Two PhD positions in Atmospheric Science/Meteorology

Applications are invited for two PhD positions at the Centre for Earth Observation Science (Department of Environment and Geography), University of Manitoba, Winnipeg, Canada. Both positions are part of a new project called the Northern Hail Project (NHP). Descriptions of both positions are provided below.

Project 1: Improved Understanding of Hail Storms and their Environments
You will participate in, and lead certain aspects of, field activities in the "hail alley" of Canada (southern Alberta) for at least three summers during the hail season. Field activities include hail storm forecasting, using mobile vehicles to capture meteorological conditions (surface and portable windsondes) prior to storm formation as well as during storm evolution, and assist with NHP hail collection activities. These data will be used, in conjunction with, many other meteorological datasets (radar, satellite, upper air, surface, model (re)analysis) to better understand hail storms and their environments in the most active hail region in Canada. This will contribute to building updated (or new) conceptual models of hail storms and their environments, with the goal of contributing to improved prediction of severe hail events.

Project 2: Numerical Modelling of Severe Hail Storms and Hail
You will collaborate directly with research scientists at the Meteorological Research Division (MRD) of Environment and Climate Change Canada who have expertise in high-resolution numerical modelling and the representation of cloud and precipitation microphysics in models. The project involves assessments of the ability of ECCC's high-resolution numerical weather prediction models to simulate (predict) hail storms and hail characteristics explicitly and the investigation of ways to improve the microphysics scheme. Historical cases as well as NHP field data will be used to evaluate the model's ability to capture the pre-storm conditions and validate the model-simulated hailswaths and hail sizes. Characterization of systematic deficiencies in the model microphysics through sensitivity experiments will provide guidance for improving the model. The candidate will also assist in NHP field activities to gain experience with both field operations and modelling research.

Both positions are fully funded ($30,000 CDN/year) for at least 4 years in duration. Some financial assistance may also be provided for tuition. Internal and external scholarships are also available, through applications to relevant funding bodies (University of Manitoba Graduate Fellowship and NSERC PGS).

Qualifications:
- The candidate MUST meet University of Manitoba admission criteria https://umanitoba.ca/graduate-studies/graduate-student-admissions
- A Master's Degree in meteorology or atmospheric science, or a closely related discipline
- Previous field work experience is an asset (but not required)
- Working knowledge of one or more programming/data visualization language(s) (Fortran, Python, Matlab or C++)
- Demonstrated technical and communication skills (including conference presentations and publications in peer-reviewed journals is an asset)
- Good oral and written English communication skills
- Ability to work in a self-directed manner and within a team environment

To apply send a CV, cover letter that describes your relevant background and experience, and contacts for two references to john.hanesiak@umanitoba.ca. Also, include your GPA (original, not scaled) and English Proficiency Test score in your email submission (subject line "ATTN: PhD Application-NHP").

Start date in May or September 2023. Review of applications will start January 1, 2023, until the positions are filled.

*Applicants will be contacted ONLY if an interview is required.

Applicants should have fluent written and oral communication skills in English. Applications from all qualified individuals are invited. University of Manitoba is committed to employment equity and diversity in the workplace and welcomes applications from women, members of racialized groups/visible minorities, Aboriginal persons, persons with disabilities, persons of any sexual orientation, and persons of any gender identity or gender expression.

Accommodations are available for applicants with disabilities throughout the recruitment process. If you require accommodations for interviews or other meetings, please contact Prof. John Hanesiak by email at john.hanesiak@umanitoba.ca.