MSc and PhD Opportunity at University of Waterloo

We invite applications for one MSc and one PhD positions to participate in a recently funded collaborative research project called “Can-Peat: Canada’s peatlands as nature-based solutions to climate change”. The main goal of the Can-Peat project is to quantify the potential of peatland management in Canada to contribute to climate change mitigation as a nature-based solution. The Can-Peat project objectives are to create a Canadian peatland research network to advance models of peatland carbon cycling from site to national-scale and develop a decision-support framework for peatland management. The students will be guided by a team of researchers from the University of Waterloo and collaborators from partners in governments, industries, and conservation organizations.

MSc student will assemble a dataset of peatland physical, hydrological, and biogeochemical properties (including experimental data and field observations) from the selected study sites in the compilation of peatland datasets proposed in Can-Peat project. MSc student will use a robust machine learning model using the data to identify key environmental drivers and predict future changes in greenhouse gas emission rates under future climate scenarios. The goal will be to establish how peatlands in different regions are expected to respond to changing anthropogenic disturbances and climate warming to better understand the peatland carbon and greenhouse gas exchange and the resilience of their carbon source/sink function to disturbance.

PhD student will develop the reactive transport sub-models that evaluate the biogeochemical transformations of carbon and nutrients in peatlands under examples of anthropogenic disturbances and climatic scenarios to estimate the changes in carbon stocks and budgets for the future peatland ecosystems carbon balances. The outputs of these sub-models will be incorporated into the Canadian Model for Peatlands, to improve regional to national estimates of Net ecosystem exchange and carbon emissions into the Canadian Model for Peatlands frameworks for application at multiple scales and for spatially-referenced and spatially-explicit modelling approaches.

Applicants must have (or expect to soon complete) a degree in biogeochemistry, hydrology, soil science or a related field. Preference will be given to candidates with strong quantitative skills and demonstrated experience in one or more of the following areas: terrestrial biogeochemistry, environmental engineering, reactive transport modeling, and environmental climate change impact analysis. MSc student position can be created in lieu of a PhD position for exceptional candidates who prefer to undertake a Master’s degree.

If you have any questions regarding the application process and, eligibility, or a request for accommodation during the selection process, please contact Dr. Fereidoun Rezanezhad

(frezanez@uwaterloo.ca) and Dr. Philippe Van Cappellen (pvc@uwaterloo.ca). Please submit your application package electronically as a single pdf file to Dr. Fereidoun Rezanezhad (frezanez@uwaterloo.ca). In your application email, please include "Can-Peat-MSc or PhD#_yourname" in the subject line and attach a single PDF file that contains:

- Your motivation for applying to the position and your research interests
- Curriculum vitae
- Copy of transcript(s) (unofficial transcripts will be accepted at the application stage)
- Contact information for up to 3 references

Closing date: Applications will be reviewed as they are received. The positions will remain open until filled. **We thank all applicants for their interest, however, only those individuals selected for an interview will be contacted.**

The University is committed to implementing the Calls to Action framed by the Truth and Reconciliation Commission. We acknowledge that we live and work on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land granted to the Six Nations that includes ten kilometers on each side of the Grand River.

The University of Waterloo regards equity and diversity as an integral part of academic excellence and is committed to accessibility for all employees. As such, we encourage applications from women, persons with disabilities, Indigenous peoples (First Nations, Metis and Inuit), Black and members of racialized groups, individuals in the LGBTQ2+ communities, and others who may contribute to the further diversification of ideas.