
Preliminary Science Flight Report

Operation IceBridge Antarctica 2011



Flight: F15
Mission: Thwaites Glacier Grounding Line 1

Flight Report Summary

Aircraft	DC-8 (N817NA)
Flight Number	120119
Flight Request	128008
Date	Friday, November 4, 2011 (Z), Day of Year 309
Purpose of Flight	Operation IceBridge Mission Thwaites Glacier GL1
Take off time	14:48:38 Zulu from Punta Arenas (SCCI)
Landing time	02:22:35 Zulu at Punta Arenas (SCCI) on Saturday, November 5, 2011.
Flight Hours	11.6 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 ft AGL) of the Thwaites Glacier grounding line area including Haynes Glacier. Completed entire mission as planned.• ATM, MCoRDS, snow and Ku-band radars, gravimeter, and DMS were operated on the survey lines.• Conducted one ramp pass (2000 ft AGL) at Punta Arenas airport before landing for ATM instrument calibration.
Geographic Keywords	Thwaites Glacier, Haynes Glacier, Mount Murphy, Antarctica
ICESat Tracks	None.
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"/>	36 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.2 TB	None
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	210 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	210 GB	None
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	63 GB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.4 GB	None
DC-8 Onboard Data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	40 MB	None

Mission Report (Michael Studinger, Mission Scientist)

This is a new mission, designed in conjunction with the Thwaites Grounding Line 2 mission to map in detail much of the grounding line and area upstream of it, in order to inform predictions of its potential upstream migration. The pair of missions is aligned with the UTIG AGASEA grid, and one of the lines (E05-W05 in Thwaites Grounding Line 2) is co-located with one of the UTIG cross-flow lines to facilitate intercomparison of the OIB and UTIG measurements. Each of these two missions creates a grid with 5 km spacing offset from each other by 2.5 km, so that if both missions are flown the resulting grid will be spaced at 2.5 km.

The weather in the survey area different from what we had expected from the forecast. It was overcast with a much lower ceiling but clear at the survey elevation. We were able to complete the entire mission as planned. We had a very strong 50 kts cross wind that was significantly stronger than the 15-20 kts forecast. Instead of deterioration conditions during the day, the weather improved slightly.

The only penguin colony in the area on Bear Peninsula was too far away to cause any issues.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both systems worked well.

MCoRDS: The MCoRDS worked well.

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

Gravimeter: Worked well. No issues.

DMS: DMS worked well. No issues.

DC-8 on board data: System worked well.

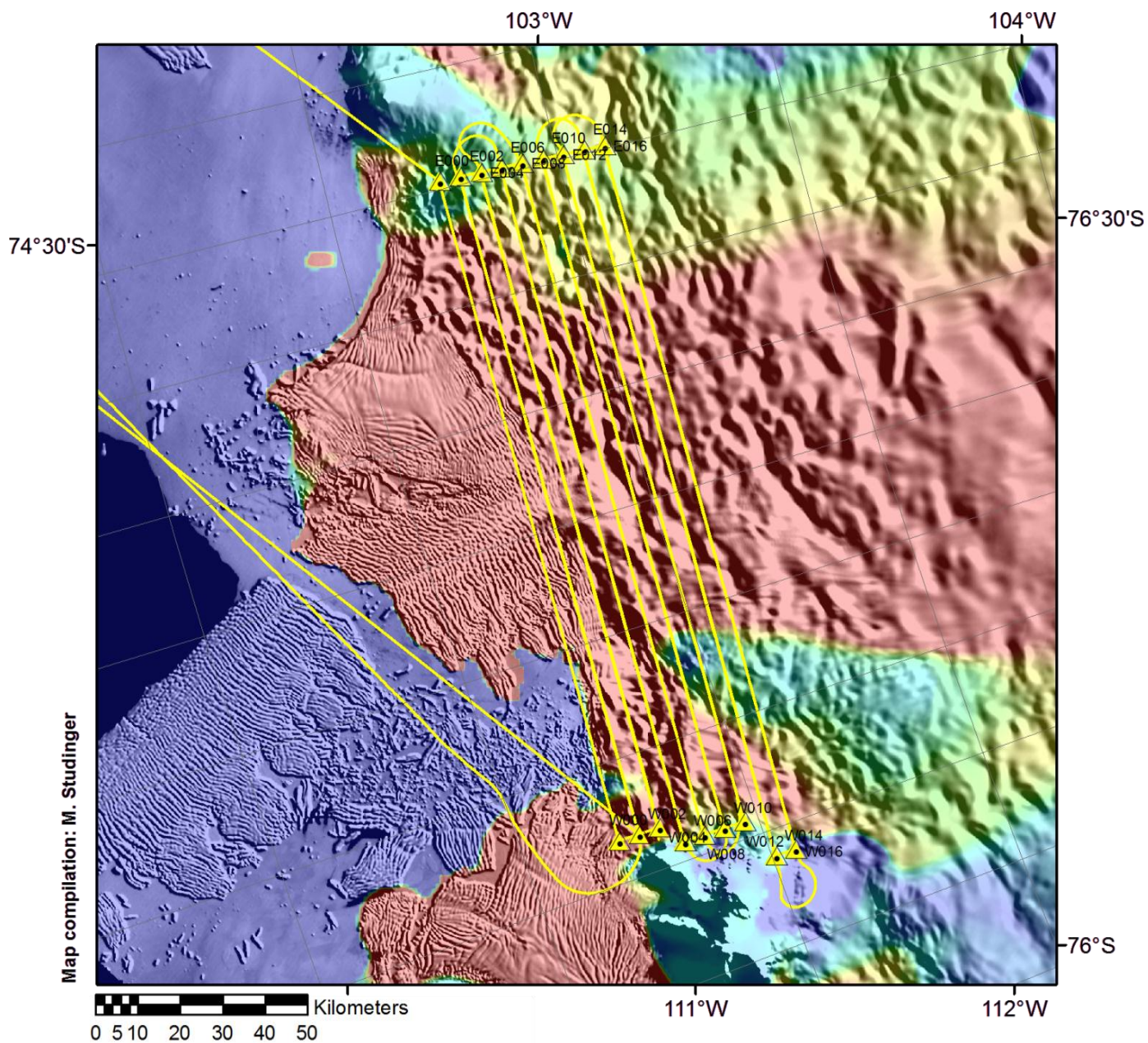


Figure 1: DC-8 trajectory over the Thwaites Glacier. Background image is MODIS mosaic and ice surface velocity from InSAR.