

Preliminary Science Flight Report

Operation IceBridge Arctic 2011



Flight: D16 and D17

Mission: Box 4 Flight 3 and Box 5 Flight 5

Flight Report Summary

Aircraft	LaRC B200 (NASA529)
Flight Number	D16 and D17
Flight Request	11-035 LaRC
Date	Friday, May 6, 2011 (Z)
Purpose of Flight	Monitor surface elevation in the Southwestern part of Greenland, Complete grid sampling in Box 4 and 5.
Take off time	1013 and 1607 Zulu from Kangerlussuaq (BGSF)
Landing time	1405 and 2114 Zulu at Kangerlussuaq (BGSF)
Flight Hours	10
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 grid lines in Box 4. • Completed grid lines, except of one low priority interior line, in Box 5. • 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, East of Kangerlussuaq, South of Disko Bay
ICESat/CryoSat Track	285
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 (Bryan Blair, Instrument Operator and Scott Luthcke and Michelle Hofton, Mission Scientists, Report submitted by Lora Koenig)

Today's mission consisted of two flights to fill in the remaining grid lines in Boxes 4 and 5. The morning flight was the third flight to Box 4 which is located South of Kangerlussuaq and North of ~N 65 deg or approximately East of Sukkertoppen Ice Cap. The afternoon flight was the fifth flight to Box 5 which is located North of Kangerlussuaq and South of Disko Bay. As shown in the satellite image (Figure 1) the region was clear with a few high cirrus clouds. Even with the high clouds LVIS recovered ~95% of the surface returns. Today's flights were planned to complete the grid surveys in Box 4 and Box 5 (Figure 2 and 3). After today's flight only one interior (low priority) line remains unsurveyed in Box 5.

The B200 took off at 1013 Zulu from Kangerlussuaq for the morning flight to Box 4. The plane transited to the first line in Box 4 heading south on line 402 and working its way to the interior on the ice sheet along grid lines. The plane headed north on 412, south on 411, north on 410, south on 406 and north on 404. The plane transited back to Kangerlussuaq, landing at 1405 Zulu.

The B200 took off at 1607 Zulu from Kangerlussuaq for the afternoon flight to Box 5. The plane transited to the south end of Box 5 and headed north on ICESat track 285 for 127 nmi. The plane went south on grid line 504, north on 508, south on 510, north on 512 and south on 514. The plane transited back to Kangerlussuaq, landing at 2114 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, ~95% 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.

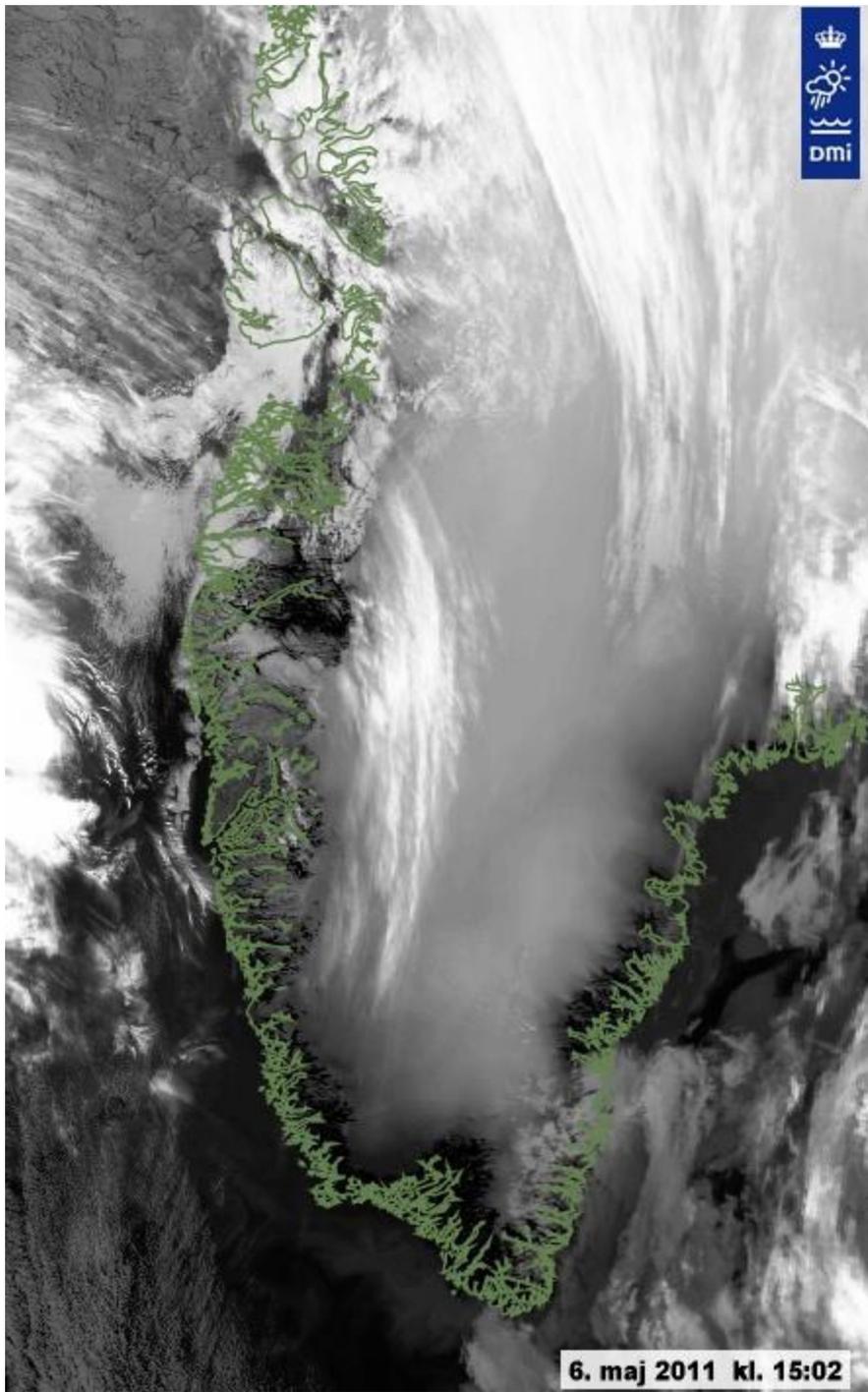


Figure 1: IR Satellite image taken during the flight.

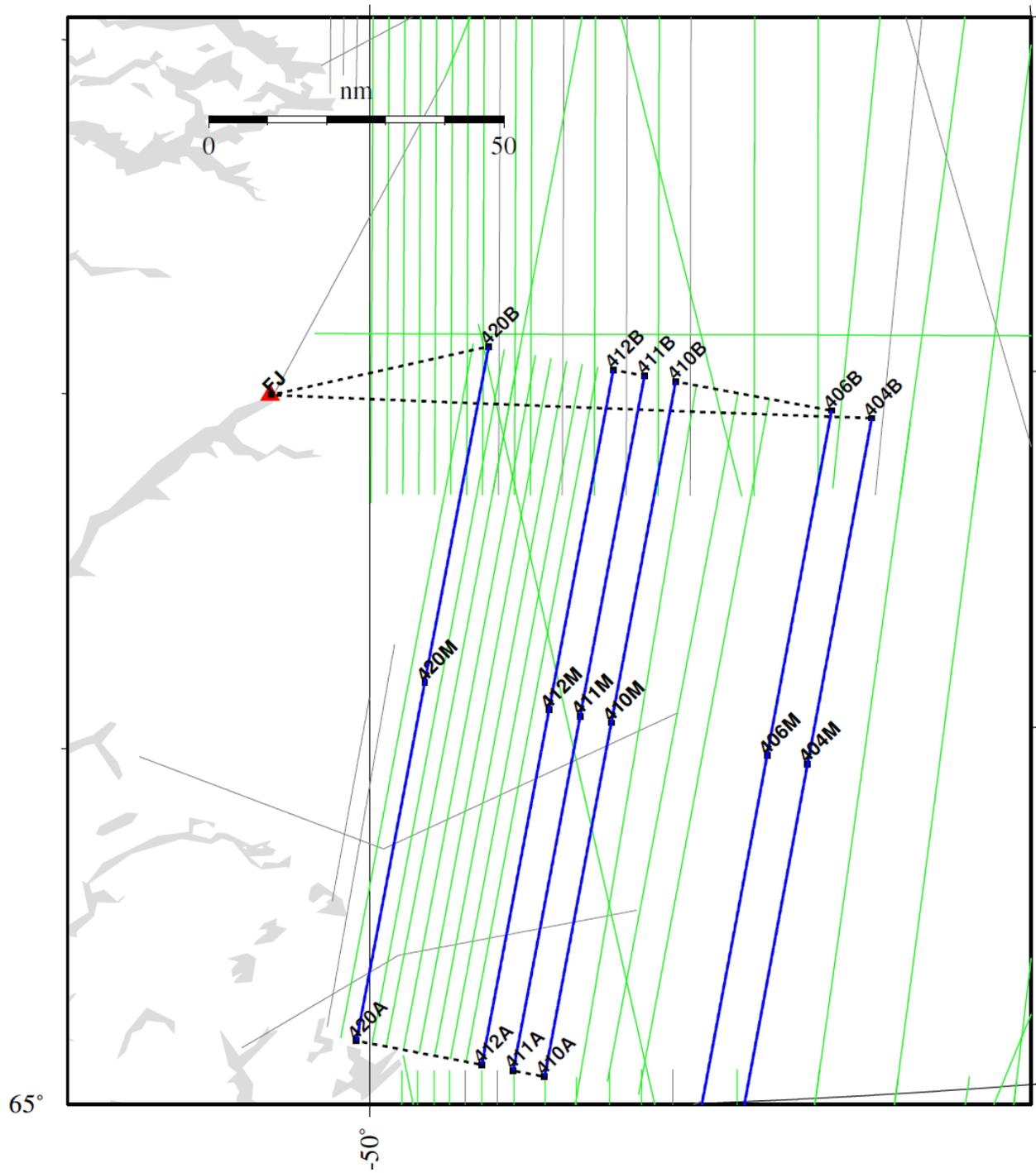


Figure 2: Proposed B200 flight plan for May 6, 2011 morning flight (Blue). Green lines are previously flown lines.

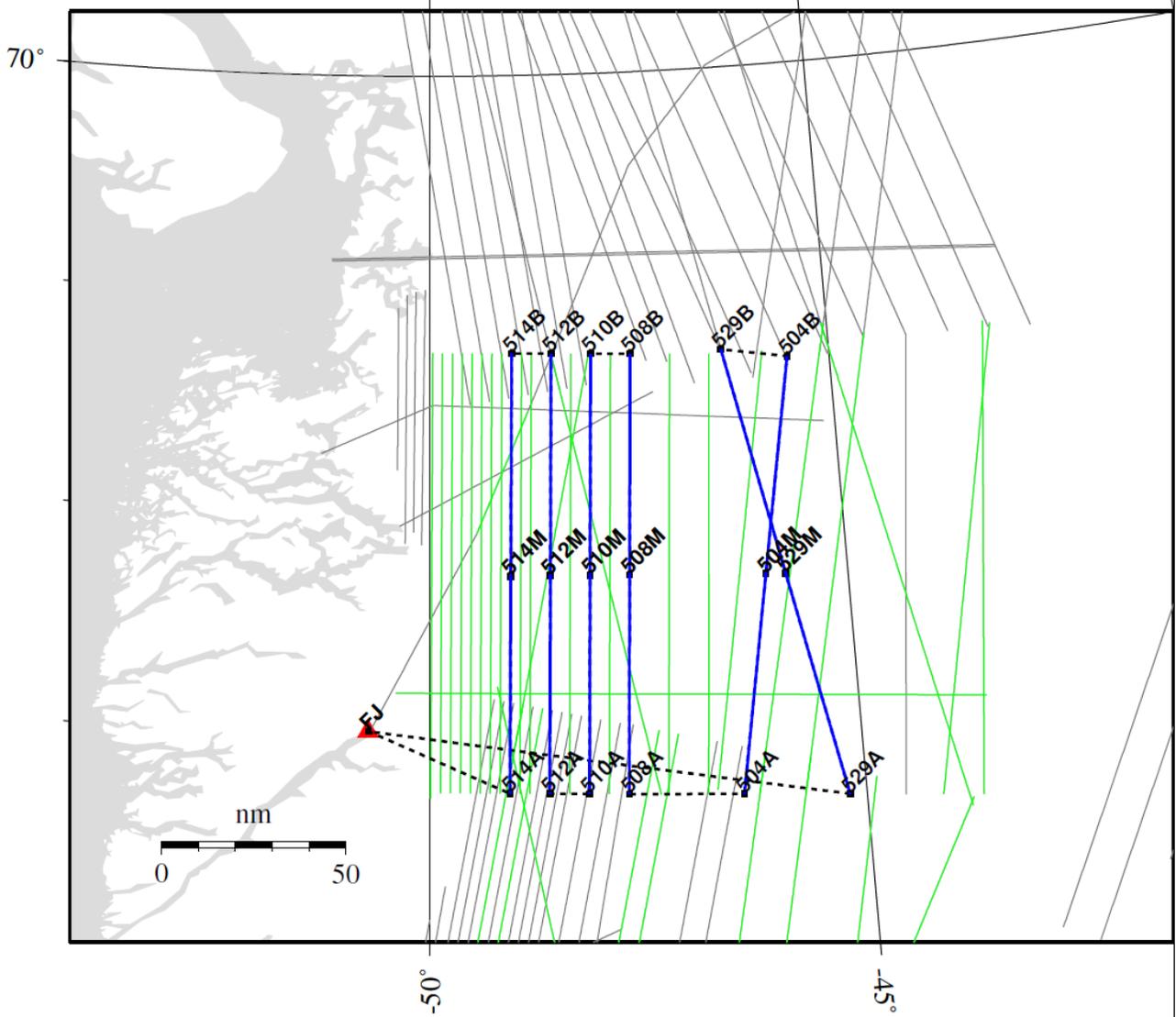


Figure 3: Proposed B200 flight plan for May 6, 2011 afternoon flight (Blue). Green lines are previously flown lines.

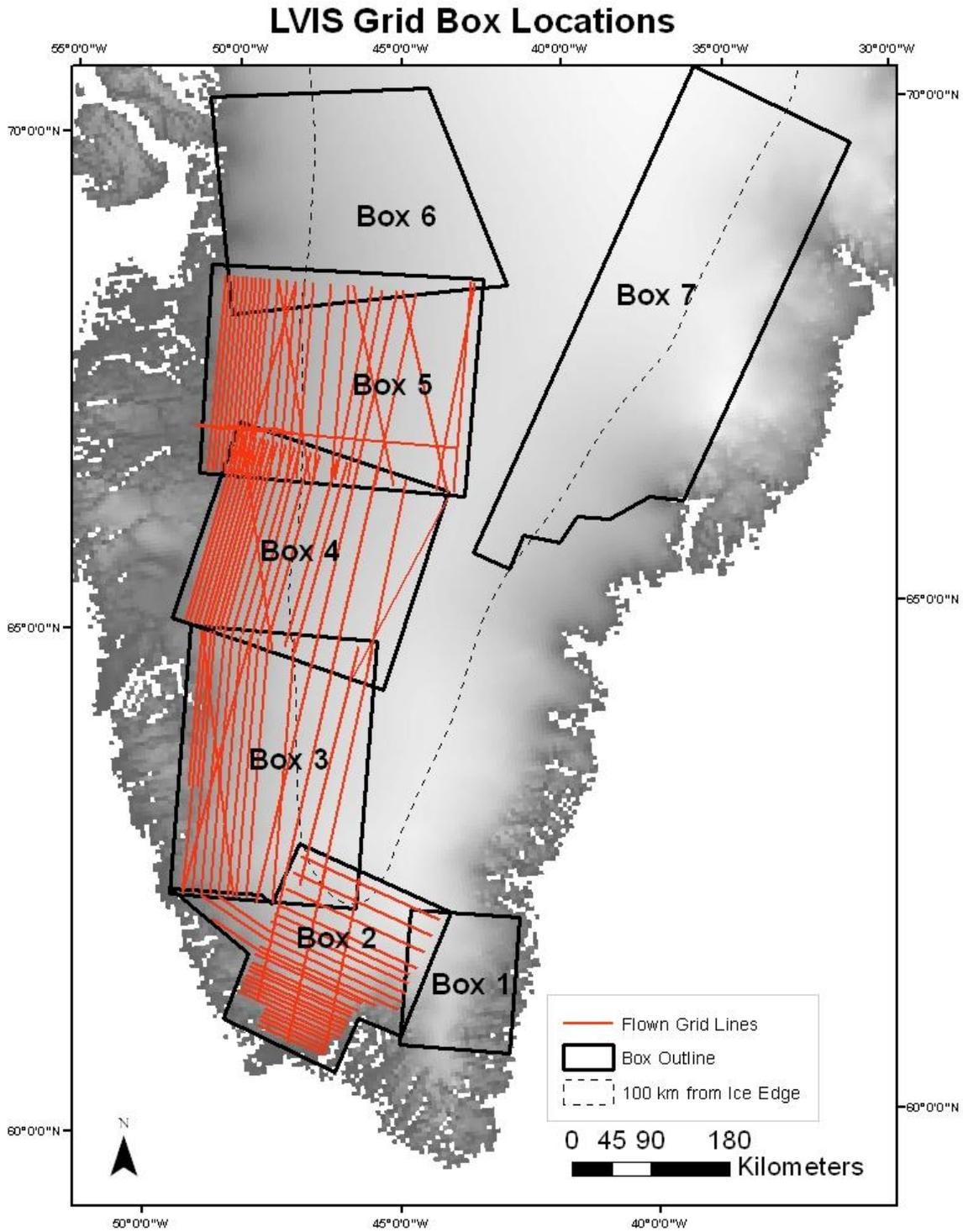


Figure 4: LVIS grid lines flown to date during the B200 Arctic 2011 Operation IceBridge Campaign.