

PhD position (2024-2028)

Coastal morphodynamics in the Canadian Arctic Archipelago



Project overview

Canadian Arctic coastal communities are facing coastal hazards during storms and are increasingly exposed to storm waves as protection from multi-year coastal sea ice is reduced. In addition to permafrost degradation, wave energy is expected to increase at the coast for a longer period of time during the open water season as a result of sea ice reduction, impacting the coastline and generating overwash and flooding in low-lying areas. In recent decades, community members noticed major morphological changes along the Nunavut coast, threatening traditional activities and economic development.

Conducted in close partnership with the Ikaluktutiak Hunters and Trappers Association and POLAR Knowledge Canada, this project aims at providing new insights in Arctic coastal morphodynamics. Focusing on a barred sandy beach in a fetch-limited environment, the candidate will explore the links between storms, permafrost and nearshore morphology using various technologies. The main goal is to analyse short- to long-term coastal evolution and analyze the main controlling forcing on coastal changes. This PhD project is funded by POLAR and Crown-Indigenous Relations and Northern Affairs Canada and will take place at UQAR (Rimouski) in close partnership with INRS. Fieldwork will be conducted in Cambridge Bay where the research group will have access to the Canadian High Arctic Research Station (CHARS).

Requirements

We are seeking a PhD student motivated both by participative research and fieldwork in remote areas. This project will integrate knowledge of coastal morphodynamics, numerical modeling, geomatics and remote sensing. Multibeam and drone surveys will be implemented by the research team. This PhD is strongly based on fieldwork and coastal video analysis using typical image processing techniques.

It is expected that the student will work 25 hours per week. \$26.72 to \$34.59 per hour (Varies as per the level of education and experience). The student may have the opportunity to do short-term contracts. The student will be encouraged to apply for other research grants and scholarships at the federal and national levels.

Supervisors

David Didier, UQAR
Jacob Stolle, INRS
Stéphanie Coulombe, POLAR

Please send your CV, transcripts, and a cover letter to David_Didier@uqar.ca.