1 Postdoc position + 2 M.Sc. projects on the improvement of the Canadian Precipitation Analysis (CaPA) for solid precipitation

Accurate and high-resolution analysis of accumulated precipitation is of outmost importance for hydrological and meteorological applications. Over the past decade, the Canadian Precipitation Analysis (CaPA) system has been developed and implemented at the Meteorological Service of Canada (MSC) of Environment and Climate Change Canada (ECCC). It uses the optimal contributions of short-term forecasts from ECCC's Global Environmental Multiscale (GEM) numerical weather prediction model and observations from satellite data, surface stations and ground-based radars. There is a large uncertainty with the input data used for solid precipitation and this project addresses this critical issue.

Postdoc:
This project aims to improve the CaPA system for solid precipitation. To do this, several databases will be used such as 1) snowfall measurement stations, 2) the radar network to deduce the snowfall rate from the reflectivity field as well as 3) multi-satellite extractions integrated for measuring global precipitation (IMERG). An optimal assimilation scheme for these three databases will be identified at the end of the project to deliver a high-level operational product capable of assimilating solid precipitation that will benefit water management users in Canada.
The starting date is around March 15, 2021 for the duration of 1 year, with the possibility to extend to 2 additional years. More information, how to apply and a description in French are available here.

M.Sc. projects:
M.Sc. #1: This project aims to adjust solid precipitation measurements for undercatch using existing transfer functions and to optimize the CaPA system with the new database. ECCC and Manitoba Hydro stations will be used.
M.Sc. #2: This project aims to estimate snowfall using the ECCC radar networks and to optimize the CaPA system with the new database. ECCC radar data network witl be used.

The selected M.Sc. candidates will register to the Graduate level program in atmospheric sciences at UQAM. UQAM is a French-speaking university, and the courses are in French. More information on the projects, how to apply to the M.Sc. program as well as the description in French are available here.

Work environment:
This is a collaborative project amount scientists at UQAM, ECCC and Manitoba Hydro. These projects are based at Montréal, Québec, Canada. The candidates will be co-supervised by Dr Stéphane Bélair (ECCC) and Prof Julie Thériault (UQAM) and will work in strong collaborations with industrial partners, Manitoba Hydro, as well as experts in radar meteorology and snowfall measurements at ECCC. 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.

Please contact
Prof Julie Thériault (theriault.julie@uqam.ca) and Dr Stéphane Bélair (stephane.belair@canada.ca) for more information.