DC-8 10/17/16 - 10/18/16

Aircraft:
DC-8 - AFRC (See full schedule)
Flight Number:
1142
Payload Configuration:
OIB-ATM NAV/ATM GPS/ATM-T5/T6/ATM FLIR/ATM CAMBOT MCoRDS/SNOW/Ku RADAR DMS/POS-AV GRAVIMETER
Nav Data Collected:
Yes
Total Flight Time:
11.8 hours
Submitted by:
Chris Jennison on 10/19/16
Flight Segments:

From:	SCCI	**To:**	SCCI
Start:	10/17/16 13:14 Z	**Finish:**	10/18/16 00:58 Z
Flight Time:	11.8 hours		
Log Number:	178010	**PI:**	Nathan Kurtz
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Comments:	This was the first sea ice flight of this deployment. Weddell sea ice was surveyed with a registration loops included in the outbound leg. Data acquisition appears to have been satisfactory. Post flight inspection revealed a fuel seepage from a shutoff valve in excess of the allowable limit.		

Images:

Weddell Sea Ice survey flight track

Read more

Flight Hour Summary:

	178010
Flight Hours Approved in SOFRS	300
Total Used	306.9
Total Remaining	-6.9

178010 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
10/04/16	1135	Science	4	4	296	
10/05/16	1136	Science	2.7	6.7	293.3	
10/12/16	1138	Transit	10.9	17.6	282.4	
10/12/16	1139	Transit	3	20.6	279.4	
10/14/16 - 10/15/16	1140	Science	10.9	31.5	268.5	
10/15/16 - 10/16/16	1141	Science	11.8	43.3	256.7	
10/17/16 - 10/18/16	1142	Science	11.8	55.1	244.9	

10/20/16 - 10/21/16	1143	Science	11.4	66.5	233.5
10/22/16	1144	Science	11	77.5	222.5
10/24/16 - 10/25/16	1145	Science	11.5	89	211
10/25/16 - 10/26/16	1146	Science	11.3	100.3	199.7
10/26/16 - 10/27/16	1147	Science	12.1	112.4	187.6
10/27/16 - 10/28/16	1148	Science	11.5	123.9	176.1
10/28/16 - 10/29/16	1149	Science	11	134.9	165.1
10/31/16 - 11/01/16	1150	Science	11	145.9	154.1
11/02/16 - 11/03/16	1151	Science	11.2	157.1	142.9
11/03/16 - 11/04/16	1152	Science	11.5	168.6	131.4
11/04/16 - 11/05/16	1153	Science	11.1	179.7	120.3
11/05/16 - 11/06/16	1154	Science	11.7	191.4	108.6
11/07/16 - 11/08/16	1155	Science	11.2	202.6	97.4
11/09/16 - 11/10/16	1156	Science	11.7	214.3	85.7
11/10/16	1157	Science	10.9	225.2	74.8
11/11/16 - 11/12/16	1158	Science	11.3	236.5	63.5
11/12/16 - 11/13/16	1159	Science	11.1	247.6	52.4
11/14/16	1160	Science	10.9	258.5	41.5
11/15/16 - 11/16/16	1161	Science	11.6	270.1	29.9
11/17/16 - 11/18/16	1162	Science	11.1	281.2	18.8
11/18/16 - 11/19/16	1163	Science	11.1	292.3	7.7
11/21/16	1165	Transit	11.6	303.9	-3.9
11/21/16	1164	Transit	3	306.9	-6.9

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 10/17/16 Science Report

Mission:
OIB
Mission Summary:

Mission: Sea Ice - Endurance (priority: baseline)

This mission represents a continuation of the IceBridge time series, nearly repeating the near-shore flight line flown in 2009 and 2010 and the Endurance flight line from 13 October 2011 and 7 November 2012. It typically crosses rough sea ice. For 2016 we replaced the near-shore line with a nearby IceSat-2 ground track covering

the central beam pair. The eastern flight line will be adjusted to occupy a contemporaneous CryoSat-2 orbit. The CryoSat-2 orbit should be as close in time to the DC-8 underflight as possible, and the recommended maximum time offset is ~2 hours. The eastern flight line will also be adjusted to allow a 30 minute backtrack loop along the line, repeating a portion of the track to aid in the determination of sea ice drift rate. Finally we will continue the CryoSat track north past the ice edge, if time permits, for 25-50 km over the open ocean. This will permit intercomparison of OIB and CryoSat data over the transition region from the ice edge to open ocean.

The western Weddell Sea benefited from a ridge of high pressure extending southeast from the northern Antarctic Peninsula today. High pressure ridges pointing south into the Weddell often bring fog with them, because they direct a flow of warm damp air from the far southern Atlantic Ocean onto the sea ice, where it cools and condenses into fog. This was not the case today, because the ridge was located far enough west to direct the flow down from the Peninsula instead of from the open ocean, where it warmed and dried as it descended from the heights of the Peninsula's mountains. As a result we enjoyed clear skies for the entire inshore line, the connecting eastbound line, and for the southern half of the northbound CryoSat-2 line. We encountered some low clouds on the northern half of the CryoSat-2 line, but we were able to operate underneath these clouds for the entirety of the line, save a few seconds here and there. We successfully collected data from all sensors for more than 99% of the mission, almost certainly our best-ever science return from an Antarctic sea ice flight.

The CryoSat-2 spacecraft passed overhead of our 34602 line (which is also the spacecraft's orbit number) at 22:13:51 UTC, at the same time we were on the line and collecting data at 1000' AGL. This was near the north end of this line, not far from the edge of the pack. We were not able to cross the pack edge along the CryoSat-2 track as desired, simply because an unfortunately-located "finger" of sea ice pointed several dozen miles north from the main pack, right at the location of the groundtrack, putting the pack edge out of our effective range for this already very long mission.

All instruments performed well. DMS swapped their primary camera prior to takeoff after yesterday's failure and it operated well today. DMS also experienced difficulties with low sun angle and low light for the last hundred miles or so of the flight, which may have compromised the quality of the imagery during that period.

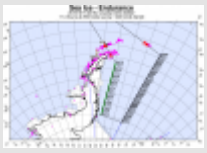
We conducted a ramp pass at 2000' on departure.

Data volumes:
AIRGrav: 5 Gb
ATM: 42 Gb
CAMBOT: 15 Gb
DMS: 119 Gb
FLIR: 19 Gb
Ku-Band Radar: 672 Gb
MCoRDS: 0 Tb (no operation for sea ice)
Narrow Swath ATM: 35 Gb
Snow Radar: 672 Gb

total data collection time: 7.1 hrs

Images:

Map of Sea ice - Endurance



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Tierra del Fuego

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Northern Antarctic Peninsula

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Weddell ice edge

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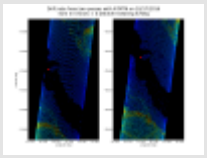
Pack drift from ATM



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Weddell iceberg

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Submitted by:
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