

Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: D14 and D15

Mission: Box 3 Flight 3 and Box 4 Flight 2

Flight Report Summary

Aircraft	LaRC B200 (NASA529)
Flight Number	D14 and D15
Flight Request	11-034 LaRC
Date	Thursday, May 5, 2011 (Z)
Purpose of Flight	Monitor surface elevation in the Southwestern part of Greenland, Survey coastal grid lines in Box 3 and Box 4
Take off time	1005 and 1552 Zulu from Kangerlussuaq (BGSF)
Landing time	1440 and 2026 Zulu at Kangerlussuaq (BGSF)
Flight Hours	9.2
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. • Nearly completed costal 5 km grid in Box 3 and 4. • LVIS and camera were operated on the survey lines. • Ramp passes at BGSF at 17,000 ft. • Pitch and Roll maneuver over frozen fjord at BGSF
Geographic Keywords	Ice Sheet southwestern flank, South of Kangerlussuaq, East of Nuuk
ICESat/CryoSat Track	None
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"/>	~80 GB	None
LVIS Camera	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	~20 GB	None
POS/AV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	2 GB	None

Mission Report (David Rabine, Instrument Operator and Lora Koenig, Mission Scientist)

Today's mission two flights were flown both to fill in the 5 km costal grids in Box 3 and Box 4. The morning flight was the third flight to Box 3 which is located east of Nuuk, with Kavdlunatsait and Frederikshab Isblink on the coast at the boxes northern and southern end, respectively. The afternoon flight was the second flight to 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 clear throughout the day as the sun burned off the final clouds left by the frontal system that passed through on May 4, 2011. There were still some low altitude clouds but LVIS recovered ~85% of the surface returns. Today's flights were planned to survey costal grid lines to complete nearly complete the 5 km grid spacing in box Box 3 and Box 5 (Figure 2 and 3).

The B200 took off at 1005 Zulu from Kangerlussuaq for the morning flight to Box 3. The plane transited to the interior of Box 3 and headed south 309, north on grid line 311, south on grid line 318. The plane completed line 318 and then moved over to resurvey the southern end of line 317. 317 was resurveyed because of a previous data loss due to a power outage. The plane headed north on line 315 and line 414 in Box 4 as it transited back to Kangerlussuaq, landing at 1440 Zulu.

The B200 took off at 1552 Zulu from Kangerlussuaq for the afternoon flight to Box 4. The plane transited to the south end of box 4 and headed north on grid line 409. The plane went south on grid line 413, north on 415, south on 417, north on 419 and south on 421. The transited back to Kangerlussuaq, landing at 2026 Zulu. The airport was opened for the planes return.

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

Detail flight notes from the Instrument Operator are still being processed and will be added at a later date.

Individual instrument reports from experimenters on board the aircraft:

LVIS: Worked well, 85% coverage due to cloud cover, 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.

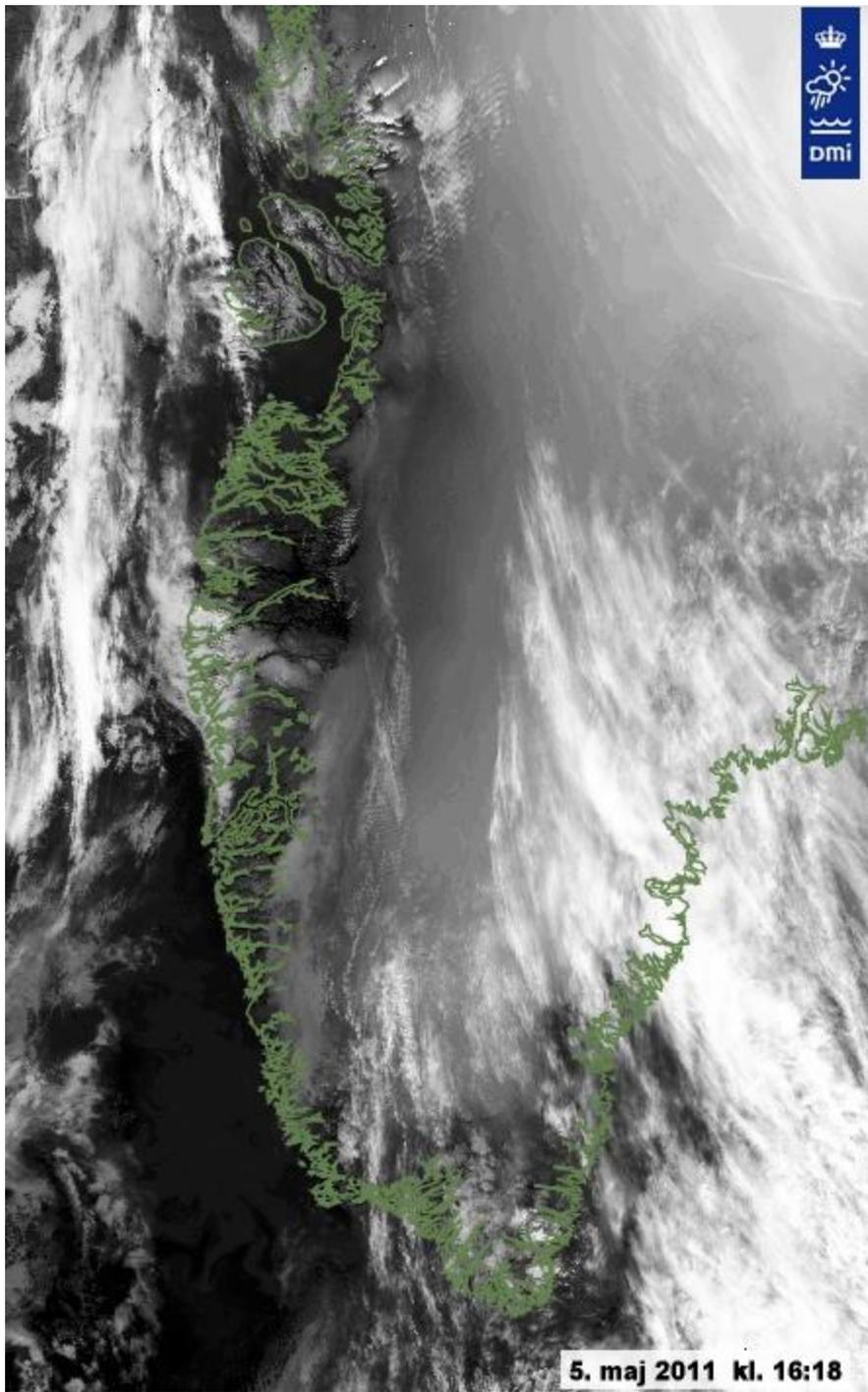


Figure 1: IR Satellite image taken during the flight.

Q1A option

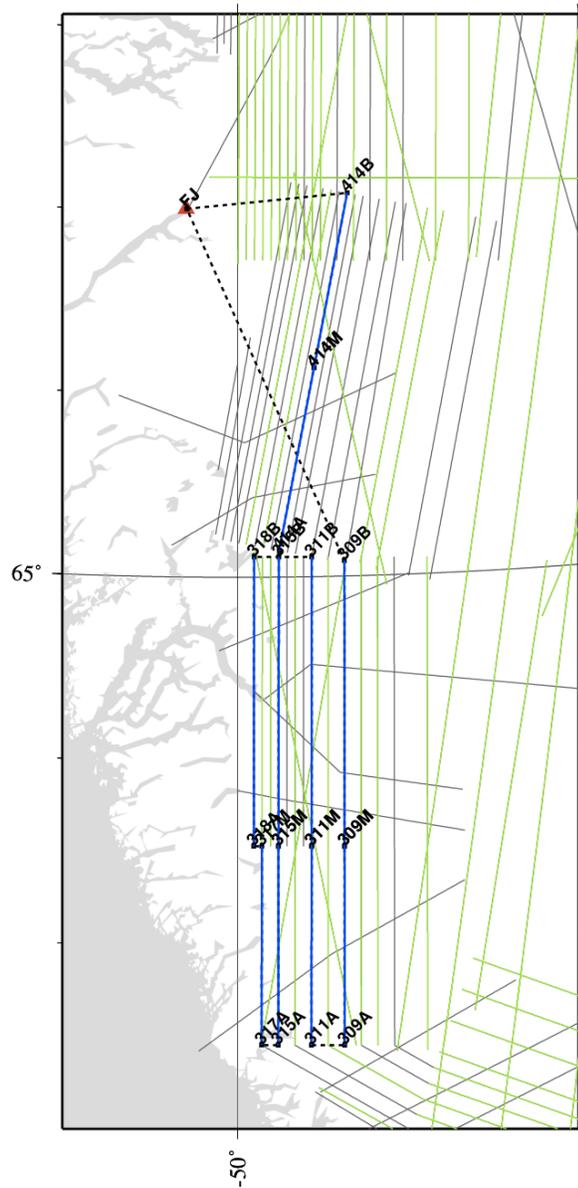


Figure 2: Proposed B200 flight plan for May 5, 2011 morning flight (Blue). Green lines are previously flown lines.

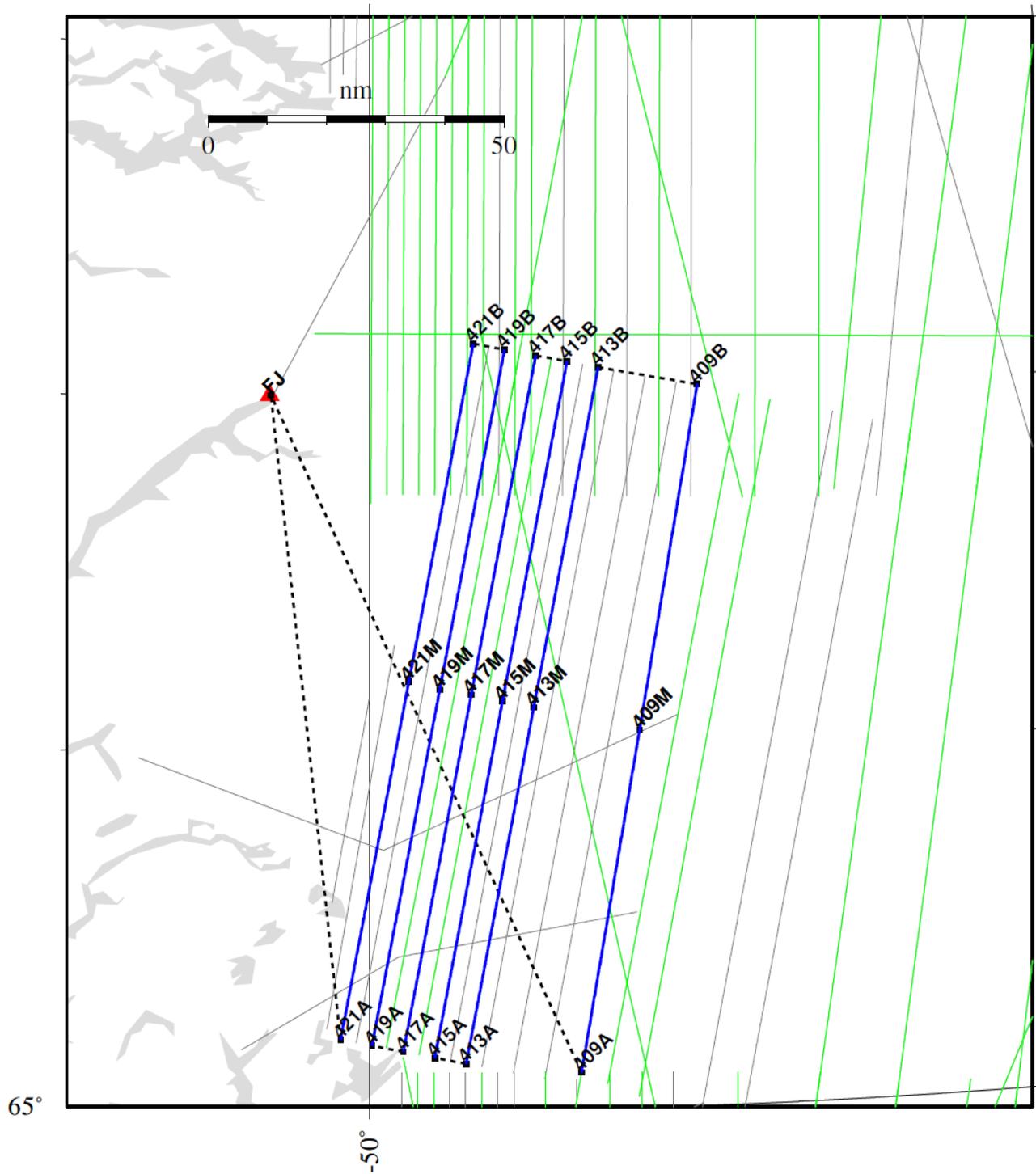


Figure 3: Proposed B200 flight plan for May 5, 2011 afternoon flight (Blue). Green lines are previously flown lines.

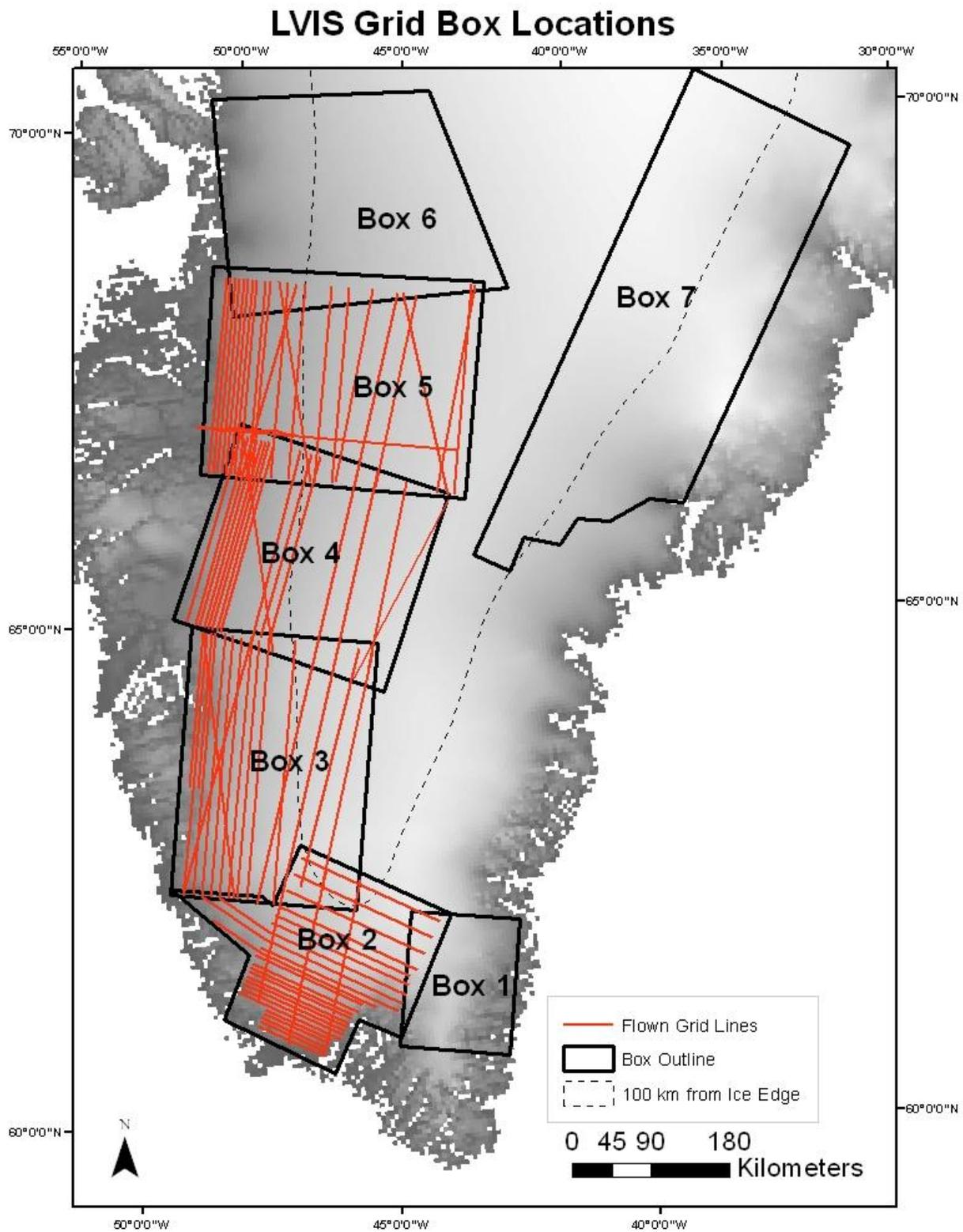


Figure 4: LVIS grid lines flown to date during the B200 Arctic 2011 Operation IceBridge Campaign.