



UNIVERSITY OF  
CALGARY

## PH.D. CANDIDATE

Coupled isotope-hydrologic modelling

Position Start Date: May/September 2021

### UC-HAL

The University of Calgary Hydrologic Analysis Laboratory is a transdisciplinary group of hydrologic researchers that focuses on regional and continental-scale water supply issues and climate change analyses. We focus on developing tools and state-of-the-art coupled modelling and analysis tools to facilitate cumulative impact assessment for river basins, particularly the high latitude and Arctic regions. We work closely with practitioners to design and implement systems-based approaches that are realistic for real-time simulation. We are dedicated to SciComm and collaborate with the Arts to communicate our work to a broad audience. We reside within the Faculty of Arts, Department of Geography, with membership from Arts, Civil Engineering and Science.

### TO APPLY, OR FOR MORE INFORMATION, CONTACT

Dr. Tricia Stadnyk, P.Eng.  
[Tricia.stadnyk@ucalgary.ca](mailto:Tricia.stadnyk@ucalgary.ca)

WEBSITE:  
[Ucalgary.ca/Labs/HAL](http://Ucalgary.ca/Labs/HAL)

RESUMES will be considered until the position is filled.

### UNIVERSITY OF CALGARY INFORMATION

Department of Geography:  
<https://www.ucalgary.ca/future-students>

Department of Civil Engineering:

Faculty of Graduate Studies:  
<https://iac01.ucalgary.ca/FGSA/Public/SpecificAward.aspx?AwardID=5461>

### JOB DESCRIPTION

We are seeking a valued member of our team to advance initiatives in coupled isotope-hydrologic modelling and model calibration. The ideal candidate will have a background in hydrologic modelling with expertise in multi-objective optimization or calibration methods. Knowledge of isotope tracers and geochemistry will be an asset. The candidate will contribute to furthering the development of coupled isotope-hydrologic modelling systems at a regional or continental-scale and will focus on applications in high-latitude basins and/or Arctic regions. Efforts will focus on quantifying the value of isotope tracers to hydrologic process change detection and on the value to model calibration and evaluation exercises. This research contributes to the second pillar of Dr. Stadnyk's CRC Tier 2 program, or the development of integrated modelling tools to support advancement of knowledge in Canadian hydrology.

### EXPECTATIONS & OUTPUT

- Meets minimum requirements for admission to the PhD program at the University of Calgary in either Civil Engineering, or Geography
- Satisfactory or better performance within the PhD program at the University of Calgary
- Minimum of three peer-reviewed publications, which form the body of the PhD thesis
- Assist with undergraduate student mentorship
- Regular attendance in UC-HAL group meetings
- Supportive and collegial member of our lab group

### DESIRED SKILLS

- Proficient hydrologic modeller, experience with R, Matlab, and/or Fortran is an asset
- Familiarity with GIS, python and spatial plotting is required
- Knowledge of best practices in model evaluation, calibration and validation, particularly multi-objective model optimization
- Knowledge of stable water isotope tracers and geochemistry is an asset, but not a requirement
- Knowledge of Canadian continental-scale river basins is an asset, and/or cold regions hydrology
- Diverse interests in using art as a means of science communication are an asset