P.O. Box 119
Gjoa Haven, Nunavut, X0B 1J0
Email: licensing@nunavutwaterboard.org
Fax: 867-360-6369

Letter: Request for use of water or deposit of waste without a license

Dynamics and Change of the Devon Ice Cap, Nunavut

Martin Sharp, Department of Earth and Atmospheric Sciences, University of Alberta

In accordance with Guide 9, approval for use of water or deposit of waste without a license is requested for the research project 'Dynamics and Change of the Devon Ice Cap, Nunavut'. Activities pertaining to the project are carried out on the Devon Ice Cap, Nunavut (75º20.39'N, 82º40.58'W) by the University of Alberta's Arctic and Alpine Research Group (P.I.: Martin Sharp).

Timeframe: 2014 April 28-May 25; Expected to continue through 2017.

Project Description: The goal is to describe and explain how the Devon Ice Cap responds to climate warming and contributes to global sea level rise. We will investigate (i) how fast the ice cap is losing mass, (ii) how much do surface melting and iceberg calving contribute to mass loss, (iii) how do processes in the ice cap's firn layer delay runoff of meltwater to the ocean, and (iv) how do the processes by which different glaciers flow affect the rate at which they lose mass? Our fieldwork involves (a) calibrating and validating measurements of ice thickness and flow made by remote sensing, and (b) measuring changes in ice cap mass, the properties of snow, firn and ice, and the rates of glacier flow, meltwater production, and iceberg calving. We access the ice cap from Resolute Bay by PCSP Twin Otter or helicopter, and travel on the ice by snowmobile or helicopter. We establish a base camp on the ice cap summit, but most work is carried out from mobile 2-person camps. We will install some instruments on or next to the ice, but all will be removed at the end of the project. A detailed description of project undertakings is found in Box 7 of this application and our application letter for NRI is included for additional project-specific information.

Description of water use: Total water use for our four person field party is <0.05 cu m/day. Melted snow is used to provide water for domestic use (Guide 9, Classification of undertakings, item 8). Our camps are minimal with no permanent buildings or structures. To minimize the impacts of our research activities every effort is made to keep the camp clean, solid waste is backhauled to Resolute Bay and water consumption is reduced for example by washing dishes without water. A spill contingency plan, prepared in December 2010 in accordance with the Consolidation of Spill Contingency Planning and Reporting Regulations R-068-93, as set by the Nunavut Water Board, with regard to our previous license 3BC-BGI0813 is reviewed before and after each field campaign and changes are made if necessary.

Martin Sharp

1-26 Earth Science Building
University of Alberta
Edmonton, Alberta, T6G 2E3
Phone: 780 492 5249
Fax: 780 492 2030
E-mail: martin.sharp@ualberta.ca