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## **Post Doctoral Research Fellowship Simulating the greenhouse gas emission from boreal region reservoirs**

We are seeking a post-doctoral research fellow to work on the simulation of the emission of greenhouse gases from northern boreal reservoirs as part of a Natural Sciences and Engineering Research Council Canada Collaborative Research and Development Project in collaboration with Hydro Quebec.

We have modified the DeNitrification-DeComposition (DNDC) model to simulate the exchange of CO<sub>2</sub> between boreal ecosystems and the atmosphere and then to simulate how the exchange changes with the ecosystems inundation by the creation of reservoirs for the production of hydro-electricity. We have recently developed a water column extension for DNDC for a full single column reservoir model by coupling a lake carbon model and DNDC. We are looking for a research fellow who over the next two years will develop and evaluate the reduced gas (CH<sub>4</sub> and N<sub>2</sub>O) portion of this model; add in the hydrodynamics associated with reservoir stratification and spring and autumn turnover; and a phosphorus and nitrogen nutrient feedback for open water net primary production. Part of the research fellow's responsibilities will be to assist a programmer in developing a user friendly interface.

In addition there will be opportunities for the research fellow to be involved in evaluating several peatland biogeochemical models (e.g., McGill Wetland Model and Forest-DNDC) for their ability to simulate the carbon balances on several peatlands in the Hudson Bay Lowland in Ontario. These models will be used to assess the possible changes in carbon exchanges from HBL peatlands under various climate and land-use change scenarios.

The post-doctoral fellowship is initially for one year, but will be extended to a second year if progress is satisfactory. The fellowship is equivalent to ~ \$44,000 CAD/year.

Applicants should have a background in ecosystem modelling for terrestrial and/or aquatic ecosystems and hold a recently completed PhD in Physical Geography, Atmospheric Science, Limnology, Eco- or Environmental Hydrology, or a related environmental science. Demonstrated experience in working with ecosystems models and with C++, FORTRAN, IDL and/or Matlab computer languages would be an asset.

Applicants should send a copy of the resume and examples of their research output (research publications and/or PhD thesis) to Nigel Roulet, James McGill Professor of Biogeosciences, Department of Geography, McGill University, 805 Sherbrooke St. W., Montreal, QC H3A 1B9, Canada (nigel.roulet@mcgill.ca). Email applications are preferred. Applicants should also arrange for three letters of reference to be sent to directly to Professor Roulet.

Start day of this position is August 1, 2013. We wish to fill this position as soon as possible.