

POSTING: PhD STUDENT – Arctic Change and Community Indicators

The purpose of this project is to use science and technology to advance human security infrastructure in response to a changing climate in Arctic communities. Specific objectives include efforts to i) develop diagnostics and indicators to address science questions relevant to communities, and ii) conduct future assessments of extreme events relevant to decision-makers. The candidate will collaborate with multiple stakeholders including communities, Regional, provincial and territorial government representatives, industry and additional appropriate partners to identify sustainable solutions that address community needs in response to a changing climate. A longer-term goal of this project will be to establish the foundation for social enterprise for community members based on training and educational opportunities, with initial emphasis on disaster risk reduction, preparedness, and resilience.

Scientific investigation and research will entail analysis of observations, reanalysis data, and model output to develop baselines, address science questions defined by community members, characterize extreme events for vulnerability assessments, and develop community- and policy-relevant diagnostics and indicators. Topics for consideration will encompass, but are not limited to, storm impacts on sea ice, extreme temperature, precipitation, and wind events, rapid ice loss and growth events, changes in Arctic water vapour and connections to sea ice loss and precipitation changes, as well as spring ice breakup timing and ice jam frequency. The candidate will be trained in the use of analytical tools, and field instruments relevant for monitoring. Community-defined climate and leading indicators will also be developed based on historical data and climate projections to establish a connection between community needs and community and government action.

Community engagement and science-policy interactions will be an integral component of this project to ensure that the scientific questions addressed and indicators developed facilitate communication and implementation of solutions that will benefit and be defined by communities. The candidate will further contribute to the development of a training framework to enable ongoing and continued scientific investigation and indicator development by community members required to implement solutions for emergency preparedness and infrastructure planning. This framework will serve as a foundation for a community social enterprise designed to promote resilience.



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The candidate will have a background and experience in environmental sciences, mathematics, physics, and/or programming, and an interest in community, government, and industry engagement and collaborations to collectively identify climate change solutions.

The student's degree will be housed within the Centre for Earth Observation Science (umanitoba.ca/ceos), Department of Environment & Geography at the University of Manitoba, Winnipeg, Canada and field work will be focused in targeted community locations around Hudson and Baffin bays. The successful student will also become a member of the Arctic Science Partnership (asp-net.org) and ArcticNet (<http://www.arcticnet.ulaval.ca>) providing national and international opportunities above and beyond a standard graduate degree. The successful candidate will have a MSc (or equivalent) degree in biological oceanography, marine optics, remote sensing, or related field. The studentship is fully funded over a 4-year period as part of the Canada 150 Chair and NSERC Discovery Grant programs. Start date is January 2021.

Initial applications should be sent directly to Drs. Lukovich (jennifer.lukovich@umanitoba.ca) and Stroeve (Julienne.Stroeve@umanitoba.ca) and include: two letters of academic reference; a copy of your University transcripts; a letter of intent (1-2 pages) briefly describing your previous research or experience and a short research proposal fitting the above thesis topic, touching on objectives/hypotheses, preferred methods, and scientific significance; and an English Language test score, such as TOEFL or IELTS, if you are an international student with English as a second language. For further information, please contact Dr. Lukovich.

Application deadline: Open until filled



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