NRESi

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For Elluminate information and link to the webcast: http://www.unbc.ca/nres/nresi_webcast.html

RESEARCH COLLOQUIUM SERIES

Joe Shea, PhD

Postdoctoral Research Fellow, UBC / UNBC

Friday

Mar. 9, 2012

3:30 - 4:30

LECTURE THEATRE

7 - 152

GLACIER SNOWLINE RETRIEVAL AND GLACIER MASS CHANGE FROM SATELLITE IMAGERY

Glaciers occupy nearly 27 000 km^2 of the province of British Columbia, and glacier runoff contributes to summer streamflows in nearly every major river basin in the province. Our glaciers have lost nearly 11% of their total area between 1985 and 2005, and glacier-fed rivers are experiencing shifts in the timing and magnitude of annual runoff. It is thus important to develop regional and annual estimates of glacier mass change, which will impact water resource management, hydroelectric power generation, and sea level rise. This presentation will examine new techniques for estimating glacier mass change over large regions using remotely sensed imagery.

One indicator of glacier health is the elevation of the end-of-summer snowline, or the equilibrium line altitude (ELA). The ELA is a function of annual temperature and precipitation, and variations in the elevation of the ELA are thus related to glacier mass change. By focusing exclusively on glaciated terrain and using daily imagery from the MODIS satellites, we can accurately map daily variations in snowline, and annual variations in ELA. Using ground-based observations and MODIS-derived ELAs we test our regional mass change model on the Columbia Icefield. Future results from this project will contribute to estimates of global sea-level rise from mountain glaciers, which will likely form the largest component of sea-level rise in the 21st century.

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