

DC-8 10/16/12 - 10/17/12

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

Flight Number: 130108

Payload Configuration: OIB Antarctic 2012

Nav Data Collected: Yes

Total Flight Time: 11.8 hours

Submitted by: Frank Cutler on 10/17/12

Flight Segments:

From:	SCCI	To:	SCCI
Start:	10/16/12 13:34 Z	Finish:	10/17/12 01:21 Z
Flight Time:	11.8 hours		
Log Number:	138003	PI:	Michael Studinger
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Comments:	Depart SCCI at 1334Z. Perform calibration ramp pass to the SE and overfly targets at 1342Z at 1000 ft AGL. Climb to cruise altitudes of between FL310 & FL350. Descend to 1500 ft AGL to cross first science waypoint at 1757Z. Perform eight passes over glacier and overfly final waypoint at 2156Z. Perform 15 deg. bank to bank maneuvers for radar instruments calibration during return transit. 0.75 hours high altitude ATM data collected during initial part of transit. Xchat with school children in class rooms across USA during mission. Climb to FL400 for transit to Punta Arenas. Land SCCI at 0121Z. Gravimeter control computer faulted on takeoff rendering the instrument unusable; all other instruments airworthy		

Flight Hour Summary:

	138003
Flight Hours Approved in SOFRS	200
Total Used	215.7
Total Remaining	-15.7

138003 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
10/02/12	130101	Check	5	5	195	
10/03/12	130102	Check	3.2	8.2	191.8	
10/08/12 - 10/09/12	130103	Transit	10.7	18.9	181.1	
10/10/12	130104	Transit	3.2	22.1	177.9	
10/12/12	130105	Science	11.2	33.3	166.7	
10/13/12 - 10/14/12	130106	Science	10.9	44.2	155.8	
10/15/12	130107	Science	11.6	55.8	144.2	
10/16/12 - 10/17/12	130108	Science	11.8	67.6	132.4	
10/18/12	130109	Science	11.6	79.2	120.8	
10/19/12 - 10/20/12	130110	Science	10.2	89.4	110.6	
10/22/12	130111	Science	11.2	100.6	99.4	
10/23/12 - 10/24/12	130112	Science	11.3	111.9	88.1	
10/25/12	130113	Science	11.4	123.3	76.7	
10/27/12	130114	Science	11.4	134.7	65.3	
10/28/12 - 10/29/12	130115	Science	11.3	146	54	

11/01/12 - 11/02/12	130116	Science	12	158	42
11/02/12 - 11/03/12	130117	Science	10.6	168.6	31.4
11/04/12	130118	Science	11	179.6	20.4
11/06/12 - 11/07/12	130119	Science	9.4	189	11
11/07/12 - 11/08/12	130120	Science	11.5	200.5	-0.5
11/09/12	130121	Transit	3.3	203.8	-3.8
11/10/12 - 11/11/12	130122	Transit	11.6	215.4	-15.4
11/11/12	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 10/16/12 Science Report

Mission: OIB

Mission Summary:

F04 Thwaites Upstream #3

Accomplishments

- Low-altitude survey (1,500 ft AGL) over Thwaites Glacier grounding line area. Completed all planned survey lines.
- Collected additional high altitude data.
- ATM, MCoRDS, snow and Ku-band radars, gravimeter, and DMS were operated on the survey lines.
- Collected additional ATM and DMS high-altitude data over sea ice in the Bellingshausen Sea on transit home.
- Conducted pitch maneuvers for time stamp verification of snow and Ku-band radars.
- Conducted roll maneuvers for MCoRDS over sea ice from high altitude for instrument calibration.
- Conducted one ramp pass (1,000 ft AGL) at Punta Arenas airport after takeoff for DMS, ATM, snow and Ku-band radar instrument calibration.
- Hosted several question and answer sessions on x-chat during the flight with students teachers from across the United States.
- Satellite Tracks: none
- Repeat Mission: none

Science Data Report Summary

Instrument	Operated	Data Volume	Instrument Issues/Comments
ATM	yes	46 GB	None
DMS	yes	107 GB	None
Snow Radar	yes	441 GB	None
Ku-band Radar	yes	441 GB	None
MCoRDS	yes	700 GB	None
KT-19	yes	20 MB	None
Gravimeter	yes	0.0 GB	Computer failure. All data lost.
DC-8 On-board Data	yes	40 MB	None

Mission Report (Michael Studinger, Mission Scientist)

Our primary candidate mission for today was the high-altitude Pine Island, Thwaites, Smith, Kohler Glacier

mission based on the weather forecast we received last night on the transit flight back to Punta Arenas from the Foundation Ice Stream. We typically download small forecast maps generated by the AMPS model during the flight to get an indication for potential missions on the next day. The AMPS model indicated very good conditions with the entire Pine Island and Thwaites Glacier area cloud free and a healthy offshore flow for today. The new run of the AMPS model indicated the same conditions this morning before the weather brief at the met office. Just like yesterday the forecast from the airport was very different predicting a layer of clouds around 12,000 ft, potentially obscuring the ice surface for a high-altitude survey from 40,000 ft. The somewhat outdated satellite imagery showed clouds in the area, supporting the model forecast from the met office. We decided to cancel the Pine Island, Thwaites, Smith, Kohler mission at high altitude and instead go for the low-altitude mission next to it called Thwaites Upstream 03. We were fairly confident to be able to survey below the cloud deck. During descent into the survey area the view into the Pine Island Glacier area confirmed our decision. The area was below a patchy and fairly dense layer of clouds that would have caused significant data loss for a high-altitude survey. The weather over the Thwaites Glacier upstream area was perfect with some patchy and dense cloud layers above us that didn't impact our data collection.

Today's mission and previous missions are aligned with the UTIG AGASEA grid. Together, the missions result in a 2.5 km grid over the grounding area and 5 km upstream. The data is intended as input for ice sheet models.

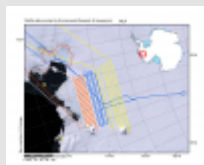
We also completed a ramp pass at Punta Arenas airport at 1,000 ft AGL after takeoff to ensure good data for DMS and ATM instrument calibration and also for snow and Ku-band radar calibration.

With the exception of the gravimeter all instruments worked well. The control computer for the gravimeter failed shortly after takeoff and a repair during flight is not possible. All gravity data from today's flight have been lost.

	Time (UTC)	Hours
Begin high altitude data collection		
Begin low altitude data collection	17:48	
End low altitude data collection	22:00	4.2
End high altitude data collection	22:45	0.8
Total		5.0

Images:

Trajectory of today's science mission over Thwaites Glacier



[Read more](#)

View of the Thwaites Glacier survey area



[Read more](#)

Submitted by: Michael Studinger on 10/16/12

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