
Science Flight Report

Operation IceBridge Arctic 2012



Flight: F42
Mission: NW Glaciers

Flight Report Summary

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|----------------------------|---|
| Aircraft | P-3B (N426NA) |
| Flight Number | 43 |
| Flight Request | 12P006 |
| Date | Tuesday, May 15, 2012 (Z) |
| Purpose of Flight | Operation IceBridge Mission NW Glaciers |
| Take off time | 11:24 Zulu from Thule Air Base (BGTL) |
| Landing time | 18:50 Zulu at Thule Air Base (BGTL) |
| Flight Hours | 7.6 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) of glaciers and ice sheet profiles.• Completed entire mission as planned.• ATM, snow, Ku-band, accumulation radar, MCoRDS gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.• Pitch maneuvers for snow and Ku-band radar calibration.• Ramp pass at Thule Air Base for ATM calibration at 2,000 ft AGL. |
| Geographic Keywords | NW Glaciers |
| Satellite Tracks | None |
| Repeat Mission | 2009, 2010, 2011. |

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"/> | 74 GB | None |
| MCoRDS | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.9 TB | None |
| Snow Radar | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 722 GB | None |
| Ku-band Radar | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 722 GB | None |
| Accumulation Radar | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 195 GB | None |
| DMS | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 109 GB | None |
| KT-19 Skin Temp. | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 10 MB | None |
| Gravimeter | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 1.5 GB | None |
| Magnetometer | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 530 MB | None |

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a repeat of a 2009, 2010 and 2011 IceBridge missions. It focuses on the upper Baffin Bay coast, with targeted longitudinal surveys of 12 glaciers in the region and repeats of long-established ATM dh/dt lines, which were not targeted at outlet glaciers. We flew the glacier surveys in the reverse direction from 2010, in the hope that this will augment the recovery of useful gravity data when combined with the 2010 flights.

We took off a bit later today than normal, because an abnormal behavior in engine #4 shortly before takeoff. We returned to the parking position and the crew did an excellent job in checking out #4. We were airborne in record time, just 25 minutes past our normal time.

The weather was perfect today.

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 7.0 hours of science data with 99% 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.

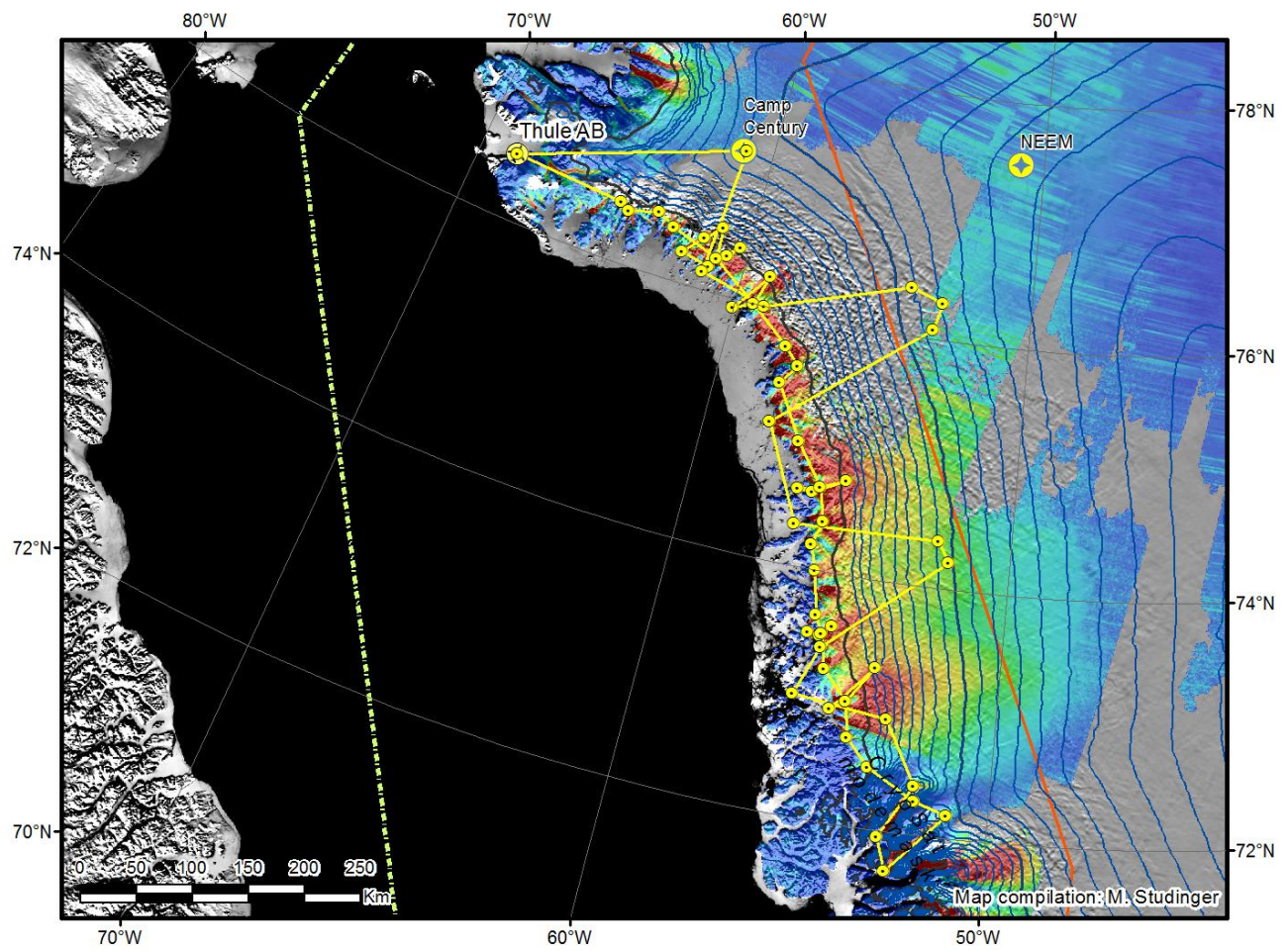


Figure 1: Today's mission plan in yellow.

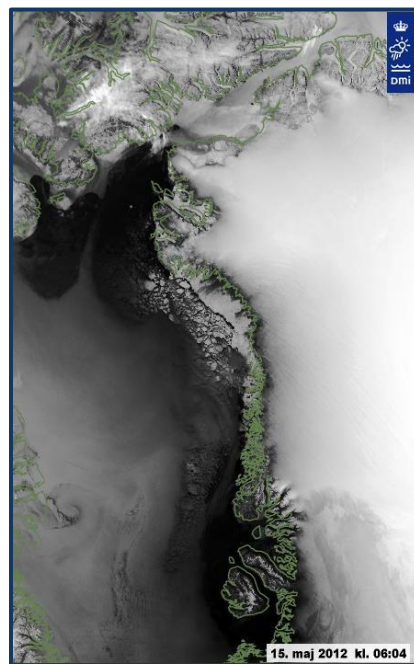


Figure 2: Satellite image showing severe clear conditions today.