

IREP 2007 Experience

Edinburgh, Scotland

University of Edinburgh

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Estimating the Average Rate of Volume Change (dv/dt) of Jakobshavn Isbrae to Determine Spatial Patterns of Ice Loss

Abstract:

Recent studies involving the Greenland Ice Sheet (GrIS) have shown increased coastal thinning, based on repeated airborne laser-altimeter surveys (Krabil et al., 2000; Krabil et al., 2004). Altogether, these surveys have shown that the average ice loss from Greenland was $80 \pm 12 \text{ km}^3 \text{ yr}^{-1}$, between 1997 and 2003 and that thinning rates averaged $\sim 10 \text{ m yr}^{-1}$ at many glacier termini. The Jakobshavn Isbrae is considered the fastest moving glacier in Greenland, and in this study we identify "thinning regions" within 250 km radius of its terminus. We use Envisat radar altimeter data recorded during the period 2002-2005 to form time series of elevation change at XX locations across the downstream section of the glacier. From this data, we calculate rates of elevation change (dh/dt) and their associated uncertainty at each of these locations. We estimate the average rate of volume change (dv/dt) of the glacier throughout the survey period, and we analyze the data to determine spatial patterns of ice loss across the Jakobshavn Isbrae.

My Experience:

During the spring of 2007, I was granted the opportunity to conduct research overseas at a research facility in conjunction with the University of Kansas Center of Remote Sensing of Ice Sheets or better known as CRISIS. I chose to spend my summer in Edinburgh, Scotland at the University of Edinburgh under the mentorship of Dr. Andrew Shepherd. Dr. Shepherd is the reader in Cryosphere Remote Sensing at the University of Edinburgh, and his assistance with this project was very useful in that my research interests are similar. While doing research, I learned a lot about image processing and more remote sensing and GIS capabilities, which were my goals before entering into this summer program. I wanted to gain more knowledge in the field of remote sensing and I feel that this experience contributed a lot.

CRISIS is once again a wonderful program to be a part of because they make sure that their participants are well taken care of. My living accommodations were great as well as the whole experience in itself. My mentor was a wonderful host and he made sure that I participated with the other graduate students, who were very helpful as well. Scotland is a beautiful country and I made sure to experience every aspect of it. In my spare time and on the weekends I explored the downtown area, malls, museums, castles, and climbed various hills.

I sincerely recommend this experience to other up and coming graduate students because you make life-long relationships and you get to experience places and research that some people at a college level may not get to practice. In closing I would like to thank my mentors, colleagues and any advisors who have helped me in my graduate-level experience. My journey is almost done and I will take the knowledge that I have acquired from this opportunity and apply it to the completion of my master's degree.

Here is a link to some photos:

<http://www.facebook.com/album.php?aid=2010548&l=bb286&id=149400781>