Development of an aerogeophysical imaging system for polar applications: Phase I: Gravimeter test flights to the North Pole

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We are currently developing an aerogeophysical imaging system for polar applications during the IPY and beyond in collaboration with the Center for Remote Sensing of Ice Sheets (CReSIS) at the University of Kansas. The complete system will include an ice-penetrating radar, a laser altimeter, a magnetometer and a gravimeter. The purpose of a major flight testing program in Spring 2007 was to install and fly two different airborne gravimeters on a single Twin Otter aircraft for side-by-side testing first over a known test range in Calgary and secondly at higher latitude, out of Eureka, Ellesmere Island (80Â°N) to the North Pole. More than 12,00 line-km of data have been collected during these test flights. Either of these systems provides the academic community with a tremendous increase in accuracy and horizontal resolution that will enable major advances in understanding of the subglacial environment. The new systems are capable of draped flying of airborne gravity – broadening potential applications. The performance of the new gravimeter systems under various test conditions will be presented at the meeting.