

## OIB

### Antarctic Flight 17, Pine Island Glacier 4

Aircraft	DC-8
Flight Number	DC8-100125
Flt Req #	108002
Flight Hours	11.3
Date	11/9/09
Purpose of Flight	ICE Bridge Pine Island Glacier -4
Aircraft Status	Airworthy
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	Low level survey over Pine Island Glacier and ice shelf. Thirteen of fourteen ATM data lines were flown. Last data line not flown due to time lost with headwind in transit. AVOCET, WAS, LVIS were not operated on this mission. ATM, DLH, DACOM, Gravimeter, MCoRDS, Ku-band radar, Snow radar, DMS, and POS were operational throughout the target areas. Conducted one pass over Punta Arenas for ATM instrument calibration.
Planned events	Continued peninsula and other Antarctic areas over flights to be determined in meetings over the next 24 hours.

### Flight Summary

Pine Island Glacier 4, FLT 17

November 9, 2009

#### **Bill Krabill (Mission Principal Investigator):**

November 9, 2009

DC8 mission # 17 to Antarctica

Flight Plan id: PIG-4

Despite reworking the power configuration the breaker popped on the UPS which powers the Litton LN100 INS, forcing about a 10 minute delay in takeoff.

Transit to the PIG area had a head wind of 110-120 knots; may effect our ability to complete all of the designed lines.

start descent 1703z very clear conditions

Today's survey starts and ends with gravity/laser/IPR surveys over the Abbot Ice Shelf.

This flight completes the detailed survey series of parallel lines optimized for gravimetry over the Pine Island Glacier lower area. The mission was flown in very clear conditions.

We surveyed for more than 4 hours with all remote sensors getting 100% coverage.

Plan for tomorrow: weather forecast looks marginal for all areas. Decision was made, with concurrence of John and Michael, to declare tomorrow a hard down day.

start ascent 2123z; we could not depend upon the high winds aloft to still be present, so had to eliminate the last line, and the last Abbot run. And the prudent aviator made the appropriate call - when we reached transit altitude the winds were still from the south, now on our tail, but half what they were this morning as a head-wind.

Individual instrument reports:

**ATM:** performed flawlessly; ; lost 2 minutes out of 4.2 hours due to ice fog.

**MCoRDS:** The University of Kansas MCoRDS system collected approximately 1.2 TB of data during the 4.2 hour survey. The bed echo was clearly detectable over about 95% [or more] over the land ice portions of the survey.

ore] over the land ice portions of the survey.

**Snow and Ku-Band radar:** 330 gb data; normal operations.

**LVIS:** was not in the plane

**DLM/DACOM:** good data.

**DMS:** worked well; routine; 10,000 images recorded.

**Gravity:** worked normally; excellent flight

**POS/AV:** operated normally.

**DC8 on board data:** worked well.

The two lines that appear to be missing in the figure below were collected in a previous mission.

**Jim Yungel (ATM Team):**

A successful mission was flown to Pine Island Glacier under blue sky conditions today. A dense grid of straight flight lines was flown near the snout of the Pine Island Glacier in order to permit the gravity instrument on board the DC8 to obtain higher resolution measurements of this previously flown area.

Additionally the ATM and KU radar instruments, as well as the camera systems and atmospheric gas sensor also made measurements throughout this mission. This detailed study of this extremely remote Pine Island Glacier outflow region with the ensemble of DC8 remote sensing instruments should produce some high value science products.

Tomorrow will be a "hard down" day with no work to be performed on the aircraft. We have now flown 17 DC8 missions (the number originally planned).

Given the fantastic rate of successful flights, NASA HQ has given permission and funding to fly additional DC8 science missions as permitted by weather, aircraft and crew availability, and justifiable science targets.

