PhD position (1) in Permafrost Science at the School of Earth and Ocean Sciences, University of Victoria

PhD position: Process-based numerical modelling of permafrost systems

Expected start date: As soon as possible (dependent upon matriculation; possible entry points are September, January, and May. See https://www.uvic.ca/science/seos/grad/prospective/index.php)

Supervisory team: Dr. Joe Melton (UVic/ECCC), Dr. Bernhard Rabus (SFU), Dr. Chris Spence (ECCC), Dr. Colin Goldblatt (UVic)

Project description: Incorporation of excess ground ice and its impacts into the Canadian Land Surface Scheme including Biogeochemical Cycles (CLASSIC) model.

Permafrost regions are rapidly warming due to anthropogenic climate change. Process-based modelling offers the ability to project how that warming will impact the region's physical and biogeochemical environment. Environment and Climate Change Canada (ECCC) develops and applies the Canadian Earth System Model (CanESM). This position will develop the capabilities of CLASSIC, the terrestrial component of CanESM, to simulate permafrost region processes. The lack of a representation of excess ground ice and its melt is a significant gap in many permafrost models. While excess ground ice has been incorporated into some models, the representation remains crude. This position will interface with PermafrostNet to parameterize CLASSIC using site-level data, collaboratively develop a dataset of excess ground ice, and determine the most valuable model outputs from future scenarios for use in hazard assessment. The parameterizations developed through this project will be incorporated in future versions of CanESM informing global efforts around climate change impacts such as the IPCC assessments.

Work team and work environment: This position is part of PermafrostNet and will collaborate with a set of expert research groups outside of University of Victoria, via the network and the members of the supervisory team. It will be located on the UVic campus in Victoria with the student regularly visiting the Canadian Centre for Climate Modelling and Analysis (CCCma.ec.gc.ca), also on UVic campus.

Funding: Fully funded

To submit an application: Send Dr. Joe Melton (joe.melton@canada.ca) your letter of interest, CV, copy of transcript(s), and contact information for 3 references. Applications will be reviewed as they are received. The position will remain open until filled. We thank all applicants for their interest, however, only those individuals selected for an interview will be contacted.