

**PhD position in permafrost CH<sub>4</sub> isotope geochemistry at Geological Survey of Canada, Québec City and McGill University, Montréal, Canada**

Thawing permafrost and associated active layer soils present major challenges to Canada's northern regions. In comparison to the physical impacts of permafrost thaw, studies on the evolution of permafrost active layer (PAL) geochemistry are sparse, even though PAL processes are known to release organic matter (OM), which contributes to greenhouse gas (GHG) emissions and potentially harmful metal(loid)s.

In this context, the Geological Survey of Canada (GSC) has started a program of innovative and integrated permafrost geoscience research to support sustainable development in the Canadian north. This program aims at investigating various aspects of PAL geochemical evolution in a changing climate (i.e. OM molecular and isotopic characterization, metals distribution in ground ice). As part of this program, applications are invited for a PhD position in permafrost isotope geochemistry. The position will be based at both the [Department of Earth and Planetary Sciences](#) at McGill University in Montréal and the [Delta-Lab](#) of the Geological Survey of Canada (GSC) in Québec City (Natural Resources Canada). Candidates should have obtained an MSc degree in geosciences, biogeochemistry, permafrost and related fields with expertise in analytical geochemistry, and experiences in the applications of stable isotope techniques. Strong written and oral communication skills are also required.

The successful candidate will conduct research related to permafrost active layer (PAL) evolution in a changing climate and its impact on GHG emissions. This will be done through the investigation of the in-situ isotopic systematic of methane (CH<sub>4</sub>) in PAL as well as in selected microbial cultures using multi isotopic systems including clumped isotopes. The candidate will work in collaboration with both the Delta-lab in Québec City and the McGill Isotope Biogeochemistry Laboratory in Montréal and will benefit from the training of two leading Canadian geoscientific institutions.

The GSC's Delta-Lab facility is located downtown Québec City, within the Institut National de la Recherche Scientifique (INRS) of the University of Québec network. Québec is a beautiful 414 year-old city, with a very reasonable cost of living and real Canadian winters!

The McGill Isotope Biogeochemistry Laboratory is located on the downtown campus of McGill University at the foothill of Mont Royal on the Island of Montréal. Montréal is a culturally vibrant 379 year-old city, with slightly milder winters than Québec City ;).

To apply, send a single pdf file as an e-mail attachment, containing (a) letter of application with research interests, (b) CV, and (c) names and contact information of three references to: Dr. Josué Jautzy (josue.jautzy@nrcan-rncan.gc.ca) and Dr. Peter Douglas (peter.douglas@mcgill.ca). Deadline: 28<sup>th</sup> of February 2022