine tuning with the new 16 antenna array. • Conducted one pass over the ramp at Kangerlussuaq/Søndre Strømfjord for ATM instrument calibration.
Geographic Keywords	Sukkertoppen Isflade, Russell Glacier
ICESat Tracks	None
Repeat Mission	Sukkertoppen Isflade (1998, 2008)

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	78 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.7 TB	None.
Snow Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	330GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	330 GB	None
Accumulation Radar	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	250 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	69 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	80 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's weather situation and volcanic ash cloud from the Eyjafjallajokull eruption left us with very little choices. Following the weather brief in the morning we decided to break up the SE Glacier mission and fly the western part to waypoint D112 and then return on a northsouth master grid line to Kangerlussuaq. The weather forecast was marginal for this mission and we expected to get into some clouds in the south, but with the cloud base getting lower and lower further south. Shortly after launch we encountered clouds over Sukkertoppen Isflade and had to abandon the western section. We continued the mission to the south but everything west of our route was cloudy and we decided to turn back and fly the Russell Glacier mission instead. We did not choose the Russell Glacier in the morning because the ash cloud was just east of the edge of the main grid not allowing us to fly the long regional lines towards the interior of the ice sheet. We were able to complete all but one grid line of the main grid of Russell although this was not ideal because the MCoRDS radar system is still in the fine tuning phase. The radar system performed well at first glimpse and were able to save the day.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both systems worked well.

MCoRDS: The MCoRDS system worked well and collected 1.7 TB of data.

Snow and Ku-band radar: Both systems worked well and collected each about 330 GB of data.

Accumulation Radar: The system worked well and collected 250 GB of data.

DMS: DMS worked well. No problems.

Gravimeter: System worked normally. No problems.

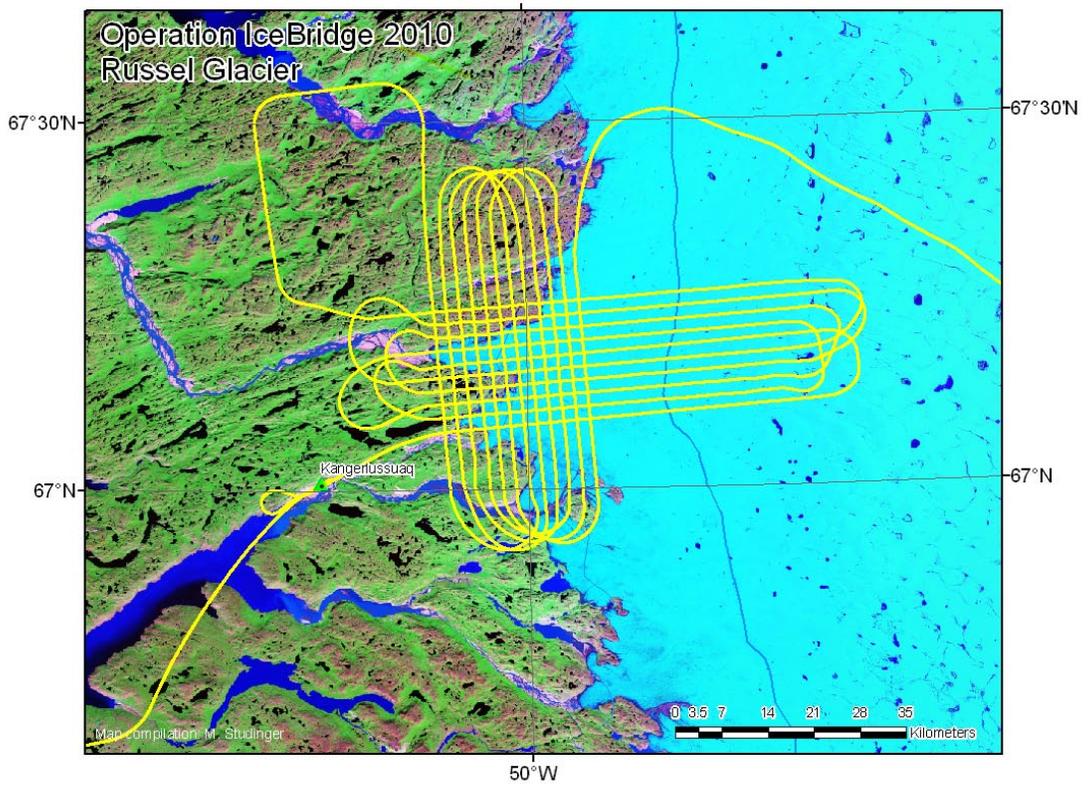
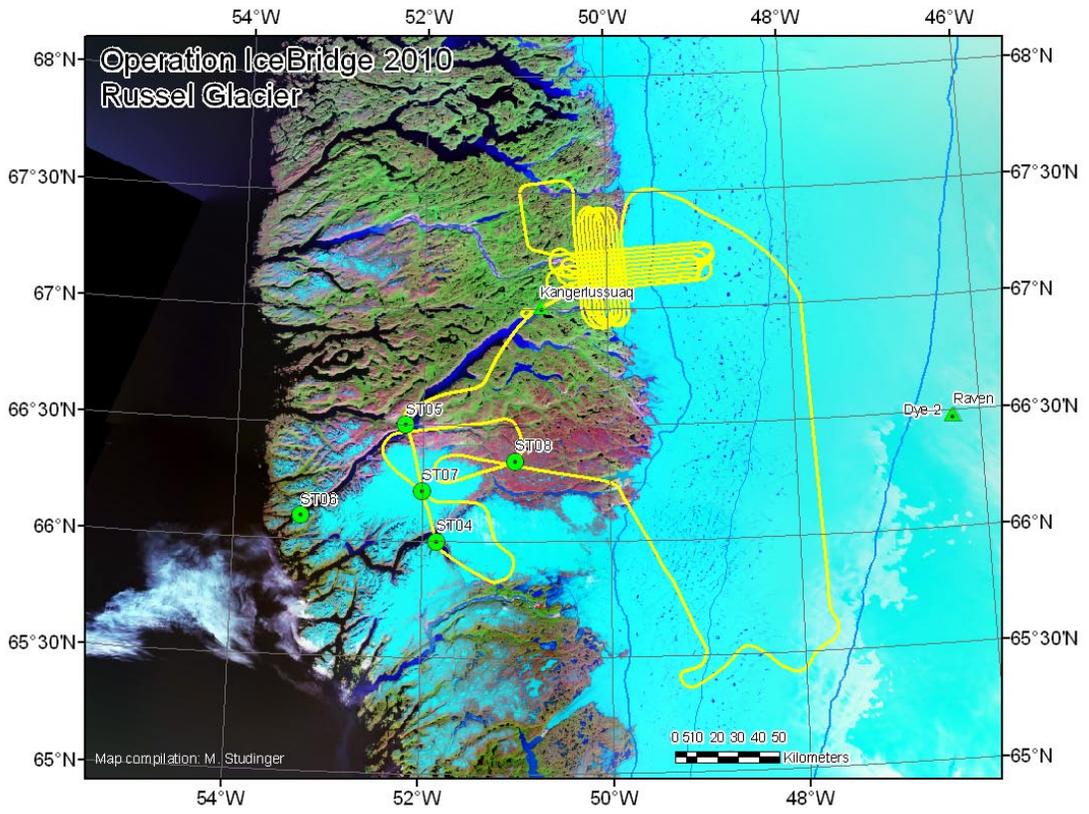


Figure 1: Actual flight path of F03 (top) and detailed grid over Russel Glacier (bottom).

Russell 01

7.9 hrs at 250 knots groundspeed

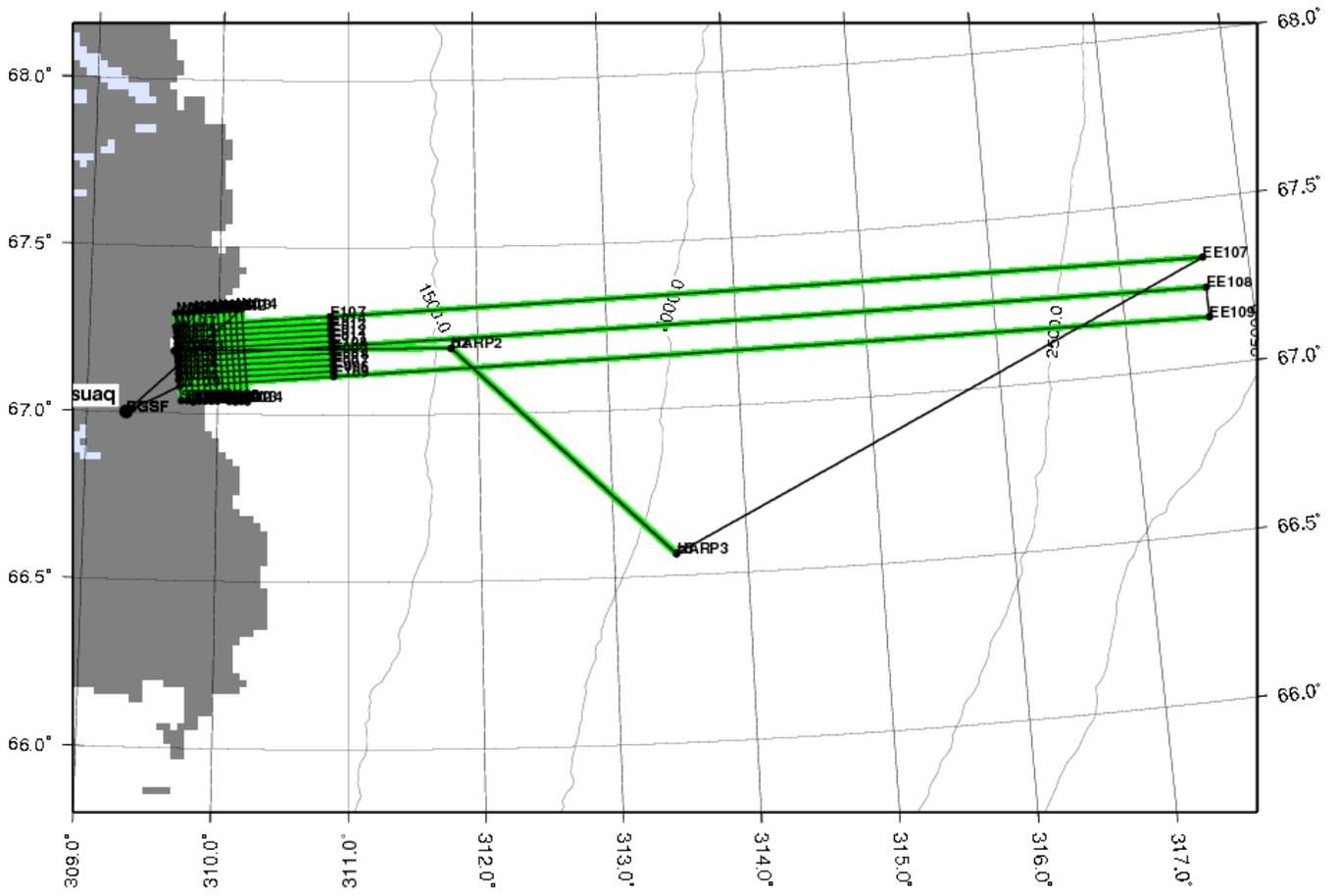


Figure 2: Waypoints and survey area of Flight 03 from John Sonntag.