Preliminary Science Flight Report
Operation IceBridge Antarctica 2011

Flight: **F04**
Mission: **Getz Ice Shelf 3**

Flight Report Summary

Aircraft	**DC-8 (N817NA)**
Flight Number	120105
Flight Request	128008
Date	Monday, October 17, 2011 (Z), Day of Year 290
Purpose of Flight	Operation IceBridge Mission Getz 3
Take off time	12:00:55 Zulu from Punta Arenas (SCCI)
Landing time	23:27:14 Zulu at Punta Arenas (SCCI)
Flight Hours	11.5 Hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	• Low-altitude survey (1,500 ft AGL) Pine Island 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 passes (2000 ft AGL) at Punta Arenas airport for ATM, snow and Ku-band radar instrument calibration.
Geographic Keywords	Getz Ice Shelf, Marie Byrd Land, Antarctica
ICESat Tracks	0199.
Repeat Mission	None.

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	☑	☒	☒	21 GB	T4 data system fault
MCoRDS	☒	☒	☒	1.5 TB	None
Snow Radar	☒	☒	☒	200 GB	None
Ku-band Radar	☑	☒	☒	200 GB	None
DMS	☑	☒	☑	65.7 GB	None
Gravimeter	☑	☑	☑	2 GB	None
DC-8 Onboard Data	☑	☑	☑	40 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Today's mission is a new design, designed to supplement the 2009 Getz 1 and 2010 Getz 2 flights. The twofold purpose is to continue mapping the sub ice-shelf bathymetry using the gravimeter, and to continue mapping the ice surface and bedrock upstream of the grounding line. Coverage extends west of the previous OIB Getz surveys, and also occupies an ICESat orbit (0199) crossing all of the flown and planned Getz OIB flight lines.

The weather was what we had anticipated from the forecast with scattered clouds near the Bear Peninsula and rapidly improving towards the western end of the survey lines. We encountered similar situations in 2009 and 2010.

The known wildlife colonies in the survey area were at safe distance to the flight path of the DC-8.

Individual instrument reports from experimenters on board the aircraft:

ATM: The ATM T3 system worked well and collected good data and got 90% surface returns. ATM T4 experienced a data system fault resulting in only 30% of expected data.

MCoRDS: The MCoRDS worked well.

Snow and Ku-band radar: The snow and Ku-band radars collected data along the entire line. A short 1 min loss during a transit line because of altitude changes outside the passband.

Gravimeter: Worked well. No issues.

DMS: DMS worked well. No issues.

DC-8 on board data: System worked well.

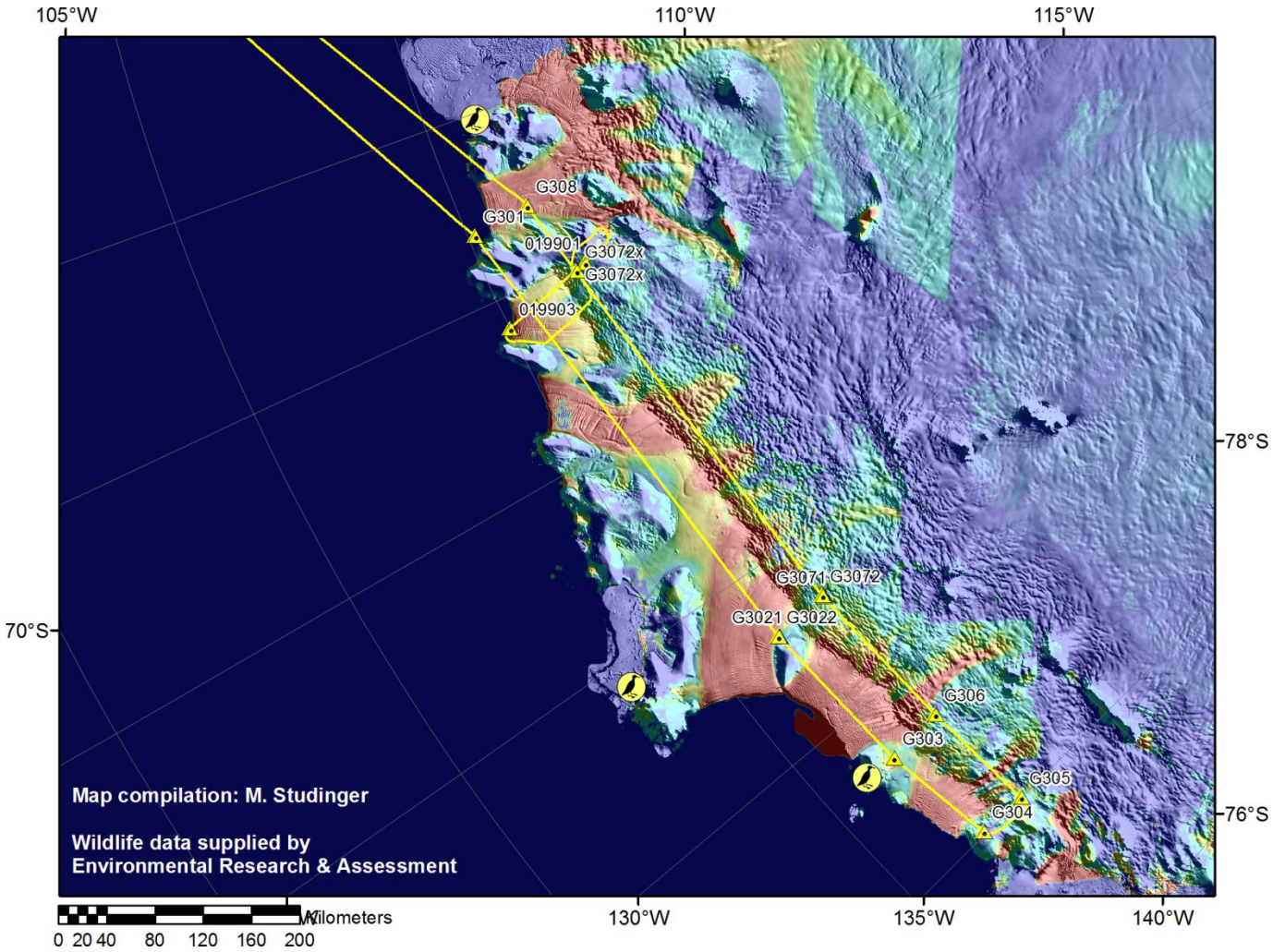

Figure 1: DC-8 trajectory over the Getz Ice Shelf. Background image is MODIS mosaic and ice surface velocity from InSAR.