

Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: F23

Mission: Helheim-Kangerdlugssuaq

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	023
Flight Request	11P006
Date	Tuesday, April 19, 2011 (Z)
Purpose of Flight	Mission Helheim-Kangerdlugssuaq
Take off time	10:17 Zulu from Kangerlussuaq (BGSF)
Landing time	17:59 Zulu at Kangerlussuaq (BGSF)
Flight Hours	7.8 hours.
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	<ul style="list-style-type: none"> • Low-altitude centerline surveys (1,500 ft AGL) of Helheim Glacier, Kangerdlugssuaq Glacier, Fenris Glacier, and Midgard Glacier. • Completed old east-west ATM line and 2011 accumulation traverse. • ATM, MCoRDS, accumulation, snow and Ku-band radars, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines. • Ramp pass at 1,000 ft AGL for ATM calibration. • Pitch maneuvers over fjord for snow and Ku-band radar.
Geographic Keywords	Southeast Greenland, Helheim Glacier, Kangerdlugssuaq Glacier, Fenris Glacier, Midgard Glacier, Steenstrup Glacier.
ICESat/CryoSat Track	ICESat track 0263
Repeat Mission	None.

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"/>	68 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2.15 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	395 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	395 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	310 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	131 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"/>	600 MB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	450 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's flight was a new mission, based on the 2010 "Hel-Kang" mission, but with considerable changes. It captures centerline surveys of the two main branches of Helheim, Kangerdlugssuaq, Fenris and of several branches of Midgard glaciers. It also overflies the 2011 Forster traverse from Raven to the southeastern coast. For all of the longitudinal glacier surveys, we extend the centerline segments as far as practical down the fjords to enable the gravimeter to detect the presence of sills. We also fly all of the sinuous glacier centerlines which were flown in 2010 in the reverse direction, for the purpose of improving recovery of gravity data in these instances. We stayed at 600 ft AGL over water for gravity and flying next to 700 ft tall icebergs. We were on HF radio silence during these segments to avoid interference with the magnetics.

The weather in the area was perfect. Only occasional light turbulence.

Individual instrument reports from experimenters on board the aircraft:

ATM: worked very well.

MCoRDS: The MCoRDS system worked well. Best day so far in terms of EMI noise.

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

Accumulation radar: worked well.

Gravimeter: Worked well. No issues.

Magnetometer: worked well.

DMS: worked very well.

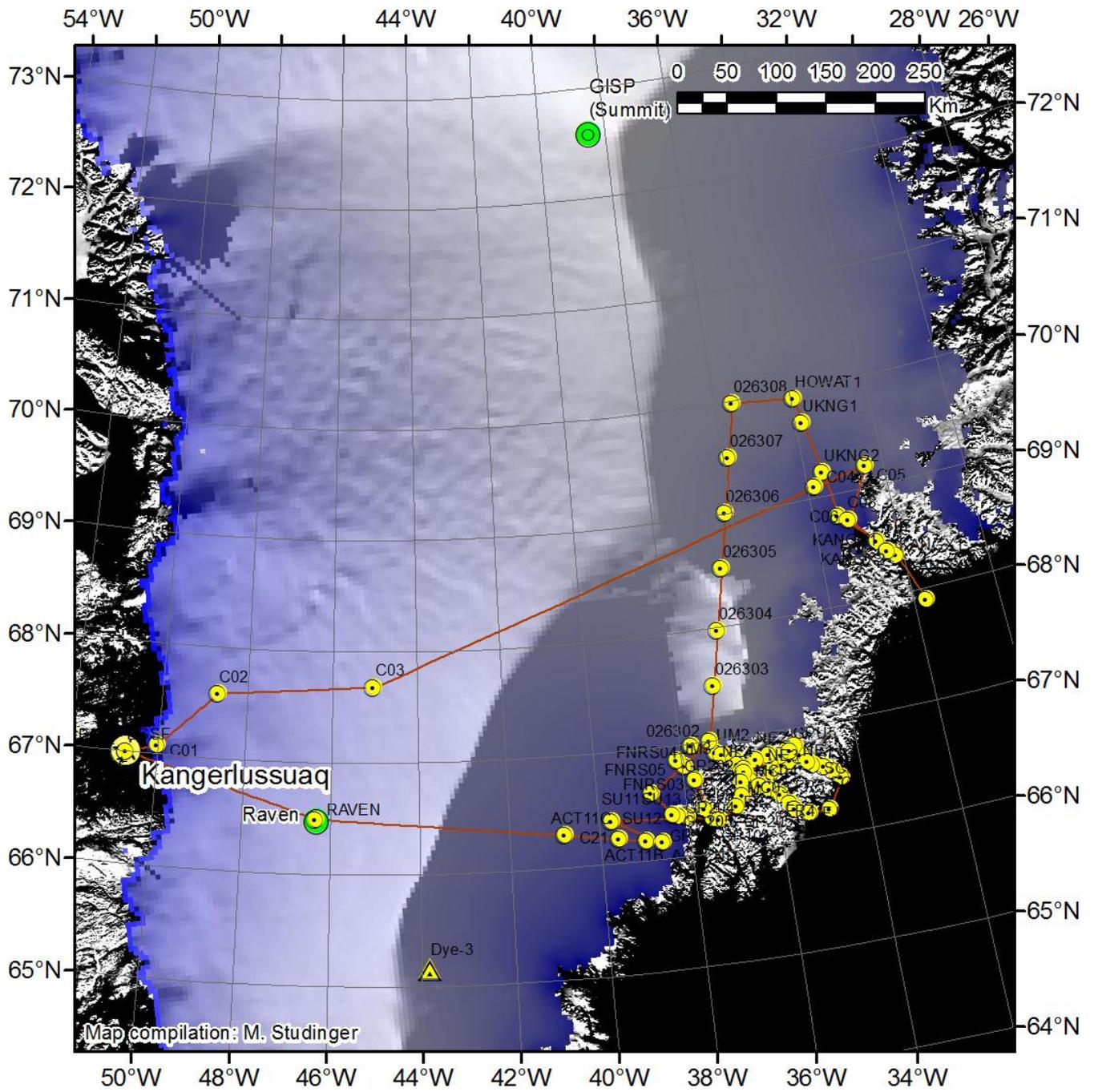


Figure 1: Mission plan for today's flight.

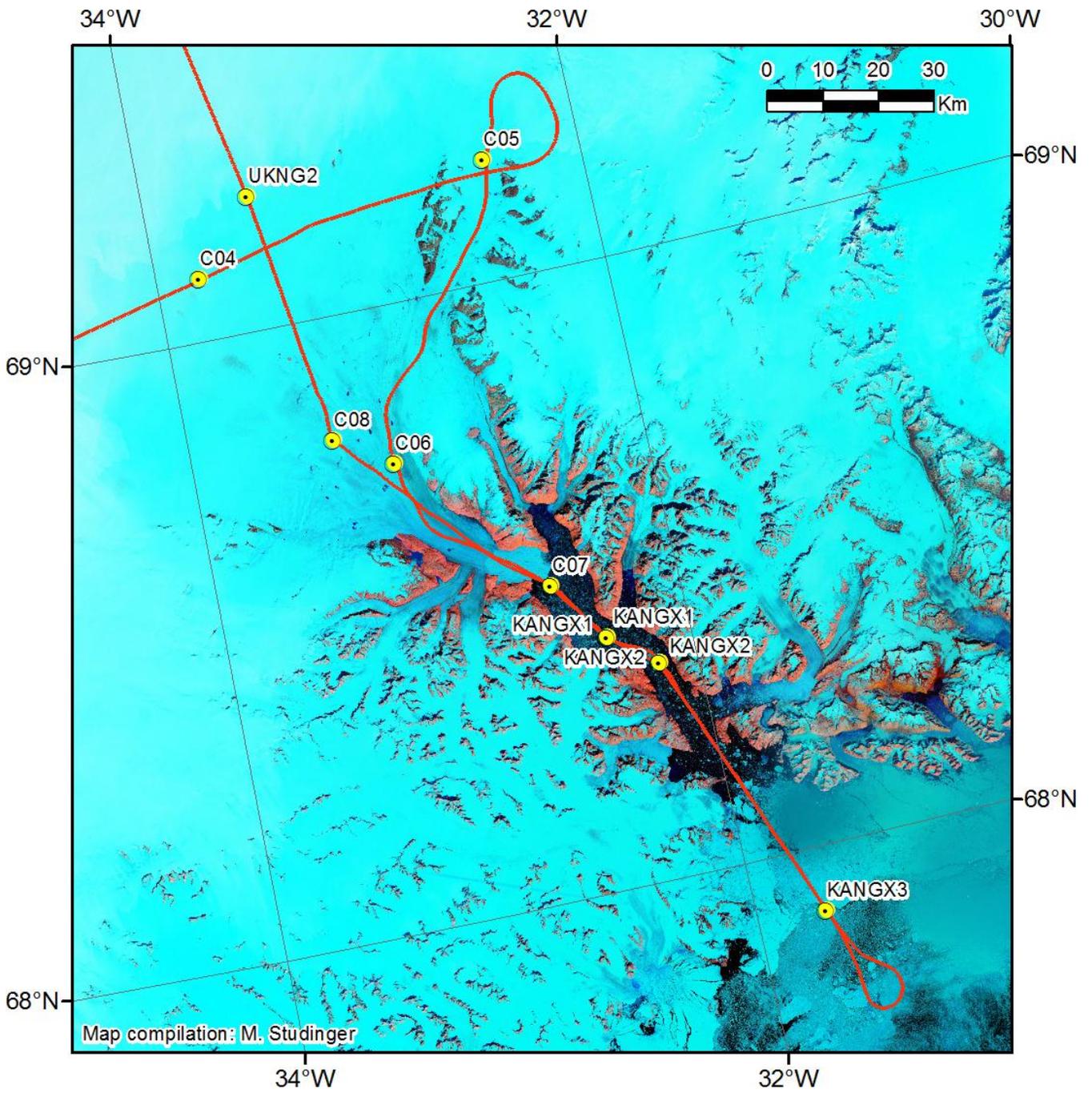


Figure 2: P-3 trajectory of today's flight over Kangerdlugssuaq Glacier.

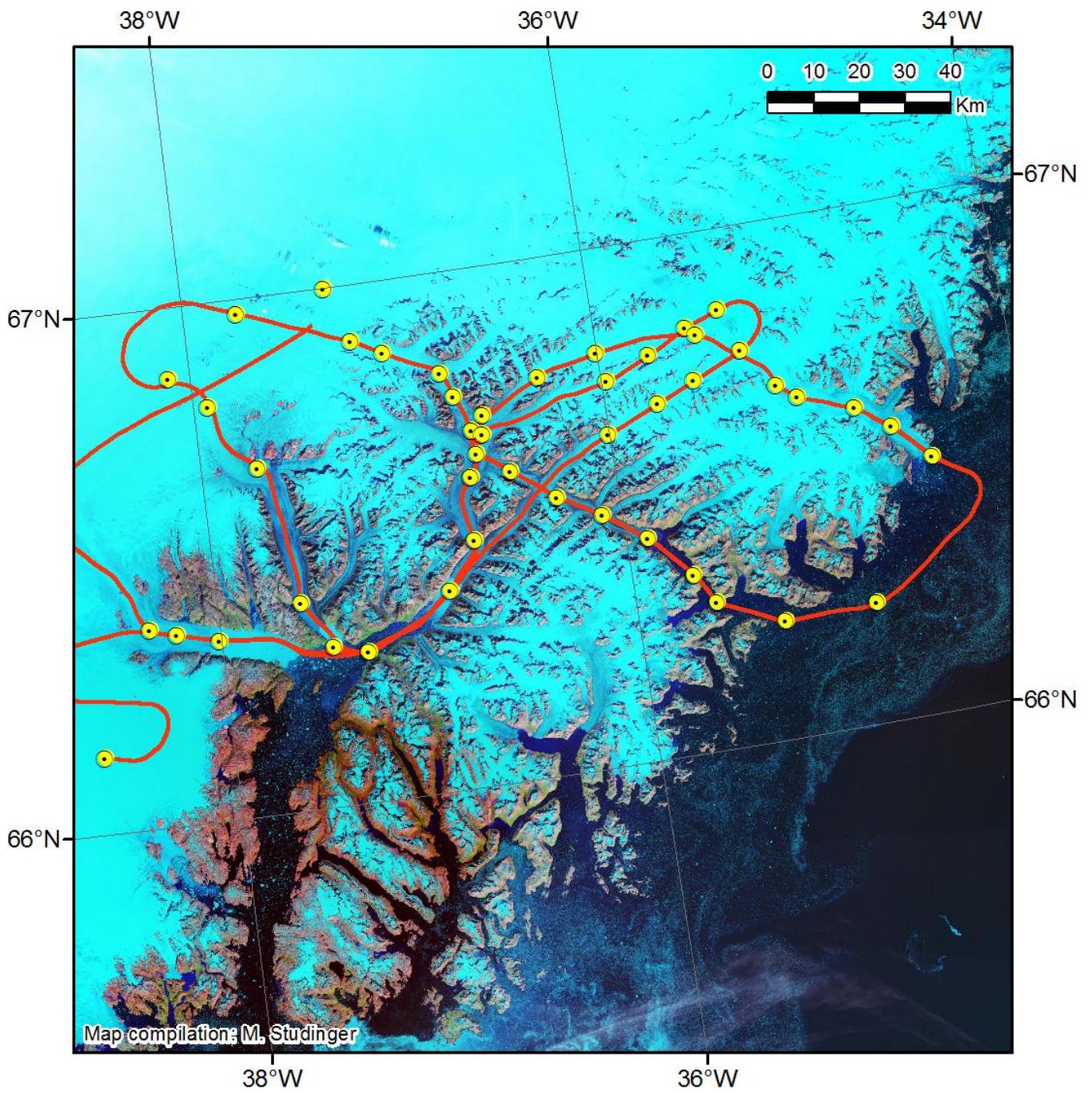


Figure 3: P-3 trajectory of today's flight over Midgard and Helheim Glacier area.

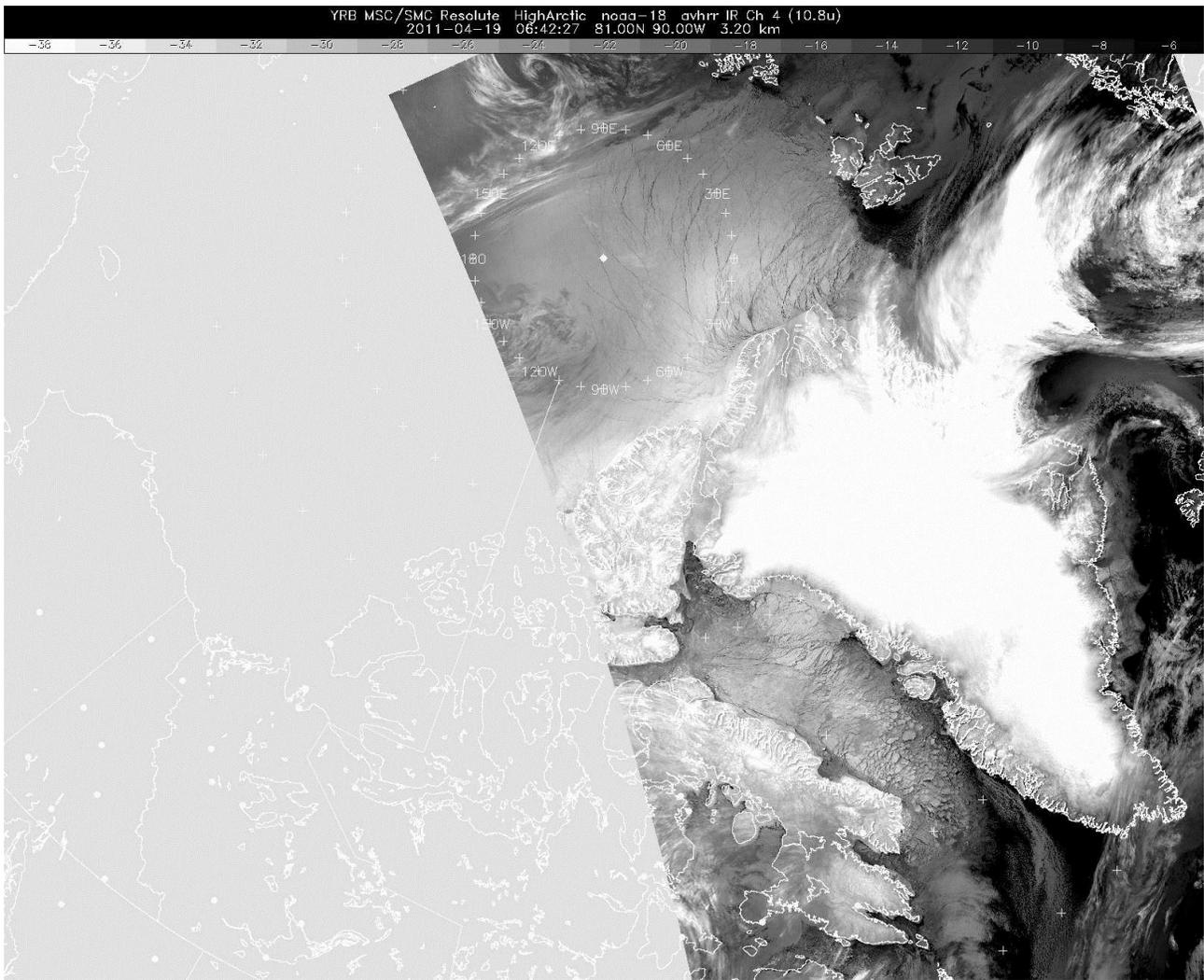


Figure 4: IR satellite image downloaded shortly before takeoff.