



## Collaborative Postdoctoral, PhD and MSc Positions Available

### **CLAWAVE: Chemical Load Assessments for Watersheds: Automation and Visualization Experience**

We invite applications for two postdoctoral fellow (PDF), two PhD and three MSc positions to participate in a collaborative research project to develop and apply new methods to extract, treat and visualize concentrations, hydrological flows, chemical loads, and related water quality indicators at the watershed scale. The project will combine hydrological and water quality modelling, data science methods, chemical load estimations, and the development of digital visualization and interpretation tools. We will focus on past and projected trends in nutrient and dissolved organic carbon (DOC) export from watersheds and their impacts on receiving water bodies, including lakes and coastal marine environments.

The main supervisor for each position is listed in parentheses; however, each position will have an interdisciplinary supervisory team consisting of multiple project team members.

Instructions for applying can be found below.

**PDF-1** will generate and analyze concentration-discharge (C-Q) relationships for phosphorus (P) and nitrogen (N) for major Canadian rivers as a function of land use and land cover (LULC), river management and climate. (Alain Pietroniro, UCalgary)

**PDF-2** will focus on current and future trajectories of DOC and nutrient loading to the Arctic Ocean by Canadian rivers in the context of climate and LULC changes. (Philippe Van Cappellen, UWaterloo)

**PhD-1** will develop user-oriented tools to extract, match, consolidate and analyze time series data on river water and groundwater (as available) chemistry, discharge, and meteorological variables from open datasets. (Andrea Brookfield, UWaterloo)

**PhD-2** will assemble a comprehensive national DOC database and reconstruct DOC load trajectories for northern watersheds. (Philippe Van Cappellen, UWaterloo)

**MSc-1** will develop an interactive public dashboard for water quality data visualization that can support exploratory and advanced research and enable data storytelling. (Jian Zhao, UWaterloo)

**MSc-2** will relate C-Q relationships of N and P in the Lake Winnipeg watershed to socio-ecological variables including LULC, water governance, and climate variables. (Chris Parsons, UWaterloo/ECCC)

**MSc-3** will derive P and N loads to Lake Winnipeg from observed (past) and projected (future) river discharge and changes in C-Q predictor variables. (Alain Pietroniro, UCalgary)

The PDFs and students will work closely together within a highly interdisciplinary team of researchers from University of Waterloo, University of Calgary, and Environment and Climate Change Canada (ECCC). The PDF-1 and MSc-3 positions will be located at the University of Calgary, all others at University of Waterloo, with possibilities of secondments at ECCC locations in Burlington, ON, or Saskatoon, SK. The research team will regularly interact with scientists at stakeholder organizations, including ECCC, DataStream, and Lake Winnipeg Foundation.

Applicants must have (or expect to soon complete) a degree relevant to the position applied for. Preference will be given to candidates with strong quantitative skills and demonstrated experience in one or more of the following or closely related areas: hydrology, water quality, biogeochemistry, data science, and human-computer interaction.

Please submit your application package electronically as a single pdf file to Anita Ghosh ([a9ghosh@uwaterloo.ca](mailto:a9ghosh@uwaterloo.ca)). In your email, include "CLAWAVE\_yourname" in the subject line. Your applications should contain:

- Which PDF, PhD-# or MSc-# position(s) you wish to be considered for
- A letter explaining your motivation to apply
- Curriculum vitae
- Copy of transcripts (unofficial transcripts will be accepted at the application stage)

**Closing date:** Applications will be reviewed as they are received. Preference will be given to applications submitted before May 15, 2023.

**We thank all applicants for their interest, however, only those individuals selected for an interview will be contacted.**

The University of Waterloo is committed to implementing the Calls to Action framed by the Truth and Reconciliation Commission. We respectfully acknowledge that we live and work on the traditional territory of the Neutral, Anishinaabeg and Haudenosaunee peoples.

The University of Calgary has launched an institution-wide Indigenous Strategy in line with the foundational goals of Eyes High, committing to creating a rich, vibrant, and culturally competent campus that welcomes and supports Indigenous Peoples, encourages Indigenous community partnerships, is inclusive of Indigenous perspectives in all that we do.

University of Waterloo and University of Calgary regard equity, diversity, and inclusion (EDI) as an integral part of academic excellence. We are committed to removing barriers that have been historically encountered by some people in our society. We strive to recruit individuals who will further enhance our diversity and will support their academic and professional success while they are here. In particular, we encourage members of the designated groups (women, Indigenous peoples, persons with disabilities, members of visible/racialized minorities, and diverse sexual orientation and gender identities) to apply. To ensure a fair and equitable assessment, we offer accommodation at any stage during the recruitment process to applicants with disabilities.

If you have any questions regarding the application process, eligibility, or a request for accommodation during the selection process, please contact [a9ghosh@uwaterloo.ca](mailto:a9ghosh@uwaterloo.ca).