Science Flight Report
Operation IceBridge Arctic 2012

Flight: **Falcon 13, 14**
Mission: Southeast Grid-4 (land ice)

Flight Report Summary

Aircraft	**Falcon (HU-25) N525**
Flight Number	Falcon 07
Flight Log number	12F001
Date	Wednesday, May 9, 2012 (Z)
Purpose of Flight	Flight to southeast Greenland to refly 2009 and 2011 ATM track, three different ICESat tracks, two glacial flow lines, and two new LVIS tracks.
Take off time	1020 Zulu at Kangerlussuaq (refueled at Kanger). Flew two legs, first leg duration 2.8 hrs; second leg, 3.3 hrs; total 6.1 hrs
Landing time	1520 Zulu at Kangerlussuaq
Flight Hours	6.1 hrs
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational. The Applanix-510 ceased working today; this was the backup to the Applanix-610, where both units are used in laser pointing and navigation. The 610 continues to work, but it now lacks backup.
Significant Issues	Clouds within 150 km of Kangerlussuaq
Accomplishments	• Flew repeat lines over ATM and LVIS tracks.
Geographic Keywords	Southeast Greenland
Satellite Tracks	Repeated three ICESat tracks
Repeat Mission	Repeated part of ATM tracks from 2009 and 2011 flew two new LVIS tracks

Science Data Report Summary

Instrument	Data Volume			Instrument Issues
	Survey Area	Entire Flight		
LVIS	☑	☒	46 GB	None
LVIS cameras	☑	☒	59 GB	None

Mission Report (Seelye Martin, Acting Project Manager)

Flew to southeast Greenland to survey a variety of lines. Weather showed that similar to the previous day, this region of southern Greenland was the only clear area on the continent. As shown on the figure, a variety of ATM, ICESat, and new LVIS lines were flown. We also flew two glacial flow lines that were given to us by the Science Team. Data was cloud-free except for the region within about 150 km of Kangerlussuaq. In spite of coastal cloudiness, the ends of the lines closest to the east coast were successfully mapped by the laser.

The distances flown for each case is as follows:
ICESat Track:
#144 = 349 km
#002 = 234 km
#121 = 303 km
Total ICESat track = 886 km
ATM 2011 track = 205 km, 210 km
ATM 2009 track = 160 km
Total ATM track = 415 km
Flow line track = 278 km (northerly), 322 km (southerly)
Total flow line track = 600 km
New LVIS lines = 205 km, 186 km
Total new LVIS = 391 km
Total distance flown (including turns and transit) = 4,099 km.

Preliminary examination of the camera and LVIS data shows that the instruments worked well, although the backup Applanix-510 ceased working.

Individual instrument reports from experimenters on board the aircraft:

LVIS: The LVIS system worked well and collected data along the track lines.

LVIS-cameras: worked well.

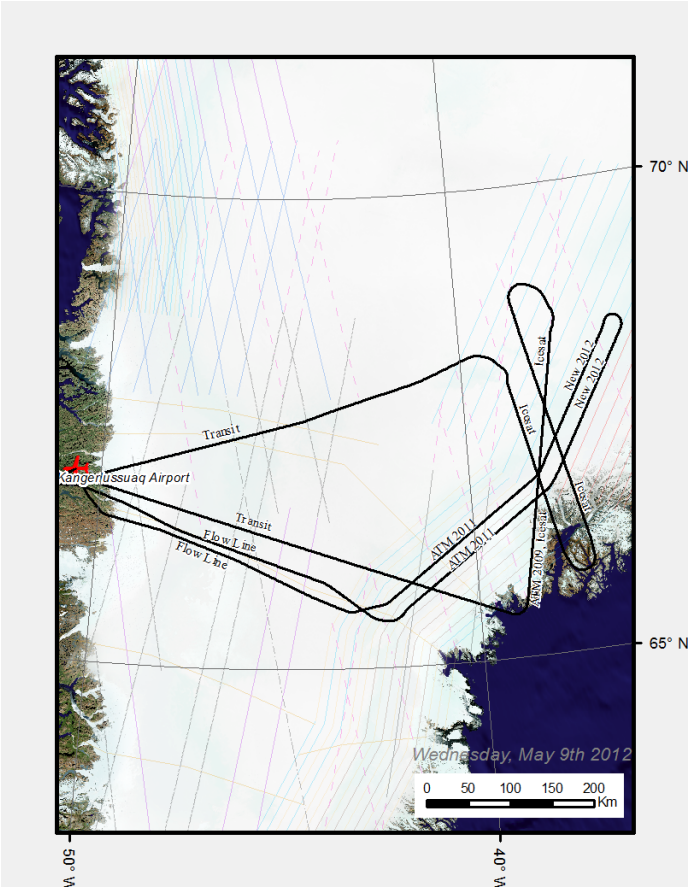

Figure 1: Figure showing Leg-1, Leg-2 trajectories for Southeast Grid-4 flight. See text for more information.