**PHD SCHOLARSHIP IN MODELLING OF THE AQUATIC CARBON CYCLE OF NORTHERN LAKES**

We invite applications for a 3 year, fully funded PhD position focussing on the feedback between current environmental changes and carbon dynamics in lakes and thaw ponds of the northern landscape.

Lakes and ponds in northern Canada store large amounts of carbon in their sediments. These carbon sinks are vast but extremely vulnerable to human and climatic perturbation. Over the large areas of the subarctic and low Arctic that are rapidly warming, degrading permafrost and increased drought frequency affect carbon pathways. The program "**Changing Carbon Sinks in Arctic Canada**", CCSAC, seeks to improve the quantitative understanding of carbon dynamics in Canadian subarctic freshwaters, with a focus on protecting natural carbon sinks and processes that govern the balance between carbon sinks and carbon sources to the atmosphere. The program couples hydrology and biogeochemistry with modelling and remote-sensing to contribute to science-based decision making and the effective delivery of climate change actions.

The PhD project, with an expected starting date in early 2020, will focus on the modelling of biogeochemical process impacting carbon dynamics and on the interpretation of datasets from field campaigns, high-frequency sensors and remote sensing products. The project will build on existing multi-component reactive-transport and lake models coded in Matlab and Python, to improve our understanding of the transformation and fluxes of aquatic carbon. The successful applicant will be hosted by the Sentinel North Research Chair in Aquatic Geochemistry, held by Prof. Raoul-Marie Couture at Laval University in Québec City, and the CNRS Joint International Laboratory Takuvik.

Sentinel North and Takuvik provide a host of opportunities for graduate students, including PhD scholarships with competitive salaries, summer schools with a focus on remote field locations, financial support for international internships and world-class laboratories and computing facilities. The applicant will also be collaborating with the CCSAC team, led by Prof. Sherry Schiff at the University of Waterloo. The team further comprises of researchers from Laurier University, University of Winnipeg, Canadian Forest Service, Natural Resources Canada, Environment and Climate Change Canada, University of Washington and NASA. We expect that this will provide an extremely stimulating scientific environment and the opportunity to develop a portfolio of experience in both modelling and field work.

**Application Instructions**

Applicants must have a strong quantitative background in a relevant field (e.g., environmental engineering, computational (geo)chemistry, mathematics, bio/eco-informatics, information technology). Experience with ecosystem modelling and scientific computing is desirable. Finally, experience with and/or interest in field work in remote regions is an asset as we encourage modellers in our group to take part in designing and performing field campaigns.

Interested applicants should submit: 1) a cover letter stating how their experience, motivation and expectations align with the proposed research, 2) a curriculum vita, 3) academic transcripts and 4) contact information of three academic or professional references. All documentation should be sent as a single PDF file to raoul.couture@chm.ulaval.ca. The position will remain opened until filled.