

PhD position: Changing land-atmosphere interactions at the southern limit of permafrost distribution in the northwestern Canadian boreal zone (starting September 2018)

We are seeking a highly motivated individual for a PhD position focusing on changes in boreal forest functioning in response to rapidly changing permafrost conditions in the northwestern Canadian boreal zone. Co-supervised by Dr. Oliver Sonnentag/Université de Montréal and Dr. Jennifer Baltzer/Wilfrid Laurier University, the position is located in the Département de géographie at Université de Montréal with regular visits to Wilfrid Laurier University in Waterloo, ON. Funding includes a four-year stipend for the graduate student (\$21,000/year), and travel and field expenses. The graduate student will be expected to apply for external funding sources.

The project focuses on a better understanding of land-atmosphere interactions by studying ecosystem-, plot- and leaf-scale measurements of carbon, water and heat fluxes made with the eddy covariance and different chamber techniques (LI-6400, LGR Ultraportable Greenhouse Gas Analyzer). The study area consists of two research sites in the Northwest Territories near the southern limit of permafrost in northwestern Canada, Scotty Creek (boreal peat landscape with sporadic permafrost) near Fort Simpson and Smith Creek (boreal peat landscape with discontinuous permafrost) near Wrigley, around 200 km north of Scotty Creek. Permafrost along the southern limit of its distribution undergoes dramatic changes in hydrological regimes due to rapid permafrost thaw. At Scotty Creek these changes lead to wetland expansion at the expense of boreal forest coverage. The project aims to expand on ongoing eddy covariance and chamber measurements at Scotty Creek in comparison to the recently instrumented Smith Creek research site. More specifically, the PhD student will examine if permafrost thaw-induced changes in land-atmosphere interactions observed at Scotty Creek can be used to project similar changes at Smith Creek as the regional climate keeps getting warmer.

Ideal applicant for the PhD position should have

- 1) a strong quantitative and technical background obtained through a Master's or Diploma degree in ecology, biogeosciences, environmental science, etc.;
- 2) previous exposure to some aspects of the project (e.g., high latitude ecosystems/ecohydrology /biogeochemistry);
- 3) (some) wilderness outdoor experience as the project requires frequent traveling to and extended stays at the sites;
- 4) the ability to work independently and effectively as part of a team setting consisting of researchers from various Canadian universities (Wilfrid Laurier University, Université de Montréal, McGill University, University of Guelph);
- 5) proficiency in English (the Université de Montréal is a francophone research university, so knowledge of French is of great advantage but not mandatory).

Please email questions regarding the PhD position/admission process and application packages consisting of cover letter, curriculum vitae, an English writing sample (ideally a publication), copies of academic credentials, and names and contact information of at least two referees to:

oliver.sonntag *at* umontreal.ca

jbaltzer *at* wlu.ca

The review of applications will commence immediately until the position is filled.