**PhD student Opportunities: Convection-Permitting WRF regional climate simulation**

This PhD position is part of the pan-Canadian Global Water Futures (GWF) research program (https://gwf.usask.ca), led by the University of Saskatchewan, which aims to place Canada as a global leader in water science for the world's cold regions and to address the strategic needs of the Canadian economy in adapting to change and managing risks of uncertain water futures. We are seeking a highly motivated and organized individual for this PhD student position to carry out the research on Convection-Permitting WRF regional climate simulation. The student will:

**1**. work with the GWF core atmospheric modelling group, in collaboration with the National Centre for Atmospheric Research (NCAR), US, to support the development of pan-Canadian high resolution (<=4km) atmospheric modelling of historical climate and future warming, using the WRF model. In Pseudo Global Warming mode bounded by a perturbed reanalysis model dataset, the WRF runs will provide a dynamically downscaled future climate that includes convective storms. We plan to deliver and high-resolution Weather Research & Forecasting (WRF) simulations. Multi-model RCM (CRCM, CanRCM) runs will provide additional context of model and scenario uncertainty. The personnel will also collaborate with Environment and Climate Change Canada (ECCC) and help with the explanation/analysis of the multi-model Canadian Regional Climate Model ensembles.

**2**. examine how do the properties of mesoscale convective systems (MCSs) including maximum precipitation rate, precipitation efficiency, life-time and spatial size may change, what are the relationships between large-scale circulation and mesoscale dynamics in the context of future storms through the analyzing of the pan-Canadian high resolution (<=4km) atmospheric modelling output; to design and carry out idealized WRF simulations to model the full three-dimensional (3-D) dynamics of clouds to isolate aspects that may respond to warming more strongly.

**Eligibility:**

The required academic background of the student: major in Atmospheric Science, Physics, Environmental Science or Engineering, or equivalent; a strong background in meteorology, climatology, and physics. Experience with numerical modeling of atmospheric processes is a plus.

To receive the full financial support, student needs to satisfy the University requirement:
https://sens.usask.ca/programs/thesis-based/phd.php#Scholarships
International student needs to meet the minimum English requirement:
https://www.usask.ca/cgps/policy-and-procedure/minimum-entrance-requirements.php#1

The required skills include: 1) Ability to gather, understand, and critically analyze data from all relevant sources. 2) Programming skills, such as Fortran, Matlab, R, Python, etc. 3) Experience with large spatial datasets (preferably using NCL, GrADS) on multiple computer platforms (Unix/Linux, Windows). 4) Highly motivated and self-directed in advancing complex projects. 5) Experience with atmospheric model such as WRF is a plus.

**How to Apply:**

Interested applicants should contact Dr. Yanping Li (yanping.li@usasaks.ca) with a cover letter explaining their motivation, complete CV, and contact details for three academic references. Informal inquiries are welcome.