

# Science Flight Report

## Operation IceBridge Arctic 2012



**Flight:** F44  
**Mission:** Ellesmere 01

### Flight Report Summary

<b>Aircraft</b>	<b>P-3B (N426NA)</b>
<b>Flight Number</b>	45
<b>Flight Request</b>	12P006
<b>Date</b>	Thursday, May 17, 2012 (Z)
<b>Purpose of Flight</b>	Operation IceBridge Mission Ellesmere 01
<b>Take off time</b>	11:00 Zulu from Thule Air Base (BGTL)
<b>Landing time</b>	18:28 Zulu at Thule Air Base (BGTL)
<b>Flight Hours</b>	7.7 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 survey (1,500) of several glaciers and ice caps on Ellesmere Island, Axel Heiberg Island and Meighen Island.</li> <li>• Completed entire mission as planned.</li> <li>• ATM, snow, Ku-band, accumulation radar, MCoRDS gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.</li> <li>• Pitch maneuvers for snow and Ku-band radar calibration.</li> <li>• Ramp pass at Thule at 1,000 ft AGL for ATM laser calibration.</li> <li>• On the way from the Agassiz Ice Cap to Thule we had time to stay low at 1,500 ft and collected data over sea ice across the Nares Strait and the Kane Basin.</li> </ul>
<b>Geographic Keywords</b>	Ellesmere Island, Axel Heiberg Island and Meighen Island, Prince of Whales Ice Field, Agassiz Ice Cap, Nares Strait, Kane Basin.
<b>Satellite Tracks</b>	None
<b>Repeat Mission</b>	1995, 2000, 2005, 2011

## 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"/>	67 GB	None
<b>MCoRDS</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.7 TB	None
<b>Snow Radar</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	686 GB	None
<b>Ku-band Radar</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	686 GB	None
<b>Accumulation Radar</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	180 GB	None
<b>DMS</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	48.5 GB	None
<b>KT-19 Skin Temp.</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9.5 MB	None
<b>Gravimeter</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.5 GB	None
<b>Magnetometer</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	510 MB	None

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

On today's mission we surveyed glaciers and small ice caps on Ellesmere Island, Axel Heiberg Island and Meighen Island, including the Prince of Whales Ice Field and Agassiz Ice Cap. The weather in the survey area was perfect. Most of today's mission was a repeat of previously surveyed lines by the ATM/KU teams in 1995, 2000, and 2005. We flew this mission last year on May 10, 2011.

After finishing the last line across the Agassiz Ice Cap we were ahead of schedule and had time to stay low at 1,500 ft and collected data over sea ice across the Nares Strait and the Kane Basin.

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

**ATM:** Both ATM systems worked well and collected good data along the entire line in cloud free conditions. ATM collected a total of 4.1 hours of science data with 100% coverage.

**MCoRDS:** The MCoRDS system worked well.

**Snow and Ku-band radar:** The snow and Ku-band radars worked well.

**Accumulation radar:** Worked well today.

**Gravimeter:** Worked well.

**Magnetometer:** Worked well and used the SGL data logger today without problems.

**DMS:** DMS worked well.

**KT-19 skin temperature sensor:** System worked well.

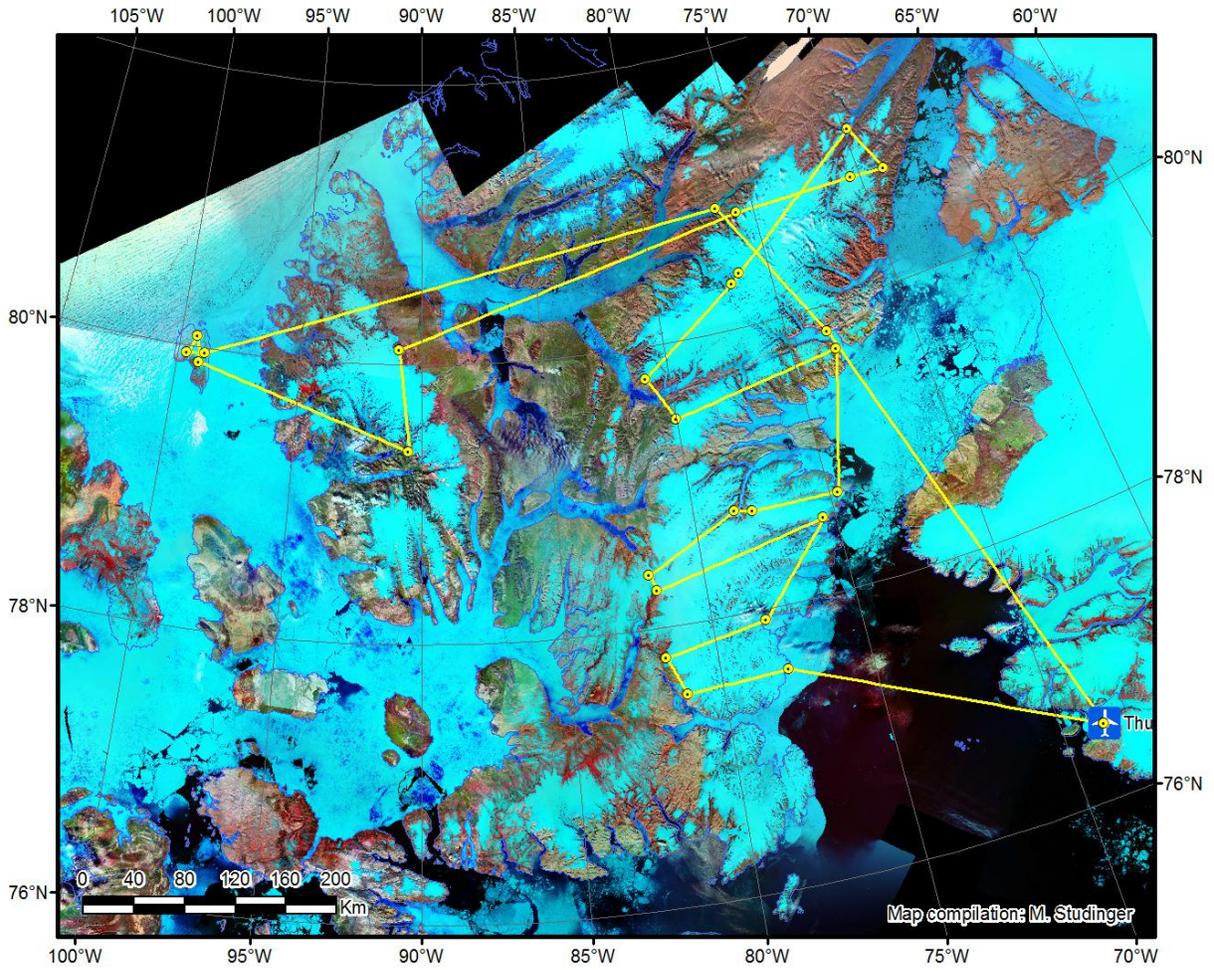


Figure 1: Today's mission plan in yellow.

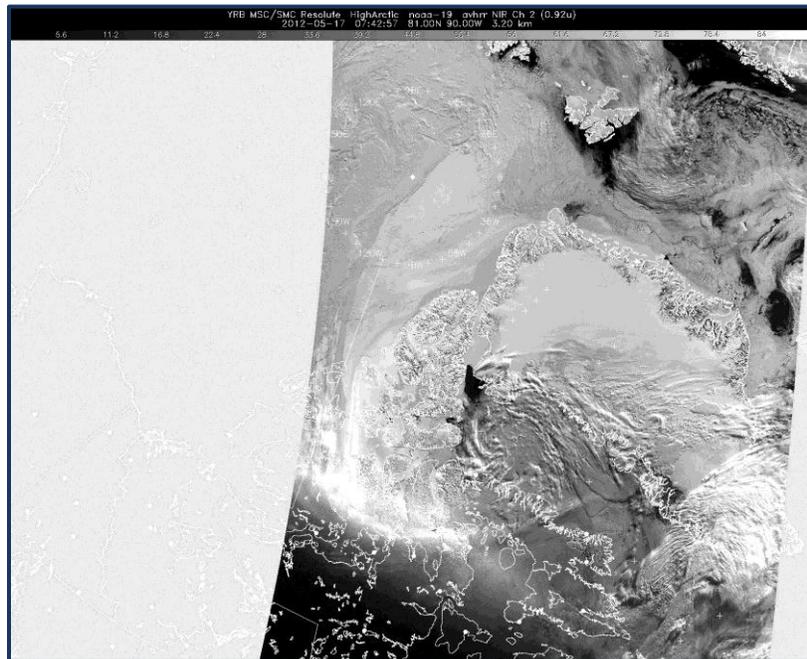


Figure 2: Satellite image before takeoff showing severe clear conditions today.