

## P-3 Orion 11/20/13 - 11/21/13

Aircraft: [P-3 Orion - WFF](#) (See full schedule)

Flight Number: Science Flight #3: Sea Ice Ross Fluxgate

Payload Configuration: Operation IceBridge

Nav Data Collected: Yes

Total Flight Time: 7.3 hours

Submitted by: Christy Hansen on 11/21/13

### Flight Segments:

<b>From:</b>	NZIR	<b>To:</b>	NZIR
<b>Start:</b>	11/20/13 20:44 Z	<b>Finish:</b>	11/21/13 04:02 Z
<b>Flight Time:</b>	7.3 hours		
<b>Log Number:</b>	<a href="#">14P003</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>	1st sea ice flight - all nominal. 3rd science flight overall.		

### Flight Hour Summary:

	<b>14P003</b>
<b>Flight Hours Approved in SOFRS</b>	230
<b>Total Used</b>	128.2
<b>Total Remaining</b>	101.8

### 14P003 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
<a href="#">11/06/13</a>	OIB ECF	Check	1.5	1.5	228.5	
<a href="#">11/08/13</a>	OIB PCF #1	Check	3.1	4.6	225.4	
<a href="#">11/08/13</a>	OIB PCF #2	Check	3.7	8.3	221.7	
<a href="#">11/11/13</a>	1711	Transit	7.4	15.7	214.3	
<a href="#">11/12/13 - 11/13/13</a>	1715	Transit	8.8	24.5	205.5	
<a href="#">11/13/13 - 11/14/13</a>	1716	Transit	8.1	32.6	197.4	
<a href="#">11/14/13 - 11/15/13</a>	1717	Transit	6.8	39.4	190.6	
<a href="#">11/15/13 - 11/16/13</a>	1718	Transit	6.7	46.1	183.9	
<a href="#">11/17/13 - 11/18/13</a>	McMurdo Check Flight	Check	4.3	50.4	179.6	
<a href="#">11/18/13 - 11/19/13</a>	Science Flight #1: TAM West	Science	7.8	58.2	171.8	
<a href="#">11/19/13 - 11/20/13</a>	Science Flight #2: Victoria 01	Science	8.3	66.5	163.5	
<a href="#">11/20/13 - 11/21/13</a>	Science Flight #3: Sea Ice Ross Fluxgate	Science	7.3	73.8	156.2	
<a href="#">11/25/13 - 11/26/13</a>	Science Flight #4: Siple Coast 03	Science	8.7	82.5	147.5	
<a href="#">11/26/13 - 11/27/13</a>	Science Flight #5: Dome C: Vostok	Science	8.2	90.7	139.3	
<a href="#">11/27/13 - 11/28/13</a>	Transit #1: NZIR-NZCH	Transit	8.8	99.5	130.5	
<a href="#">11/28/13 - 11/29/13</a>	Transit #2: NZCH-NSTU	Transit	6.3	105.8	124.2	

<a href="#">11/29/13 - 11/30/13</a>	Transit #3: NSTU-Hawaii	Transit	7.4	113.2	116.8
<a href="#">12/01/13</a>	Transit #3: Hawaii - Mountain View, CA	Transit	7.1	120.3	109.7
<a href="#">12/02/13</a>	Transit #3: California - WFF	Transit	6.5	126.8	103.2
<a href="#">12/11/13</a>	ATM Post Mission Cal Flight	Check	1.4	128.2	101.8

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 - P-3 Orion 11/20/13 - 11/21/13 Science Report**

**Mission:** OIB

**Mission Summary:**

**F03 Ross Sea Fluxgate (shortened)**

**Accomplishments**

- Low-altitude survey (1,500 ft AGL) over the Ross Sea.
- ATM, snow, Ku-band, accumulation, and DMS were operated on the survey lines.
- Gravimeter and magnetometer data collected over entire flight.
- Collected calibration data for accumulation radar and MCoRDS.
- Satellite Tracks: none.
- Repeat Mission: none.

Instrument	Operated	Data Volume	Instrument Issues/Comments
ATM	yes	55 GB	None.
DMS	yes	96 GB	None. Collected 15,466 frames on primary system.
Snow Radar	yes	239 GB	None.
Ku-band Radar	yes	239 GB	None.
Accumulation Radar	yes	161 GB	None. Collected calibration data over sea ice.
MCoRDS	none	N/A	None. Collected calibration data over sea ice.
KT-19	yes	10 MB	None.
Gravimeter	yes	1.4 GB	None.
Magnetometer	yes	280 MB	1 HF radio call

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

Today the weather was suitable for the first sea ice mission. The Ross Sea Fluxgate mission plan (see below) has been given the highest priority by the IceBridge Sea Ice Science Team. At this time of the year the northern

Ross Sea has many leads with open water, something that tremendously helps calculating sea ice thickness from ice freeboard measurements. From an operational point this is bad news since the many leads are a source of moisture that causes widespread fog and low cloud cover, making it a challenge to collect data with optical instruments that require an unobstructed view of the ice surface. Today's mission was another uneventful flight. As expected we were in and out of clouds requiring the usual frequent elevation changes to avoid cloud and fog. We fly in conditions much worse over the Arctic Ocean compared to what we have encountered today.

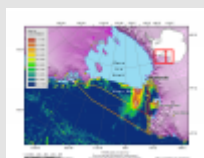
The goal of today's flight was to estimate sea ice thickness across a 1,400 km long fluxgate in the northern Ross Sea, where the sea ice is streaming northward from McMurdo Sound into the Ross Sea. The northern most profile runs from Cape Adare on the west to Sulzberger Bay on the east. A second east-west line parallel to the first, captures the ice condition south of the flux gate. This IceBridge mission is intended to complement a ship-based mission anticipated for the austral spring 2015, which will focus on a detailed survey of the sea ice and snow conditions in this same area.

In order to get back onto our normal schedule we had to shorten the 8 hour mission plan to a 7 hour flight. Instead of flying low on the transit line we collected data from high altitudes saving time. We had to break off the southern fluxgate line 400 km off the coast in order to land in McMurdo at 17:00 local time. We started the flight collecting more calibration data for the CReSIS MCoRDS system at 10,000, 15,000, and 18,000 ft MSL. On the way home we collected calibration data over sea ice for the CReSIS accumulation radar at 3000, 4500 and 6000 ft MSL.

Data collection started 11/20/2013 20:53 UTC and ended at 11/21/2013 03:54 UTC. In total we collected 7.0 hours of science data.

#### Images:

### Today's mission plan and P-3 trajectory.



[Read more](#)

### Sea ice in Sulzberger Bay



[Read more](#)

### Sea ice and ice bergs in Sulzberger Bay



[Read more](#)

Submitted by: Michael Studinger on 11/22/13

NASA Official: Marilyn Vasques

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