

P-3 Orion - WFF 04/03/19

Aircraft:

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

Flight Number:

#2070: 2019 OIB Science Flight #1

Payload Configuration:

Operation IceBridge

Nav Data Collected:

No

Total Flight Time:

7.6 hours

Submitted by:

Kelly Griffin on 04/03/19

Flight Segments:

From:	BGTL	To:	BGTL
Start:	04/03/19 11:00 Z	Finish:	04/03/19 18:38 Z
Flight Time:	7.6 hours		
Log Number:	19P017	PI:	Joseph MacGregor
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Miles Flown:	1938 miles		

Flight Hour Summary:

	19P017
Flight Hours Approved in SOFRS	250
Total Used	216.3
Total Remaining	33.7

19P017 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
03/26/19	#2053: 2019 OIB ATF	Check	0.9	0.9	249.1	0
03/27/19	#2059: 2019 OIB PTF-Laser	Check	2.3	3.2	246.8	0
03/28/19	#2061: 2019 OIB PTF-Radar	Check	3.2	6.4	243.6	0
04/01/19	#2068: 2019 OIB WFF-BGTL Transit Flight	Transit	6.9	13.3	236.7	2458
04/03/19	#2070: 2019 OIB Science Flight #1	Science	7.6	20.9	229.1	1938
04/05/19	#2072: 2019 OIB Science Flight #2	Science	7.7	28.6	221.4	1910
04/06/19	#2073: 2019 OIB Science Flight #3	Science	7.2	35.8	214.2	2000
04/08/19	#2075: 2019 OIB Science Flight #4	Science	6.9	42.7	207.3	1780
04/09/19	#2076: 2019 OIB Science Flight #5	Science	7.8	50.5	199.5	2045
04/10/19	#2081: 2019 OIB Science Flight #6	Science	10.1	60.6	189.4	2702
04/11/19	#2082: BGSF-BGTL Transit	Transit	2.2	62.8	187.2	696
04/12/19	#2083: 2019 OIB Science Flight #7	Science	7.2	70	180	2109

04/15/19	#2086: 2019 OIB Science Flight #8	Science	4.8	74.8	175.2	1243
04/16/19	#2087: 2019 OIB Science Flight #9	Science	7.6	82.4	167.6	2036
04/17/19	#2088: 2019 OIB Science Flight #10	Science	7.7	90.1	159.9	1937
04/18/19	#2090: 2019 OIB Science Flight #11	Science	7.8	97.9	152.1	2008
04/19/19	#2091: 2019 OIB Science Flight #12	Science	7.6	105.5	144.5	2104
04/20/19	#2092: 2019 OIB Science Flight #13	Science	6.9	112.4	137.6	0
04/22/19	#2094: 2019 OIB Science Flight #14	Science	6.6	119	131	1867
04/23/19	#2099: 2019 OIB Science Flight #15	Science	7.7	126.7	123.3	1979
04/25/19	#2102: 2019 OIB BGTL-KBGR Transit Flight	Transit	6.2	132.9	117.1	0
04/26/19	KBGR to BGSF Transit	Transit	5.7	138.6	111.4	0
05/05/19	2019 OIB Science Flight #16	Science	7.8	146.4	103.6	0
05/06/19	2019 OIB Science Flight #17	Science	8.4	154.8	95.2	0
05/07/19	2019 OIB Science Flight #18	Science	8.5	163.3	86.7	0
05/08/19	2019 OIB Science Flight #19	Science	8	171.3	78.7	0
05/12/19	2019 OIB Science Flight #20	Science	9	180.3	69.7	0
05/13/19	2019 OIB Science Flight #21	Science	7	187.3	62.7	0
05/14/19	2019 OIB Science Flight #22	Science	7.9	195.2	54.8	0
05/15/19	2019 OIB Science Flight #23	Science	8.3	203.5	46.5	0
05/16/19	2019 OIB Science Flight #24	Science	6.3	209.8	40.2	0
05/17/19	2019 OIB Transit	Transit	6.2	216	34	0
05/17/19	2019 OIB Transit	Transit	0.3	216.3	33.7	0

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 - WFF 04/03/19 Science Report

Mission:

OIB

Mission Summary:

Mission: ICESat-2 Devon

Priority: High

This is a new mission for 2019, primarily designed to sample the left and right beam pairs of ICESat-2 over the Devon Ice Cap and nearby undulating bare rock (likely to be snow-covered in April). The intention is to validate

the geolocation of ICESat-2 footprints. The pattern of ICESat-2 ground tracks is nearly repeated, targeting the left beam pair on one pass and the right pair on the other. We validate range biases on the center beam pair during other missions. We also re-fly a pair of historical OIB lines crossing the ice cap, and one of the new ICESat-2 lines is a very close match to a 2012 CryoSat-2 line.

Our first mission for this campaign got us started on the right foot, with a promising forecast and light winds. Following a short transit across the northern end of Baffin Bay, we descended onto the Devon Ice Cap and began a series of roughly north-south back-and-forth lines along ICESat-2 ground tracks. We concluded the mission with an east-west transect along an historical OIB line, before returning to Thule AB. The ice cap, tidewater glaciers, landfast sea ice and snow-covered ground were all surveyed. We experienced a brief period of mild turbulence, but otherwise the flight was smooth. Most instruments performed very well, but the Headwall Nano-Hyperspec VNIR sensor had to be rebooted a few times and CAMBOT had a brief shutoff early in flight. ATM reported 100% return detection over target areas with improved IR performance at higher altitudes, and MCoRDS operated successfully in beam-steering + ping-pong mode for the duration of the mission with near-continuous observation of the bed when monitoring a single channel. We conducted roll maneuvers over Baffin Bay for MCoRDS and a ramp pass for ATM at 1500 ft AGL.

We surveyed the left and right beam pairs of 7 ICESat-2 ground tracks during this mission, listed below with their temporal latency relative to ICESat-2 cycle 3.

ICESat-2 reference ground track (RGT) / latency (days, positive/negative = ICESat-2 orbits after/before our flight)

134	/ +4
195	/ +8
256	/ +12
317	/ +16
446	/ +24
385	/ +20
324	/ +16

Attached images:

1. Map of today's mission (John Sonntag / NASA)
2. Frazil ice, leads and sea smoke in a Devon Island fjord (Eugenia De Marco / NASA)
3. Glacier margin abutting a polar mesa (Eugenia De Marco / NASA)
4. Tidewater glacier discharging from the north of Devon Ice Cap (Joe MacGregor / NASA)
5. Medial moraine where two outlet glaciers from the Devon Ice Cap meet (Jeremy Harbeck / NASA)
6. Outlet glacier discharging from the Devon Ice Cap (Jeremy Harbeck / NASA)

Images:

Map of today's mission



[Read more](#)

Frazil ice, leads and sea smoke in a Devon Island fjord



[Read more](#)

Glacier margin abutting a polar mesa



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Tidewater glacier discharging from the north of Devon Ice Cap



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Medial moraine where two outlet glaciers from the Devon Ice Cap



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Outlet glacier discharging from the Devon Ice Cap



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Submitted by:

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Page Last Updated: April 22, 2017

Page Editor: Brad Bulger

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Source URL: https://espo.nasa.gov/oib/flight_reports/P-3_Orion_-_WFF_04_03_19#comment-0