

Science Flight Report

Operation IceBridge Arctic 2010



Flight: 01
Mission: Transit Palmdale to Thule Air Base (BGTL)

Flight Report Summary

Aircraft	DC-8 (N817NA)
Flight Number	100203
Flight Request	108013
Date	Monday, March 22, 2010 (Z), Day of Year 081
Purpose of Flight	Operation IceBridge transit flight Palmdale to Thule Air Base (BGTL)
Take off time	06:40:54 Zulu from Palmdale DAOF
Landing time	16:47:51 Zulu at Thule Air Base (BGTL)
Flight Hours	10.2
Aircraft Status	Airworthy
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	<ul style="list-style-type: none"> • High-altitude survey (30,000 ft AGL) of targets of opportunity along the transit route from Palmdale, CA to Thule Air Base, Greenland. • Completed all of the planned survey targets: 1) glaciers and ice fields in southeast Alaska and 2) sea-ice transect over Arctic Basin. • ATM, MCoRDS, Ku-band and snow radar were not operated on this mission. • LVIS, DMS, and POS/AV in operation throughout target areas. • Gravimeter was operated during the entire flight. • Conducted LVIS instrument calibration maneuvers over Lake Tahoe, Strait of Georgia (east of Vancouver Island) and over Wolstenholme Fjord offshore Thule Air Base. • Conducted one pass over runway at Thule Air Base for LVIS instrument calibration.
Geographic Keywords	Lake Tahoe, Strait of Georgia, southeast Alaska, Arctic Basin, Arctic Ocean, Beaufort Sea, Lincoln Sea, Lomonosov Ridge, Thule
ICESat Tracks	None
Repeat Mission	No
Planned Events	Complete remaining missions based on weather and crew hours.

Science Data Report Summary

Instrument	Instrument Operation		Data Volume	Instrument Issues
	Target Area	Entire Flight		
ATM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	None
LVIS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	42 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2.3 GB	None
POS/AV (510 + 610)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	90 MB	None
DC-8 onboard data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	35 MB	None

Mission Log (Michael Studinger, Mission Scientist)

Today's mission is a target of opportunity survey along the transit route from Palmdale to Thule Air Base. The weather forecast and satellite imagery over the Arctic Basin showed about 75% of the sea ice target area in the Arctic Basin cloud free. We flew somewhat out of the way during our transit from Palmdale to Thule to gather high-altitude data (using LVIS and DMS) over sea ice (see map). We encountered the conditions that we had expected from the satellite images and only saw clouds over a small region in the middle of the sea transect (see MODIS image attached).

We also collected LVIS and DMS data over several secondary targets of opportunity over glaciers and ice fields in southeast Alaska. The weather forecast and satellite imagery for these areas looked good as well and we only encountered some clouds over the Juneau Ice Field.

Individual instrument reports from experimenters on board the aircraft:

LVIS: LVIS collected data long the entire flight except for Washington State and Canada (clouds). 90% of the southeast Alaskan glaciers were cloud free. 70% of the sea ice transect in the Arctic Basin was cloud free.

ATM: Was not in operation during today's flight.

MCoRDS: Was not in operation during today's flight.

Snow and Ku-Band radar: Not in operation during today's flight.

Gravimeter: System worked normally. No problems.

DMS: System worked well. No problems. Images have been continuously collected in portions of the flight with sun illumination and over several selected target areas. Occasional cloud cover obscured some of the images.

POS/AV: System worked well. No issues.

DC8 on board data: System worked well.

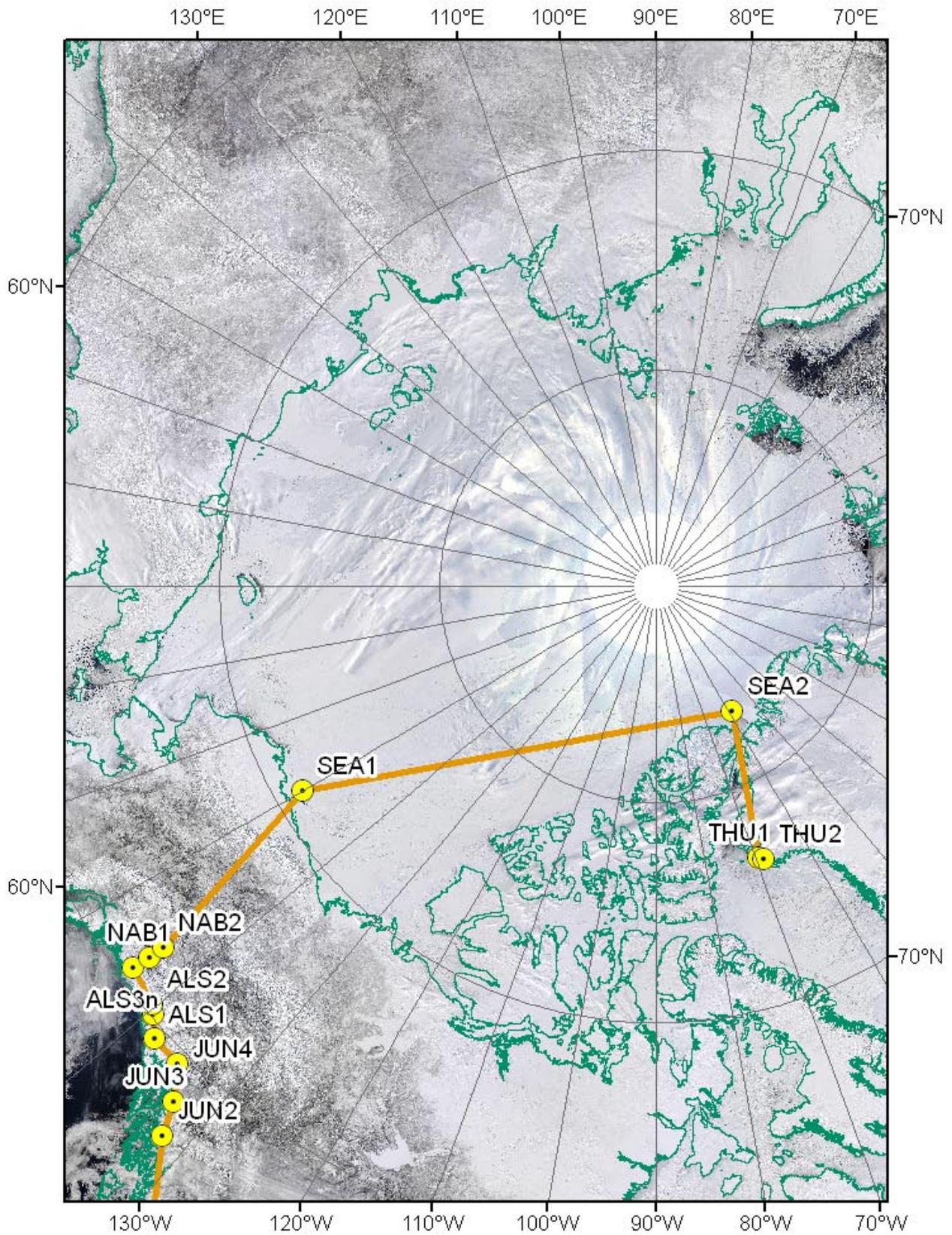


Figure 1: Waypoints and survey area of Flight 01. Basemap is MODIS image Arctic Mosaic from March 21, 2010.