

PhD position: Controls on Winter Carbon Losses in Wetland Ecosystems

Vale Living with Lakes Research Centre, Laurentian University

Research project: The project explores winter carbon and greenhouse gas cycling across Canadian wetland ecosystems, which are hotspots of both carbon storage and methane emissions, and contribute to important climate change feedbacks. Study regions included span from temperate- to high latitude/permafrost regions. We are looking for a student interested in developing interdisciplinary expertise between hydrophysical properties of frozen soils (including the role of unfrozen water in subzero temperatures), and microbial carbon, nutrient and greenhouse gas cycling in soils. This research will elucidate poorly understood soil processes in cold region environments during the fall-winter and winter-spring transitions and during the non-growing season (NGS). This will create foundations for modelling predictions of winter carbon losses in cold region wetland and permafrost ecosystems. The project is funded under NSERC's Advancing Climate Science in Canada funding initiative.

PhD position focus: Establishing the temperature-dependencies of carbon and nutrient mineralization rates in relation to soil hydrophysical parameters such as unfrozen water content, and the associated effects on winter microbial soil communities. This PhD student will also be involved in developing a bioenergetic model of microbial reaction systems under variable winter conditions to quantify future northern wetland and permafrost ecosystems carbon balances. The position entails field work, laboratory experiments, and modeling analyses.

This PhD student will be co-supervised by Dr. Pascale Roy-Leveillee and Dr. Nathan Basiliko, at the [Living with Lakes Research Centre](#) of Laurentian University and will collaborate with a team of researchers from the University of Waterloo [Ecohydrology Research Group](#), Wilfrid Laurier University, and the Canadian Forest Service Great Lakes Forestry Centre-Natural Resources Canada. Note that another PhD position associated with this project [is open at the University of Waterloo](#), and that MSc student positions can be created in lieu of a PhD position for exceptional candidates who prefer to undertake a Master's degree.

Start date: September 2019 (or as soon as possible)

Competitive NSERC level remuneration, guaranteed GTA (>75% average), and access to several local scholarships are available.

Email Dr. Pascale Roy-Leveillee (proyleveillee@laurentian.ca) if you have questions or, to apply, send a letter of interest, CV, copy of your transcripts, and 3 references.

