
Preliminary Science Flight Report

Operation IceBridge Antarctica 2011



Flight: GV-FL09
Mission: LVIS-PIG2

Flight Report Summary

Aircraft	NSF G-V (N677F)
Flight Number	9
Flight Request	118003
Date	Saturday October 22 nd , 2011, DOY 295
Purpose of Flight	Operation IceBridge Mission, LVIS PIG2
Take off time	12:11 UTC from Punta Arenas (SCCI)
Landing time	22:35 UTC at Punta Arenas (SCCI) on October 22, 2011
Flight Hours	10.4
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	<ul style="list-style-type: none">• High-altitude survey (~42,000 ft pressure altitude) of grid lines• Completed mission as planned.• Conducted roll and pitch maneuvers for calibration at start/end of flight
Geographic Keywords	Antarctica, Pine Island Glacier, West Antarctic Ice Sheet, WAIS
ICESat/CryoSat Track	Grid lines cross numerous Icesat tracks, ~200 nm along Icesat track 0160
Repeat Mission	Overlap with previous LVIS data, and previous IceBridge data at PIG

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
LVIS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	50 GB	None
POS/AV (510 + 610)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	5 GB	None
LVIScameras(2)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	25 GB	None
G-V Onboard Data	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	10 MB	None

Mission Report (Michelle Hofton, Mission Scientist, Instrument Operators: David Rabine, Shane Wake)

This LVIS NSF G-V flight surveyed a series of lines along the southern edge of the Pine Island Glacier, a transit line to the start of the grid lines from the eastern edge of the Venables ice shelf, and a ~200 nautical mile segment of ICESat track 0160 from PIG to the coast and onto the sea ice. At PIG, five, ~350km long grid lines including one that repeated and extended a line flown as part of the LVIS 2009 IceBridge PIG flight and one short crossing line were surveyed. The survey is part of the overall deployment plan to collect grid data over a large region that encompasses the entire Antarctic Peninsula to the Getz Coast.

Both weather models predicted cloud free conditions in the southern PIG region but the SCCI weather office warned of scattered clouds (20,000') in the region. These clouds were expected to be in the vicinity of the PIG tongue with conditions generally getting clearer to the south and over the duration of the flight. The original design of the mission (PIG EAST) was altered slightly to take this into account: one of the 10km spaced lines was replaced with a line further to the south, and lines were flown from the south to the north. Planning took place before launch today with xchat unavailable because of a server issue. Transit to the area was mostly cloudy although some sea ice data were collected on the transit. Data over land portions of the transit were unaffected by clouds and data were collected to/from the coast and survey area. The transit out was along ICESat track 0160 with a data collection of ~95%. Conditions in the PIG area were better than predicted by the weather models and project offices. A narrow line of occasional clouds was present at about W94, but did not cause data loss. A layer of patchy clouds at 20,000' were present at the western edge of the survey area but only resulted in < 2% data loss on 3 of the 5 lines. Overall data collected was at a > 95% success rate.

The LVIS sensor worked very well. Data was successfully collected over the survey lines and on portions of the transit over land to/from the target area. The camera was operated in cloud free areas.

Roll and pitch maneuvers were carried out on the transit to Antarctica.

Individual instrument reports from experimenters on board the aircraft:

LVIS: The LVIS system worked well.

POS/AV: Systems worked well. No issues.

LVIScam: System worked well. No issues.

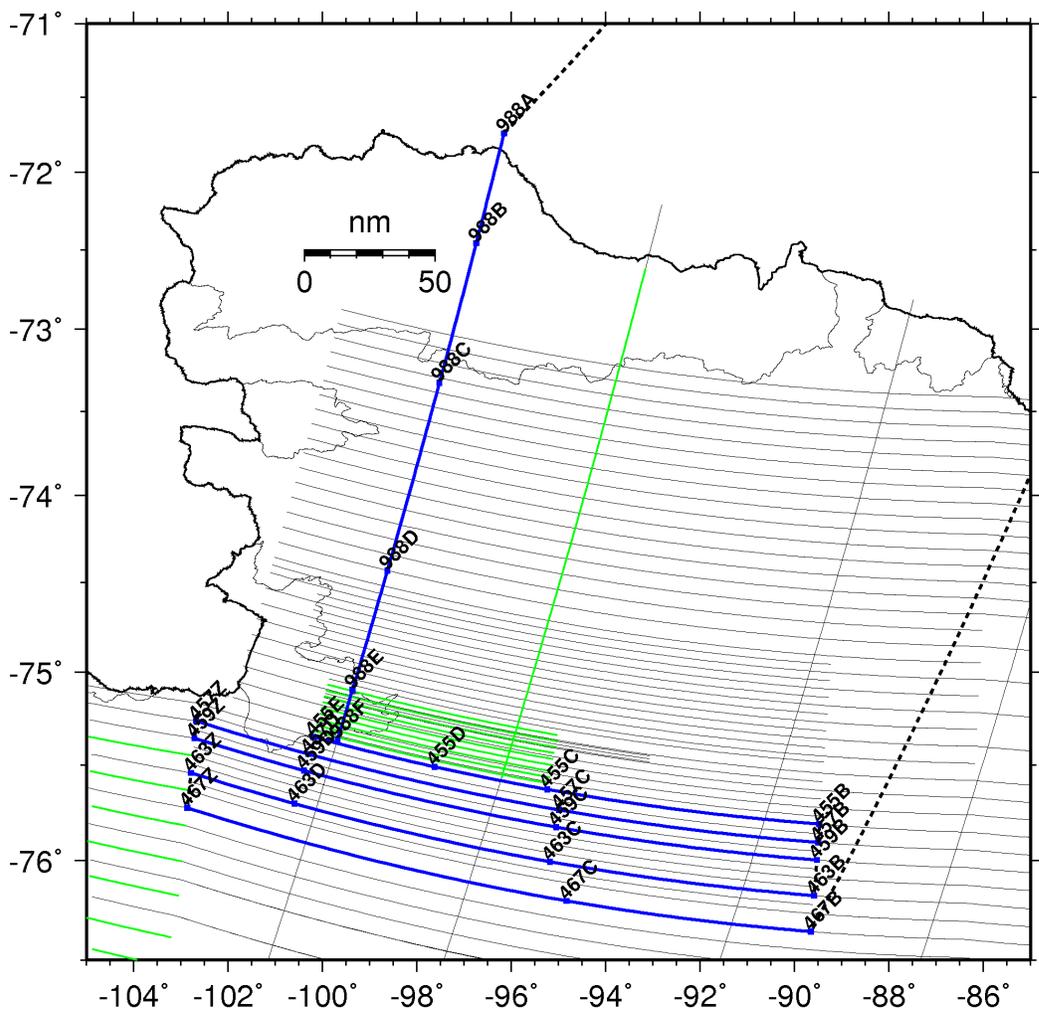
G-V onboard data: System worked well.

Looking West toward Pine Island Bay from 41,000 ft along ICESat Track 0160.

A layer of clouds is present at 20,000 ft but it was mostly to the NorthWest of the survey area.



Flight plan for today's mission in blue (previous 2011 PIG flight shown in green).



Flight Hours Summary

Flight	Date	Aircraft Flight #	Data Flight#	Duration (hr)	Running Total(hr)	Remaining Science Hours*
						100.00
PUQ-PUQ	10/07/11	RF01	GV-FL01	10.7	10.7	89.3
PUQ-PUQ	10/08/11	RF02	GV-FL02	10.4	21.1	78.9
PUQ-PUQ	10/10/11	RF03	GV-FL03	10.7	31.8	68.4
PUQ-PUQ	10/12/11	RF04	GV-FL04	10.3	42.1	58.4
PUQ-PMC	10/13/11	FF01	-	1.9		
PMC-PUQ	10/14/11	FF02	-	2.1		
PUQ-PUQ	10/14/11	RF05	GV-FL05	1.4	47.5	52.5
PUQ-PUQ	10/15/11	RF06	GV-FL06	10.5	58.0	42.0
PUQ-PUQ	10/17/11	RF07	GV-FL07	10.9	68.9	31.1
PUQ-PUQ	10/19/11	RF08	GV-FL08	10.5	79.4	20.6
PUQ-PMC	10/20/11	FF03	-	1.9		
PMC-PUQ	10/21/11	FF04	-	2.1		16.6
						+50
PUQ-PUQ	10/22/11	RF09	GV-FL09	10.4	93.8	55.2

* 50 additional mission flight hours added (10/21/11)