Postdoctoral Position – Numerical Modeling of Solute Transport and Groundwater Flow in Permafrost Environments

The Department of Civil & Resource Engineering and Centre for Water Resources Studies at Dalhousie University in partnership with Earth and Planetary Sciences at McGill University are seeking applications for a 2-year postdoctoral position. The project is focused on the application of numerical modeling to investigate interactions between permafrost change, groundwater flow, and subsurface solute transport in fractured and faulted hydrogeological settings.

Project description: This project is funded by the Nuclear Waste Management Organization of Canada (NWMO) and the Natural Sciences and Engineering Research Council of Canada (NSERC) via the NSERC Alliance Advantage program.

The project will investigate the impacts of future glaciation (and associated permafrost) cycles on groundwater flow and solute transport in fractured and faulted settings. Modeling will be based on both archetypical settings as well as site-specific hydrogeological characterization.

Project objectives: The postdoctoral researcher will use a cutting-edge numerical model to simulated coupled thermal, solute, and water transport dynamics in hydrogeological settings experiencing dynamic freeze-thaw. Simulations will be run on long timescales in line with the timescales of deep geological repositories. This project is part of **CatchNet** (**Catch**ment transport and cry-hydrology **Net**work), and the researcher will also engage in the synthesis of international research activities linked to cold-regions hydrogeology.

The ideal candidate will have numerical modeling experience (ideally cold-regions groundwater modeling), excellent communication skills, a PhD in geoscience or engineering or a related field, experience with coding, and a team-oriented approach to research.

Location and synergy: The postdoctoral researcher will be physically based out of the Dalhousie Coastal Hydrology Lab led by Dr. Kurylyk, but will be co-advised by Dr. McKenzie at McGill University, and will regularly engage with other CatchNet researchers.

Application documents: CV, one-page statement of interest, and names and contact information for two referees.

Conditions of employment: Full-time, fixed-term contract for a maximum of 24 months. The research will receive a competitive salary and benefits, office space, workstation, and support for attending international conferences/meetings. We value diversity and inclusion and encourage all qualified people to apply. Applications should be emailed to Dr. Barret Kurylyk (barret.kurylyk@dal.ca). Only applicants to be interviewed will be contacted. Review of applications will commence on **September 1, 2024**, and the anticipated start date is November 1, 2024 or soon afterward.