Postdoctoral fellowship in the simulations of extreme precipitation events over the Canadian Rockies

Location: Centre ESCER and the Département des sciences de la Terre et de l'atmosphère, Université du Québec à Montréal, Montréal, Canada

Starting date: The position is available now

Duration: 1 year with the possibility to be extended until August 2023

Background: This postdoctoral fellowship is part of the Global Water Futures Core Modelling Team and is conducted in collaboration with scientists across Canada in various fields related to water sciences. This project aims to study extreme precipitation events over the Canadian Rockies using high-resolution regional climate modelling. Precipitation phase is crucial during cold season storms and it can impact the severity of storms. The 2013 flooding event east of the Canada Rockies produced to up to 300 m of precipitation leading to historical flooding. The lowering of the 0°C-isotherm produced snow at higher elevation, which accumulated at the ground instead of flowing directly into rivers. This region is also a hydrological apex where precipitation can fall in three major river basins such as the Pacific Ocean, Arctic Ocean and Hudson Bay, which impacts the regional and continental water cycle. In this project, atmospheric conditions leading to heavy precipitation during the cold season will be investigated, including the processes driving rain-snow transitions as well as the spatial distribution of precipitation amounts and phase. This also includes the thresholds conditions leading to precipitation falling on either side of the continental divide and flowing in one of the major continental drainage basins.

Required Skills

- A PhD in atmospheric science or related field.
- Experience in the area of expertise and a publication record in peer-reviewed, international journals.
- Excellent knowledge of the Linux environment and in Python, Matlab, or R programming. Experience with Fortran programming language and with high-performance computing systems as well as the ability to handle large databases, preferably from numerical weather forecasts or climate models are also desirable.
- Ability to work in a team.

Working environment

The selected candidate will join the research team on regional climate modelling and the Global Water Futures core modelling Team. They will work with Professors Julie Thériault and Alejandro Di Luca at the ESCER Center. We will work in collaboration with research staff from the ESCER Centre, and researchers from Environment and Climate Change Canada (ECCC), Ouranos and the MELCC. We encourage all qualified applicants to apply, including those who identify themselves as a minority group. We support working arrangements that consider the specific situation of candidates, including working remotely when needed and flexible hours.

How to apply

Please send your application to professors Julie Thériault (theriault.julie@uqam.ca) and Alejandro Di Luca (di_luca.alejandro@uqam.ca) including:

1) A complete CV.
2) A cover letter indicating which project you are interested on.
3) Names and contact info of at least two references.

For more information, do not hesitate to contact Professors Thériault or Di Luca.