

## Postdoctoral Position on Climate Change Impacts to Groundwater

The Department of Civil & Resource Engineering and the Centre for Water Resources Studies at Dalhousie University (Canada) are seeking applications for a two-year postdoctoral researcher to investigate the impacts of climate change on shallow groundwater.

**Project description:** This postdoctoral position is part of a project addressing the impacts of oceanic and atmospheric climate change on groundwater resources in the coastal province of Nova Scotia, Canada. The project is led by Drs. Barret Kurylyk, Lauren Somers, and Rob Jamieson and has a geographic scope that spans the province but focuses on communities that have experienced recent groundwater shortages during summer droughts.

**Project objectives:** The postdoctoral researcher will develop a 1D hydrologic/hydrogeologic model to simulate the impacts of changing atmospheric conditions on snow-rain partitioning, frozen ground conditions, mid-winter melts, infiltration, and eventual groundwater recharge. The model will be calibrated at many sites using the provincial observation well network and streamflow (separated baseflow) data from rivers, and will be forced with downscaled climate scenarios to assess impacts of future change. The postdoctoral researcher will also partner with GIS specialists to create GIS products (e.g., ArcGIS StoryMaps or Google Earth Engine) for visualizing changing recharge, and will be given opportunities to engage with team members in the same project who are focused on assessing the impacts of sea-level rise on saltwater intrusion and septic system inundation. Collectively, these integrated projects will produce new vulnerability assessments for Nova Scotia's critical groundwater resources, which are disproportionately relied on by rural and marginalized communities.

The candidate should have experience with 1D hydrologic or hydrogeologic models, such as the Simultaneous-Heat-And-Water (SHAW) model by the U.S. Department of Agriculture or other related models developed for cold regions. The ideal candidate should also have excellent communication skills; a PhD in geoscience, civil engineering, or a related field; experience with coding; a team-oriented approach to research and community partnership; and a track record in leading high-quality journal articles. Research expertise focused on the impacts of climate change on groundwater would be an asset.

**Location and synergy:** The postdoctoral researcher will be based out of the [Dalhousie Coastal Hydrology Lab](#) led by Dr. Kurylyk, but will engage with, and potentially be co-supervised by other members of the Centre for Water Resources Studies. Dalhousie University is one of Canada's 15 research-intensive universities and is located in the coastal city of Halifax, Nova Scotia, which is a rapidly growing urban centre with a deeply rooted Canadian Maritimes history.

**Application documents:** CV, Statement of motivation (1 page), 2 sample publications, names and contact information for two referees.

**Conditions of employment:** Full-time, fixed-term contract for 16 months, with possible extension. The research will receive a competitive salary and benefits, office space, and workstation.

We value diversity and inclusion and encourage all qualified people to apply. Applications should be emailed to Dr. Barret Kurylyk (barret.kurylyk@dal.ca), Dr. Lauren Somers (Lauren.Somers@dal.ca), and Dr. Rob Jamieson (jamiesrc@dal.ca). Please note that only applicants to be interviewed will be contacted. Review of applications will commence on **June 15, 2023**, and continue until the position is filled. The anticipated start date is September 2023. A delayed start may be possible, but it will short the position timeline. Working remotely may be possible for at least a period of the position.