

Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: F14
Mission: SW Mopup 01

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	014
Flight Request	11P006
Date	Friday, April 8, 2011 (Z)
Purpose of Flight	Mission SW Mopup 01
Take off time	10:23 Zulu from Kangerlussuaq (BGSF)
Landing time	18:33 Zulu at Kangerlussuaq (BGSF)
Flight Hours	8.4 hours
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 several lines along the southwest coast and Jakobshavn Glacier. • ATM, MCoRDS, snow and Ku-band radars, accumulation radar, gravimeter, magnetometer, POS/AV, and DMS were operated on the survey lines. • Survey over Russell Glacier for MCoRDS. • Ramp pass at 2,200 ft AGL at Kangerlussuaq airport for ATM and snow radar instrument calibration. • Pitch maneuvres over fjord for snow and Ku-band radar
Geographic Keywords	Jakobshavn Isbræ, Sukkertoppen Isflade
ICESat/CryoSat Track	None.
Repeat Mission	Yes

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"/>	64 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	380 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	400 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	318 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	76 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"/>	200 MB	None

Mission Report (Michael Studinger, Mission Scientist)

The weather today dictated the survey area. The southeast was clouded in with only a short and narrow weather window over Geikie plateau, which would have had a high risk of failure. Today may have been our last science mission due to the possibility of a government shutdown and we decided to combine elements from 3 mission plans that were located in the cloud free area in southwest Greenland. We use SE Glaciers, Russell 01 and Jakobshavn missions for planning and added a north-south trending master grid line to transit from the SW to Jakobshavn and added a new center flow line and a gravity line along the Illulisat Isfjord.

The cold weather continues with a temperature of -24°C when we started to heat the aircraft at 5:15 am LT. Warming the aircraft up in the morning to operating temperature took again quite some time, including warming up the science instruments before they can be powered up. After the door closed we ran the engines for 20 minutes to warm them up before taxiing in order to avoid leaks in the hydraulic system of the propellers.

The weather was mostly clear as expected with only some pockets of ice fog here and there that did not impact data acquisition. Over the southeast we flew into clouds as expected and turned around when we reached zero horizontal visibility.

Individual instrument reports from experimenters on board the aircraft:

ATM: ATM system worked well and lost only an insignificant amount of data in the south west due to clouds.

MCoRDS: Hardware failure at beginning of the flight, which was quickly overcome. The root cause for the failure has not yet been determined. EMI issues and some data loss due to hardware failure.

Snow and Ku-band radar: The RAID system failed and data had to be recorded onto the laptop disk. No data was lost.

Accumulation radar: Worked well.

Gravimeter: Worked well.

Magnetometer: Worked well.

DMS: Worked well.

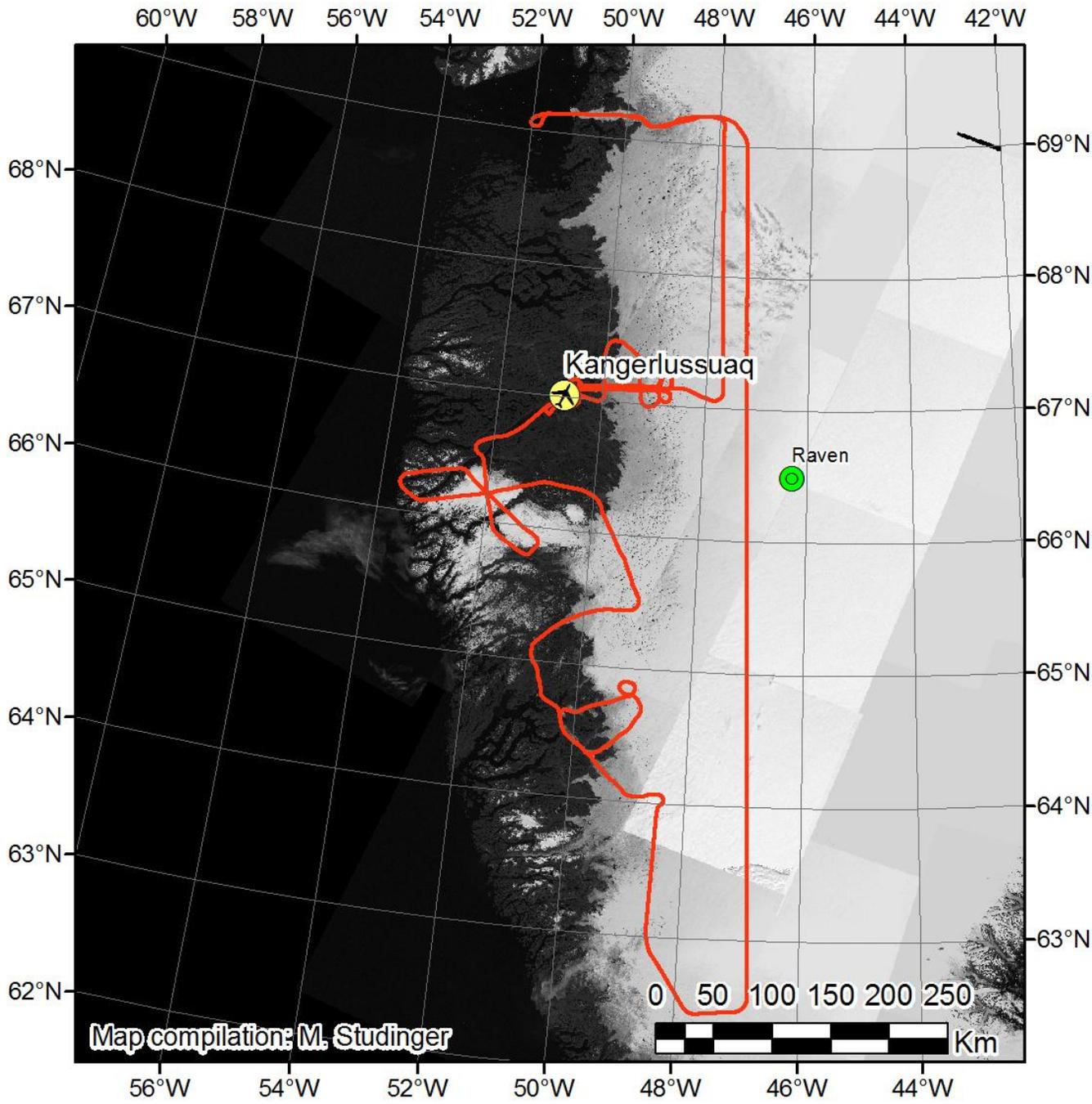


Figure 1: P-3 Trajectory for today's mission SW Mopup 01.

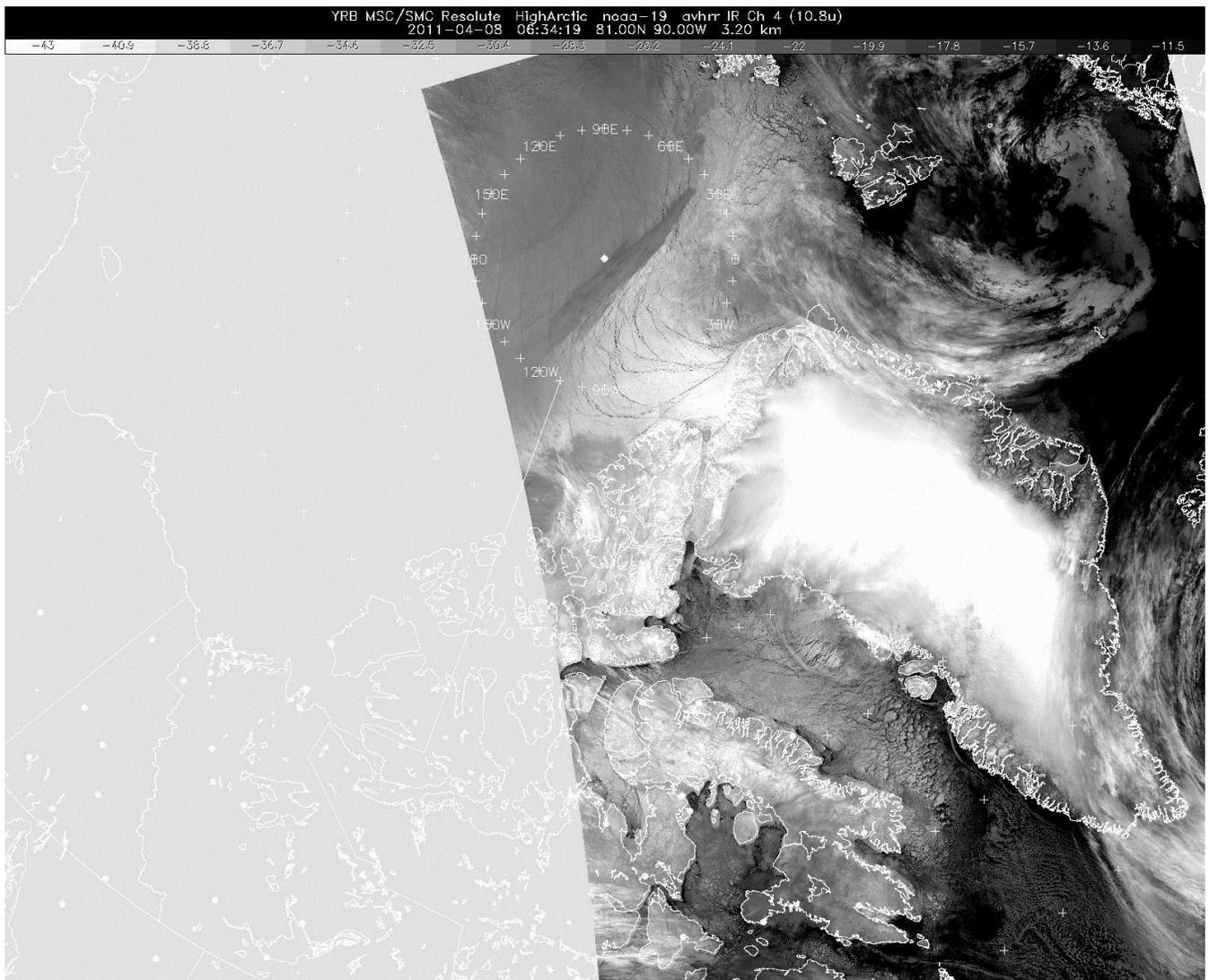


Figure 2: IR Satellite image downloaded shortly before takeoff showing clouds over southern Greenland coastal areas and good conditions over the southwest.