

Gulfstream V - JSC 09/10/19

Aircraft:

[Gulfstream V - JSC](#) ([See full schedule](#))

Flight Number:

GV-42

Payload Configuration:

OIB

Nav Data Collected:

No

Total Flight Time:

6.8 hours

Submitted by:

Debra Willett on 09/10/19

Flight Segments:

From:	BGTL	To:	BGTL
Start:	09/10/19 11:00 Z	Finish:	09/10/19 17:50 Z
Flight Time:	6.8 hours		
Log Number:	195004	PI:	Joseph MacGregor
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Miles Flown:	3000 miles		

Flight Hour Summary:

	195004
Flight Hours Approved in SOFRS	120
Total Used	83.8
Total Remaining	36.2

195004 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
08/19/19	GV-34	Science	3.8	3.8	116.2	1700
08/21/19	GV-35	Transit	0.6	4.4	115.6	300
09/03/19	GV-36	Transit	6.5	10.9	109.1	2800
09/04/19	GV-37	Science	6.7	17.6	102.4	2900
09/05/19	GV-38	Science	6.7	24.3	95.7	2900
09/06/19	GV-39	Science	6.6	30.9	89.1	2900
09/07/19	GV-40	Science	6.1	37	83	2700
09/09/19	GV-41	Science	6.4	43.4	76.6	2800
09/10/19	GV-42	Science	6.8	50.2	69.8	3000
09/11/19	GV-43	Science	6.9	57.1	62.9	3000
09/12/19	GV-44	Science	7.1	64.2	55.8	3100
09/13/19	GV-45	Science	5.8	70	50	2500
09/14/19	GV-46	Science	7.2	77.2	42.8	3100
09/15/19	GV-47	Transit	6.6	83.8	36.2	2900

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 Summer 2019 - Gulfstream V - JSC 09/10/19 Science Report

Mission:

OIB Summer 2019

Mission Summary:

[operational_instruments]

ATM

Narrow Swath ATM

FLIR

CAMBOT

Snow Radar

[/operational_instruments]

OUTLOOK FOR TOMORROW: Conditions worsen in the Arctic Ocean tomorrow, leaving us with no possible science missions to fly. Northeast Greenland appears to also be cloud covered tomorrow. Luckily we have one more option south of Thule which we will likely fly depending on the forecasts and satellite imagery in the morning.

Mission: Thomas-Jakobshavn 01

Priority: High

The Thomas-Jakobshavn 01 land-ice mission is normally flown from Kangerlussuaq, however with the range of the G-V we are able to fly this mission from Thule, which is ideal because this is a high-priority mission and this particular glacier, Jakobshavn, has been rapidly changing since ATM has been measuring it in 1994. This mission was designed with just that in mind, to resample the highest-priority lines of the historical ATM 10-km grid and the main flow line of the glacier. The importance of this continued monitoring of the elevation of Jakobshavn is that between 1972-2018, this glacier alone has lost 327+-40 Gt of ice equivalent to 0.9 mm in global sea level rise [Mouqinot et al., 2019, PNAS]. The other benefit of this mission is to monitor dh/dt from the end of the freezing season through the melt season, since OIB flew this mission in the Arctic 2019 spring campaign. This mission also includes two ICESat-2 ground tracks as well as some original ICESat ground tracks.

Forecasts for Jakobshavn showed winds blowing off the ice sheet, which leads to clear conditions downwind and this scenario was backed up by visible satellite imagery this morning, thus we chose to fly this science mission. Forecasts in the Lincoln Sea worsened overnight, and the imagery this morning showed low clouds with minimal pockets of clear skies, so we decided to not do another sea ice mission today. For the majority of the mission there were stratus clouds above us creating overcast conditions. Low clouds obstructed ATM during roughly 20% of data collection along the IS and IS-2 ground tracks. This occurred at the northernmost section of these tracks, however radar data was still collected and no low clouds were present further south.

There were more melt ponds at various stages of freezing and wet snow present at lower elevations along Jakobshavn, with drained melt channels and drained supraglacial lakes at higher elevations. There were lots of dirty ice present, and what either looked like wet snow and new snowfall. This gave us a variety of surface conditions to sample along our flight lines.

ICESat-2 RGT latencies (+/- indicates OIB surveyed after/before ICESat-2):

0338 (-39)

0597 (+35)

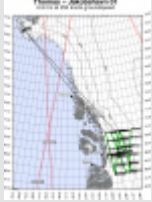
Data volumes collected during today's mission, which consisted of 3.9 hours of data collection:

ATM: 67 Gb

CAMBOT: 85 Gb
FLIR: 12 Gb
Narrow Swath ATM: 98 Gb green
Narrow Swath ATM: 86 Gb IR
VNIR: 24 Gb
SWIR: 43 Gb
Snow Radar: 0.87 Tb

Images:

Figure 1



[Read more](#)

Figure 2



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Figure 3



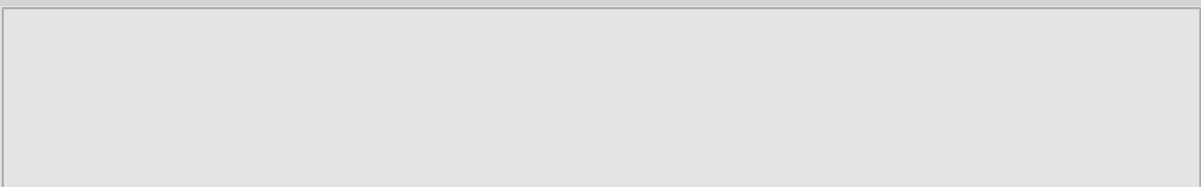
[Read more](#)

Figure 4



[Read more](#)

Figure 5





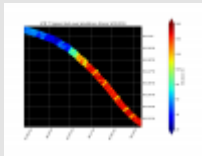
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Figure 6



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Figure 7



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Submitted by:

Linette Boisvert on 09/16/19

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