Post-Doctoral Fellowship: Landscape and climate change and water quality in Ontario agricultural catchments

This position is based at Ryerson University and is funded by the Ontario Ministry of the Environment and Climate Change.

The aim of this position is to assess the roles of land use, land management, and climate in influencing the loss of nutrients from Southern Ontario's agricultural watersheds into the Great Lakes using mathematical models and novel datasets currently being collected on land management. Improvements to water quality are often presumed to stem from improvements to land management. Before credible prescriptions for land management can be generated, it is necessary to understand how water quality is determined by a number of factors, some of which are not related to land management. The position will generate an understanding of likely future states of agricultural hydrology and water quality in the agricultural portion of Canadian Great Lakes drainage area, as well as compare the functioning of present day agricultural watersheds to those of the 1970's, the last time the Great Lakes had a major episode of eutrophication.

The post-doctoral position will focus on the synthesis of existing and novel datasets currently being collected about detailed land management, isotopic tracers, and soil properties in Southern Ontario. Specific responsibilities include:

- Working with a research technician to develop a regional scale model of agricultural hydrology and water quality throughout the Canadian Great Lakes drainage basin;
- Developing and applying novel calibration, inference, and scaling algorithms to incorporate headwater sentinel sites into this regional scale model;
- Taking a role in graduate student training at Ryerson in the Land and Water Resources Group;
- Communicating with government scientists at the MOECC, other Federal and Provincial agencies, and academic groups at all stages of the project to maximize the work's impact.

Applicants must have, or be working towards, a PhD in a field relevant to the project. Relevant fields include, but are not limited to, hydrology, biogeochemistry, environmental engineering, and soil science. Applicants must demonstrate a track record of research productivity. Knowledge of agriculture is an asset. Applicants must be able to work independently, and within a multidisciplinary team. They will be expected to produce journal publications, liaise with government scientists and agricultural stakeholders, and contribute to the training of highly qualified personnel. This position will be for up to two years, and begins as soon as possible. Salary will be based on education and experience. Applications should include a CV, a letter of application, and the names of three references. Applications will be reviewed starting August 15. Only applicants selected for an interview will be contacted.

For more information, or to apply, please contact (include PDF-Regional Model in the subject line)**:**

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