

PhD position: Developing high-resolution permafrost dynamics maps for Northern Alaska regions

Start date: September 1, 2021 or January 1, 2022. With funding available for 4 years.

Deadline for submission: March 1, 2021.

Background

The Permafrost Laboratory at the Geophysical Institute, University of Alaska Fairbanks seeks a PhD student to work on the National Science Foundation-funded research project: *Resilience and adaptation to the effects of permafrost degradation induced coastal erosion*. The goal of this project is to understand the complex interrelationships and mutual impacts of continued climate change in the Arctic among the following components: permafrost degradation and coastal erosion, civil infrastructure and development, and community well-being and sociodemographic and cultural resilience. Results from this study will be used to formulate a holistic and predictive model that will aid future adaptation of social systems and the built environment to the unprecedented natural environmental changes in the Arctic. The successful applicant will primarily focus on (1) modeling and predicting the rate, magnitude, and mechanisms of permafrost degradation and associated land loss within communities on the north coast of Alaska; (2) help with the development of several infrastructure hazard maps for the northern Alaskan coastal region under the effects of permafrost degradation and coastal erosion.

Tasks

You will:

- Utilize and improve high-resolution permafrost dynamics models
- Develop and address your own set of scientific hypotheses and questions within the bounds of the project
- Participate in remote field trips, help with installation of monitoring stations, provide quality control of the collected data, and incorporate collected data into the models
- Present research results at national and international conferences, community meetings, publish in peer-reviewed journals

There will also be potential to participate in several other ongoing research projects and associated field work with the focus on understanding permafrost response to climate and disturbances.

Requirements

- Master's degree in geophysics, applied mathematics, physics, or related field. Some experience with geocryological processes is beneficial.
- good computational skills and knowledge of at least one high-level programming language (e.g. Matlab, Python); experience with Linux is an asset
- good working knowledge of the written and oral English language

Further Information

Please contact Dmitry Nicolsky (djnicolsky@alaska.edu) or Louise Farquharson (Imfarquharson@alaska.edu) at the University of Alaska Fairbanks Geophysical Institute Permafrost Laboratory.

The University of Alaska Fairbanks is characterized by

- excellent long-standing research history in geocryology and Arctic landscape dynamics
- collaboration and cooperation with various national and international research groups
- excellent future career opportunities
- a diverse group of students and faculty

We look forward to your application!

Please submit your application, including (1) a one-page statement of academic and research goals, (2) three letters of recommendations, (3) a CV with a list of publications, (4) official transcript. Non-official transcript will be sufficient before an offer is made. Selected candidates will be invited to present their research and then participate in an online interview.