
Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: D07
Mission: Box 4 Flight 1

Flight Report Summary

Aircraft	LaRC B200 (NASA529)
Flight Number	D07
Flight Request	11-026 LaRC
Date	Tuesday, April 19, 2011 (Z)
Purpose of Flight	Monitor surface elevation in the southwestern part of Greenland, started Box 4 grid (South of Kangerlussuaq and North of ~N 65 deg, East of Sukkertoppen Ice Cap).
Take off time	1039 Zulu from Kangerlussuaq (BGSF)
Landing time	1556 Zulu at Kangerlussuaq (BGSF)
Flight Hours	5.3
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None.
Accomplishments	<ul style="list-style-type: none">• High-altitude survey (28,000 ft AGL) of the southwestern Greenland• Completed 2 ICESat Tracks in Box 4, the 2500 m contour line and 3 additional grid lines.• LVIS and camera were operated on the survey lines.• Ramp pass at 12000 ft at BGSF.• Pitch and Roll maneuvers over frozen fjord at BGSF
Geographic Keywords	Ice Sheet south western flank, South of Kangerlussuaq
ICESat/CryoSat Track	55, 181
Repeat Mission	No

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
LVIS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	57 GB	None
LVIS Camera	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	16 GB	None
POS/AV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 GB	None

Mission Report (Shane Wake, Instrument Operator and Lora Koenig, Mission Scientist)

Today's mission was the first mission to be flown in Box 4 which is located South of Kangerlussuaq and North of ~N 65 deg or approximately East of Sukkertoppen Ice Cap. As shown in the satellite image (Figure 1) the region was clear. The flight was planned to survey 2 ICESat Tracks, the 2500 m contour line and survey 3 additional grid lines to maximize flight time. Due to the good weather conditions and closeness to Kangerlussuaq airport the pilots, Richard (Rick) Yasky and Leslie (Les) Kagey, were able to maximize flight time with a 5.3 hour flight.

The B200 took off at 1039 Z from Kangerlussuaq. For approximately the first hour of flight the plane was held by Air Traffic Control at 19,000 feet which will cause a decrease in the LVIS swath width. The plane was eventually allowed to climb to 28,000 feet as planned. The plane transited to the interior of the ice sheet to survey the 2500 m contour grid line, before heading north on ICESat 55 for ~130 nmi. The plane headed south on a middle grid line and north again on ICESat track 181 for ~155 nmi. (Figure 2) The plane sampled to coastal grid lines at a 10 km spacing before landing at Kangerlussuaq at 1556 Z.

LVIS had clear skies and did not see any loss of the radar signal during the flight.

Figure 3 below shows the coverage to date of the LVIS/ B200 grids line from this campaign.

Below are the detailed Flight notes from the Instrument Operator. Times from the Instrument Operator on the plane are in local Kangerlussuaq time (-2 hours from Z)

07:20 Plane pulled out of the hangar, delay due to issue with tug and ice
 07:27 All three Javad's GPS receivers started (plane stationary), and applanix 510&610 turned on
 07:33 Power turned on to instrument
 07:45 Started up system to check status, everything looks good
 08:39 Take off
 08:45 Everything up and running, no issues
 *Forced to stay at 19000ft due to inbound traffic
 *Still noise on Ch3 (Detector C) while radio transmitting
 09:35 ATC gave clearance to climb to 28000ft at halfway mark on first line
 09:38 Started climb to 28000ft
 09:48 Reached 28000ft and level
 13:45 Ramp Pass
 13:50 Roll and Pitch maneuvers
 13:58 Stopped on Ramp (Countdown to GPS turnoff begins)

Individual instrument reports from experimenters on board the aircraft:

LVIS: Worked well, ~99% or better coverage, there was continued radio interference on transmit from some radio transmission. The interference should not cause any significant problem to the altimetry data.

LVIS Camera: Worked well, no issues.

POS/AV: Worked well, no issues.

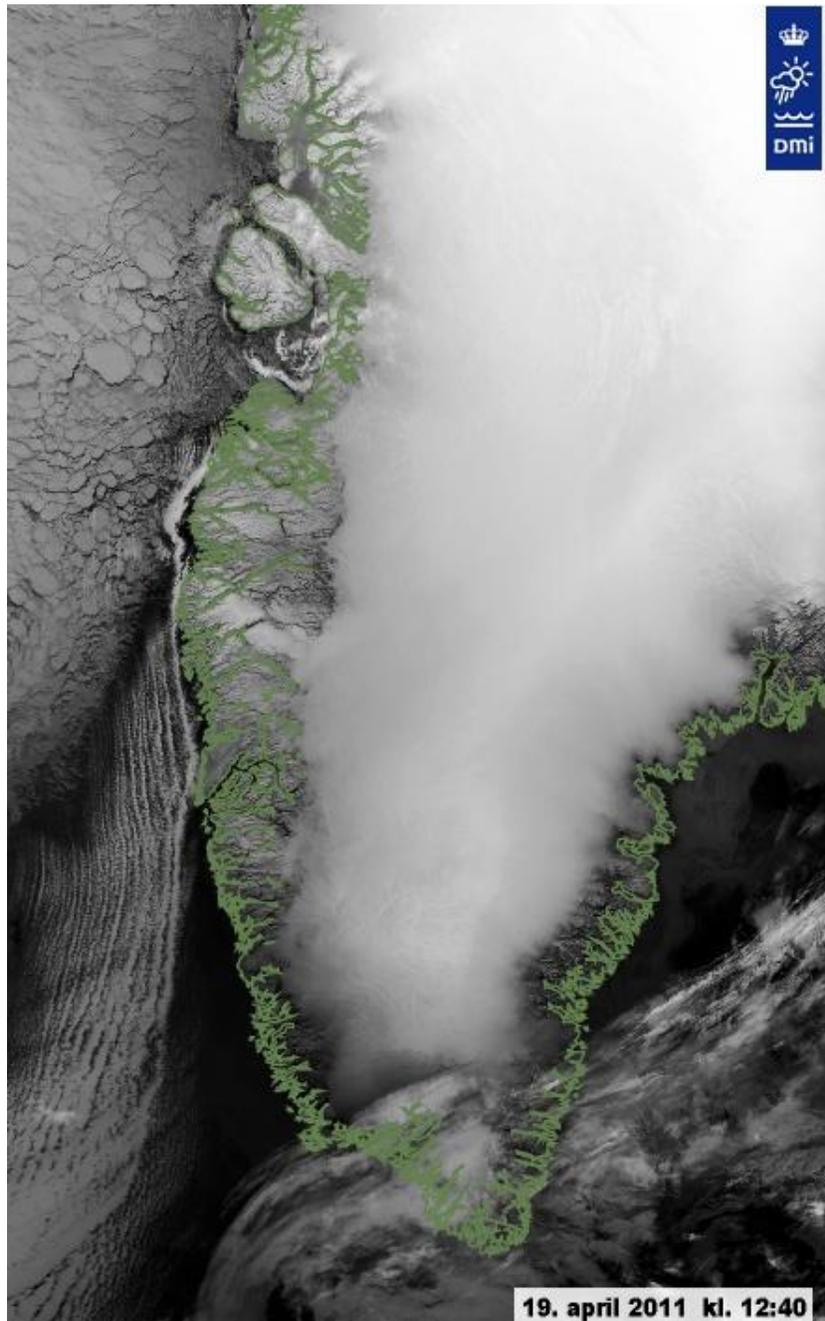


Figure 1: IR Satellite image taken during the flight.

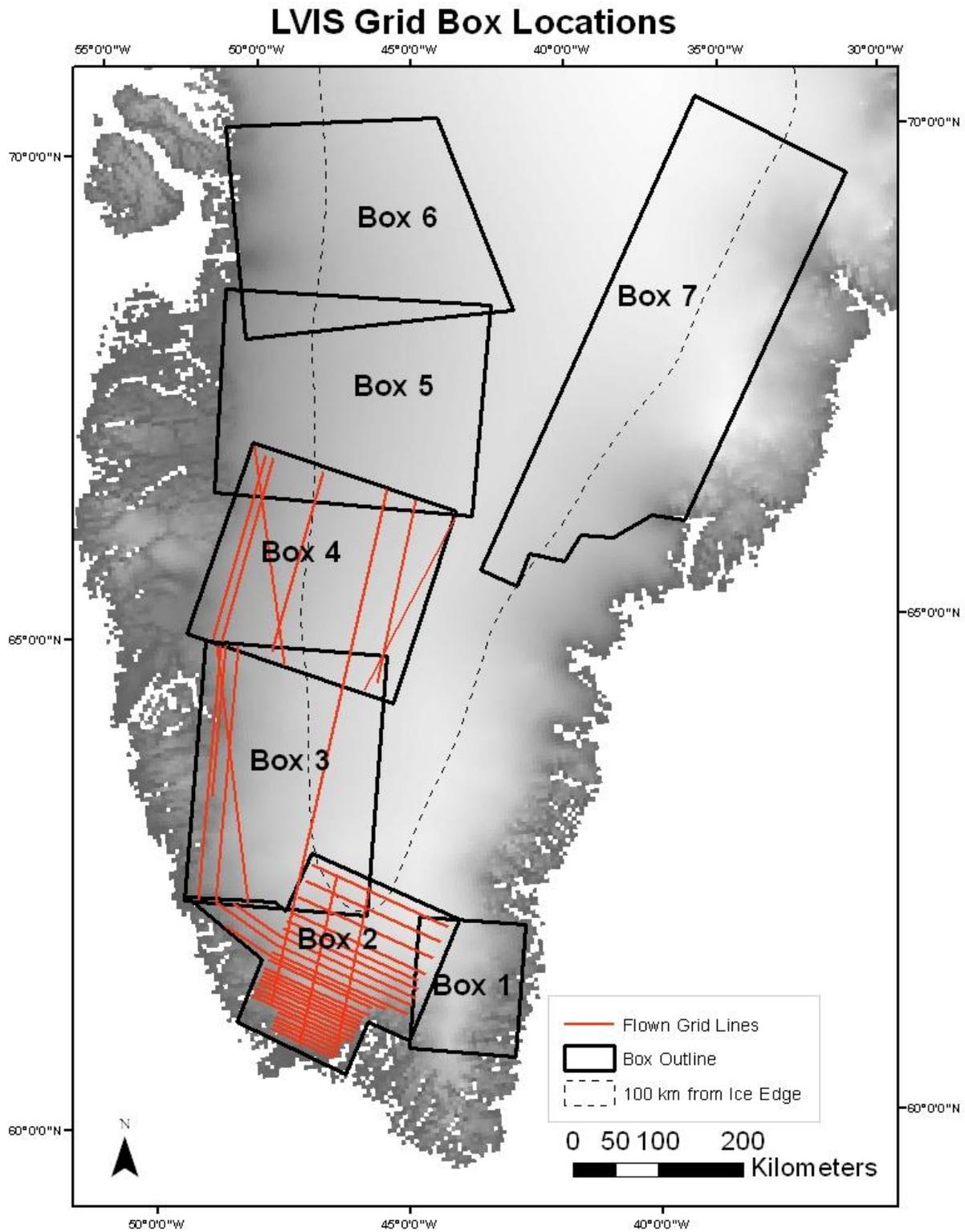


Figure 3: LVIS grid lines flown to date during the B200 Arctic 2011 Operation IceBridge Campaign.