

## DC-8 10/23/12 - 10/24/12

Aircraft: [DC-8 - AFRC](#) (See full schedule)

Flight Number: 130112

Payload Configuration: OIB Antarctic 2012

Nav Data Collected: Yes

Total Flight Time: 11.3 hours

Submitted by: Frank Cutler on 10/24/12

### Flight Segments:

<b>From:</b>	SCCI	<b>To:</b>	SCCI
<b>Start:</b>	10/23/12 13:38 Z	<b>Finish:</b>	10/24/12 00:54 Z
<b>Flight Time:</b>	11.3 hours		
<b>Log Number:</b>	<a href="#">138003</a>	<b>PI:</b>	Michael Studinger
<b>Funding Source:</b>	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
<b>Purpose of Flight:</b>	Science		
<b>Comments:</b>	<p>Depart SCCI at 1338Z. Perform calibration ramp pass to the SE and overfly targets at 1345Z at 2000 ft AGL. Climb to cruise altitudes of FL310 &amp; FL350. Stay at high altitude, FL350, for data portion of entire science mission. Cross first science waypoint at 1645Z in the vicinity of Fletcher Islands and under fly ICESat track south bound. Map area over Pine Island glacier starting at 1708Z. Seven parallel ground tracks in east/west direction flown covering the length of the glacier. Complete Pine Island Glacier mapping at 1852Z. Transit to next mapping area over Smith and Kohler Glaciers. In transit cross over Thwaites Glacier grounding line at 1901Z. Start mapping Smith and Kohler Glaciers at 1910Z. Eight parallel ground tracks in east/west direction flown covering the glacier area. Complete Smith and Kohler Glaciers mapping at 2118Z and transit to ICESat line. Intercept ICESAT line north bound at 2130Z. Cross previously flown Pine Island ground track lines perpendicularly between 2136Z and 2140Z. Complete ICESat line over Thurston Island at 2205Z. Climb to FL390 for transit to Punta Arenas. Perform radar instrument calibration 15 deg. bank rolls left/right for five minutes on return transit. Xchat with school children in class rooms across USA during mission. Land SCCI at 0054Z.</p>		

### Flight Hour Summary:

	<b>138003</b>
<b>Flight Hours Approved in SOFRS</b>	200
<b>Total Used</b>	215.7
<b>Total Remaining</b>	-15.7

### 138003 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
<a href="#">10/02/12</a>	130101	Check	5	5	195	
<a href="#">10/03/12</a>	130102	Check	3.2	8.2	191.8	
<a href="#">10/08/12 - 10/09/12</a>	130103	Transit	10.7	18.9	181.1	
<a href="#">10/10/12</a>	130104	Transit	3.2	22.1	177.9	
<a href="#">10/12/12</a>	130105	Science	11.2	33.3	166.7	
<a href="#">10/13/12 - 10/14/12</a>	130106	Science	10.9	44.2	155.8	
<a href="#">10/15/12</a>	130107	Science	11.6	55.8	144.2	
<a href="#">10/16/12 - 10/17/12</a>	130108	Science	11.8	67.6	132.4	
<a href="#">10/18/12</a>	130109	Science	11.6	79.2	120.8	
<a href="#">10/19/12 - 10/20/12</a>	130110	Science	10.2	89.4	110.6	
<a href="#">10/22/12</a>	130111	Science	11.2	100.6	99.4	
<a href="#">10/23/12 - 10/24/12</a>	130112	Science	11.3	111.9	88.1	

<a href="#">10/25/12</a>	130113	Science	11.4	123.3	76.7
<a href="#">10/27/12</a>	130114	Science	11.4	134.7	65.3
<a href="#">10/28/12 - 10/29/12</a>	130115	Science	11.3	146	54
<a href="#">11/01/12 - 11/02/12</a>	130116	Science	12	158	42
<a href="#">11/02/12 - 11/03/12</a>	130117	Science	10.6	168.6	31.4
<a href="#">11/04/12</a>	130118	Science	11	179.6	20.4
<a href="#">11/06/12 - 11/07/12</a>	130119	Science	9.4	189	11
<a href="#">11/07/12 - 11/08/12</a>	130120	Science	11.5	200.5	-0.5
<a href="#">11/09/12</a>	130121	Transit	3.3	203.8	-3.8
<a href="#">11/10/12 - 11/11/12</a>	130122	Transit	11.6	215.4	-15.4
<a href="#">11/11/12</a>	130123	Transit	0.3	215.7	-15.7

*Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.*

#### Related Science Report:

### OIB - DC-8 10/23/12 Science Report

**Mission:** OIB

**Mission Summary:**

#### F08 Pine Island, Thwaites, Smith and Kohler Glaciers - High Altitude

##### Accomplishments

- High-altitude survey along and across the Pine Island, Thwaites, Smith and Kohler Glaciers. Flight elevation was 35,000 ft pressure altitude, resulting in about 28,000 to 32,000 ft AGL according to radar and laser altimeters.
- Completed all planned survey lines.
- ATM, MCoRDS, gravimeter, and DMS were operated on the survey lines.
- Snow and Ku-band radars were not operated due to high altitude mission.
- Survey design includes many cross-overs to check internal consistency of the data.
- Conducted ramp pass (2,000 ft AGL) at Punta Arenas airport after takeoff for DMS, ATM, instrument calibration.
- Hosted several question and answer sessions on x-chat during the flight with students and teachers from the US.
- Satellite Tracks: ICESat ground tracks 160, 264, 354.
- Repeat Mission: yes

##### Science Data Report Summary

Instrument	Operated	Data Volume	Instrument Issues/Comments
ATM	yes	27 GB	None. Only narrow scanner T3 in operation.
DMS	yes	12.5 GB	None. Collected 2,245 frames.
Snow Radar	no	N/A	Not operated due to high altitude mission.
Ku-band Radar	no	N/A	Not operated due to high altitude mission.
MCoRDS	yes	950 GB	None
KT-19	yes	20 MB	None
Gravimeter	yes	1.2 GB	None
DC-8 On-board Data	yes	40 MB	None

### Mission Report (Michael Studinger, Mission Scientist)

The forecasts for the Pine Island and Thwaites Glacier areas remained very promising this morning, although clouds were looming on the eastern side of the survey area very close to the first data line. This morning we even had the luxury of a MODIS satellite image for the area, which greatly increased our comfort level for decision making. The mission plan for the high-altitude mission covers a large area and also requires cloud-free conditions from the surface up to 40,000 ft. The conditions in the survey area turned out to be perfect. We did not encounter any clouds and even were able to collect additional data over sea ice on the way home. The race track pattern over the Pine Island and Thwaites Glacier areas also created an opportunity for many cross-overs, which are valuable data for determining the internal consistency of the data sets, in particular the laser altimetry and digital aerial photography. The ATM narrow scan T-3 laser performed flawlessly at high altitude. We flew the grid over Pine Island Glacier for the first time in 2009 with the LVIS instrument. Together with the 2009 data today's flight is an important data set to document the rapid and widespread changes in Pine Island Glacier over time. During turns in between survey lines we flew several times over the rift that had formed last year. The rift is now filled with snow, which is hardly surprising having seen the vast amounts of snow being blown around above the surface on today's flight. Any topographic depression, such as a deep rift, fills quickly with windblown snow. The ATM team created plots during the flight with preliminary processed data from the rift that caught everyone's attention.

Today's high altitude mission was a welcome change in perspective for the instrument teams and crew. The view from high above provided a big picture perspective. The extreme clear conditions allowed for views that spanned from Mt. Murphy, over the Thwaites Glacier and Pine Island Glacier are with the Pine Island Bay polynya and the Hudson Mountains in the back ground.

We flew a ramp pass at Punta Arenas airport at 2,000 ft AGL after takeoff to ensure data collection during daylight for DMS and ATM instrument calibration.

We hosted again several question and answer sessions on x-chat during the flight with students and teachers from across the United States. We had 5 teachers (from CA, MD, NH, NY) and 42 students. One of the teachers, a school librarian, had our flight track and the chat projected on the whiteboard in the library throughout the day.

ATM data collection	Time (UTC)	Hours
Begin high altitude data collection	16:40	
End high altitude data collection	22:20	5.6
Total		5.6

#### Images:

### Trajectory map of today's science mission



[Read more](#)

### Digital Mapping System image mosaic of Pine Island Glacier rift



[Read more](#)

**Submitted by:** Michael Studinger on 10/24/12

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