**Two postdoctoral scholar positions on hydrology-ecology interactions across the Arctic-boreal region**

The Global Water Futures (GWF) program is embarking on a new strategic initiative to advance understanding and modelling capabilities on hydrology-ecology interactions. Some major GWF initiatives include extensive field studies on eco-hydrological processes throughout Canadian landscapes (mountains, prairies, lakes, the boreal forest, and the Arctic), and developing the next-generation terrestrial modelling systems. One focus of these efforts is on comprehensive simulations of the terrestrial component of biogeochemical cycles and their hydrological controls. GWF also has strong collaborations with the Earth System Modelling in both Canada and the USA, with joint projects underway with the Canadian Centre for Climate Modelling and Analysis (CCCma, within Environment and Climate Change Canada, responsible for the Canadian Earth System Model [CanESM]), and the Climate and Global Dynamics Terrestrial Science Section (within the National Center for Atmospheric Research, responsible for the Community Earth System Model [CESM]). We are actively recruiting a cadre of accomplished scientists to accelerate research in terrestrial systems science.

As part of this broader effort, two postdoctoral scholar positions are available to advance understanding and modelling of hydrology-ecology interactions across the Arctic-boreal region. The work includes (a) Synthesizing understanding of dominant hydrological-ecological interactions and their feedbacks in the Arctic-boreal region by a systematic review of coupled hydrological-ecological processes; (b) Critique the current generation of modelling approaches that are used to simulate these coupled processes (i.e., define the gaps between models and theory, including unrealistic assumptions and missing processes); and (c) Conduct a hierarchy of model simulations with hydrological and ecological models of different type and complexity for specific arctic field sites, in order to better understand current modelling capabilities and identify future research needs. The two postdoctoral scholars are nominally one scholar to focus on process understanding and one scholar to focus on mechanistic modelling.

Work locations can include the Canmore Coldwater Laboratory in the Canadian Rocky Mountains or Wilfrid Laurier University's Waterloo campus in Ontario, Canada with the possibility of initiating these positions remotely due to COVID-related considerations. Both scholars will work closely with Prof. Jenn Baltzer (Wilfrid Laurier University) and Prof. Martyn Clark (University of Saskatchewan) as well as an interdisciplinary team of collaborators from across Canada and the USA. The candidates will interact closely with scientists from Environment and Climate Change Canada (Drs. Joe Melton and Chris Spence), the Canadian Forest Service (Dr. Eliot McIntire), the US National Center for Atmospheric Research (Dr. David Lawrence) and the Institute for Arctic and Alpine Research (Dr. Merritt Turetsky) both in Boulder, CO, and several Canadian Universities (Drs. Sean Carey, Steve Cumming, Phil Marsh, Oliver Sonnentag, John Pomeroy, and Trish Stadnyk). Collaborative activities will include workshops where the team and other leading experts will refine conceptual models and modelling approaches.

Successful candidates will be part of the Global Water Futures (GWF) program, the largest university-led climate and freshwater research program in the world. Currently, the GWF network involves more than 356 stakeholders/users, 157 researchers from 15 Canadian universities and 538 research personnel associated with 39 pan-Canada projects, and core teams including modelling, computer science, knowledge mobilization, and data. Additional information is available at: https://www.globalwaterfutures.ca/. Even though these positions are primarily focused on the synthesis of process understanding and on mechanistic modelling, researchers will be encouraged to become involved in field studies in well-instrumented research basins that are located in the spectacular landscapes of the western Canadian Arctic.

Expectations: The applicants should have a background in ecology or physical hydrology. Successful applicants will be comfortable working in a team environment and be highly engaged in collaborative model development activities. They will be expected to publish regularly in peer-reviewed international journals and present their work at international science meetings.

Duration: These are two-year term positions, commencing as soon as possible.

Application Procedure: To be considered for this opportunity, please submit the following documents via email:

- A statement of purpose (that details relevant academic excellence, research abilities, communication, interpersonal and leadership qualities, and a statement outlining circumstances that have impacted your career (e.g., health or parental leaves, caregiver roles, etc.)
- A curriculum vitae
- Evidence of previous research productivity as demonstrated by authorship of refereed journal publications and conference presentations/publications
- Names of three referees

*We thank all applicants for their interest; however, only candidates selected for an interview will be contacted.*

Contact Information: Jenn Baltzer (jbaltzer@wlu.ca); Martyn Clark (martyn.clark@usask.ca).

Closing date: Open until all positions are successfully filled; review to begin by 15 February 2021

*The University of Saskatchewan and Wilfrid Laurier University are strongly committed to a diverse and inclusive workplace that empowers all employees to reach their full potential. All members of the university community share a responsibility for developing and maintaining an environment in which differences are valued and inclusiveness is practiced. The university welcomes applications from those who will contribute to the diversity of our community. All qualified candidates are encouraged to apply; however, Canadian citizens and permanent residents will be given priority.*