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# Preliminary Science Flight Report

## Operation IceBridge Arctic 2011



**Flight:** F24  
**Mission:** Jakobshavn/Lakes

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### Flight Report Summary

<b>Aircraft</b>	<b>P-3B (N426NA)</b>
<b>Flight Number</b>	024
<b>Flight Request</b>	11P006
<b>Date</b>	Friday, April 22, 2011 (Z)
<b>Purpose of Flight</b>	Mission Jakobshavn/Lakes
<b>Take off time</b>	14:28 Zulu from Kangerlussuaq (BGSF)
<b>Landing time</b>	18:48 Zulu at Kangerlussuaq (BGSF)
<b>Flight Hours</b>	4.4 hours.
<b>Aircraft Status</b>	Airworthy.
<b>Sensor Status</b>	All installed sensors operational.
<b>Significant Issues</b>	None
<b>Accomplishments</b>	<ul style="list-style-type: none"><li>• Low-altitude surveys (1,500 ft AGL) of several ICESat tracks across Jakobshavn Glacier.</li><li>• ATM, MCoRDS, accumulation, snow and Ku-band radars, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines.</li><li>• Ramp pass at 1,500 ft AGL for ATM calibration.</li><li>• Pitch maneuvers over fjord for snow and Ku-band radar.</li></ul>
<b>Geographic Keywords</b>	Jakobshavn Glacier
<b>ICESat/CryoSat Track</b>	ICESat tracks 0085, 0166, 0189, 0032, 0151, and 1305.
<b>Repeat Mission</b>	None.

## Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
<b>ATM</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	36 GB	None
<b>MCoRDS</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.1 TB	One channel failed.
<b>Snow Radar</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	201 GB	None
<b>Ku-band Radar</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	173 GB	None
<b>Accumulation Radar</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	140 GB	None
<b>DMS</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	70 GB	None
<b>POS/AV</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 GB	None
<b>Gravimeter</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	320 MB	None
<b>Magnetometer</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	240 MB	None

### Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a new design with the purpose to extend the ICESat grid begun with Jakobshavn 01 farther upstream. Starting the engines this morning was a challenge because the auxiliary power unit is in-operational. We are lucky that the 109<sup>th</sup> AW from the New York Air National Guard left today and allowed us to borrow their Herman Nelson heaters and power cart to heat up the aircraft and start the engines. We waited until after 9 am LT when the guard left and started warming up the aircraft. We had to shorten the mission and decided to fly only the ICESat lines and skip the survey of two flowlines of a small tidewater glacier south of Jakobshavn and a lakebed in the same region. We extend the 10-km ATM grid south with one additional east-west line in addition to the lines included in mission Jakobshavn 02 above. We flew along ICESat tracks 0085, 0166, 0189, 0032, 0151, and 1305.

The weather in the area was good. We were able to fly below the high clouds all day and only got into clouds towards the interior of the ice sheet, but were able to survey the entire time.

### Individual instrument reports from experimenters on board the aircraft:

**ATM:** worked very well.

**MCoRDS:** The MCoRDS system worked well. One channel failed for a few hundred km in the beginning.

**Snow and Ku-band radar:** The snow and Ku-band radars worked well. Lost some data in the beginning due to requested tests.

**Accumulation radar:** worked well.

**Gravimeter:** Worked well. No issues.

**Magnetometer:** worked well.

**DMS:** worked very well.

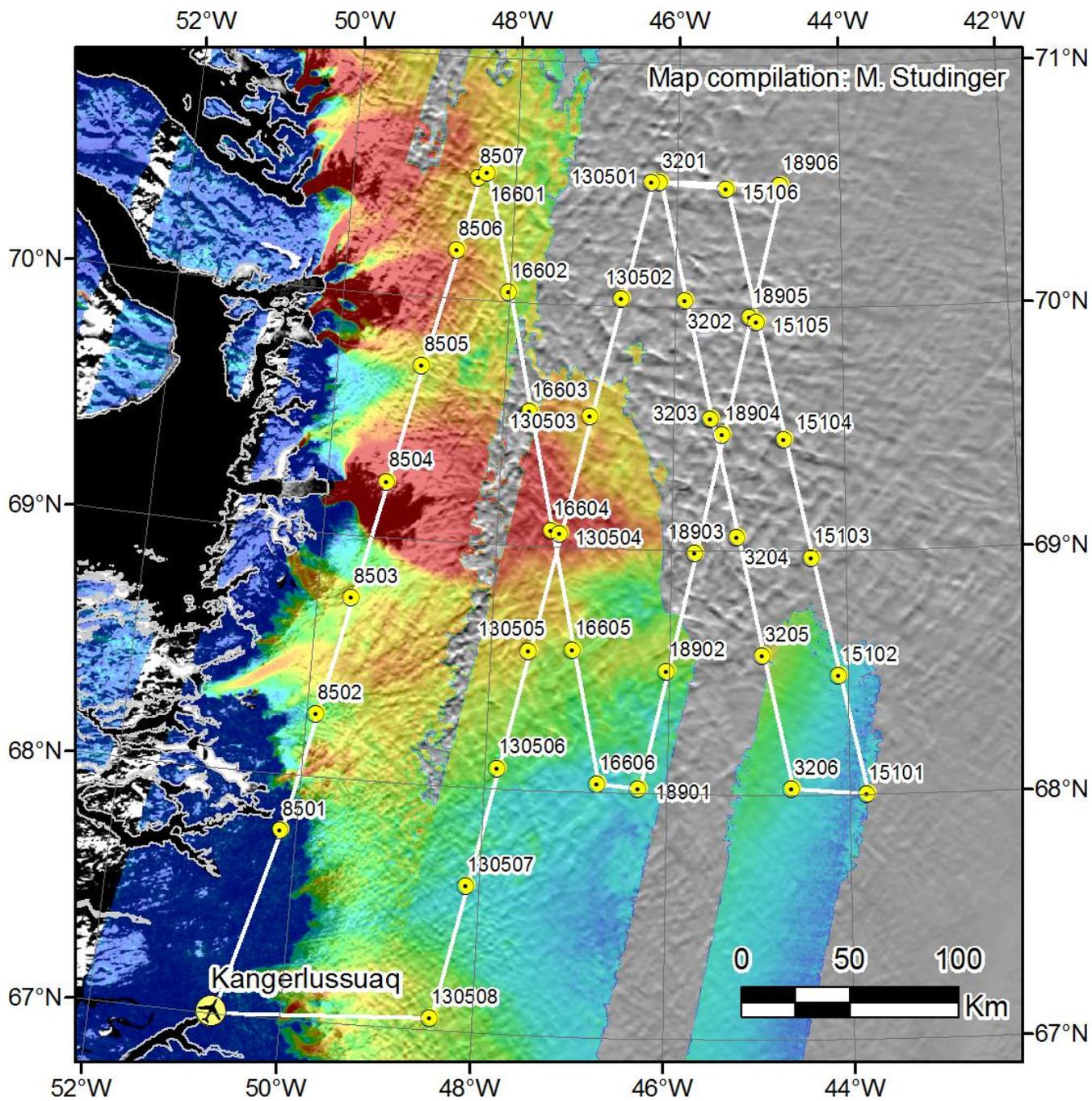


Figure 1: Shortened mission plan for today's flight.

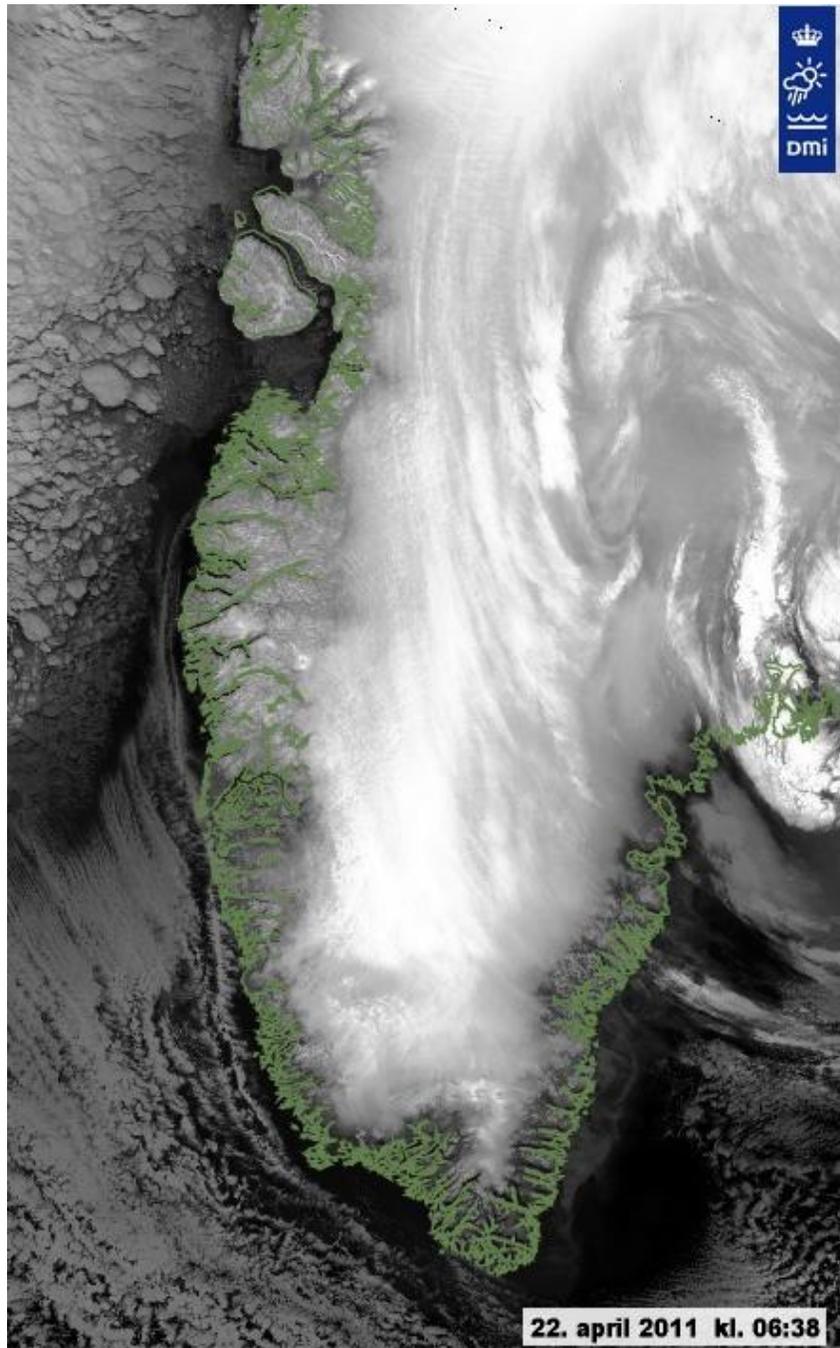


Figure 2: IR satellite image downloaded shortly before takeoff.