EDSML-2021 thesis project
"Geomorphological and social consequences of global warming on coastal communities in northern Quebec, Canada"

The proposed thesis topic will shed light on a recent field of research in northern Quebec, as it studies the consequences of gravity processes on the slopes located near the coastal communities of Nunavik.

The research theme, in development since 2015, is interested in combining naturalist and social approaches to quantify the role of global change at work at high latitudes, in order to estimate on the one hand the evolution of landscapes in their geomorphological dimension (erosion, transport and accumulation factors, i.e, construction and destruction of landforms at different spatial and temporal scales) and on the other hand the link with the diachronic development of coastal villages (spatial processes related to sedentarisation: distance to traditional seasonal camps, criteria for site selection, forced or spontaneous village expansion, etc). The analysis of global warming is also at the heart of the research subject, through the objective variables of temperature, precipitation and wind, but also through the more subjective aspects of phenology and the "sayings" of changes (duration of the presence of the ice pack or of the freezing/unfreezing of rivers and lakes, the date of the appearance and disappearance of snow, etc.)

Thus, the reflections of this research are organised around a triptych with (i) geomorphological aspects characterising the hazard, (ii) human aspects characterising the situation(s) of vulnerability, and (iii) climatic and meteorological aspects, and its perceptions by the communities.

The communities of Umiujaq and Kangiqsualujjuaq are favoured for several reasons:

- They offer opportunities to host researchers through partnership agreements

- Both sites benefit from meteorological data covering the last 30 years

- The diverse environments in the vicinity provide a variety of environmental indicators at different time scales along the land-sea continuum

- Their locations at different latitudes are conducive to comparisons.

This research is conducted within the framework of OHMi NUNAVIK, in partnership with colleagues from the Centre d'études nordiques and Université Laval, Québec. The student will then benefit from a solid theoretical framework and will be able to rely on a favourable material research environment, guaranteeing research with an international dimension.

The programme of work is free from the current pandemic situation, which will not affect the thesis work. Two field campaigns in the summers of 2022 and 2023 are planned, access to the field being guaranteed thanks to the vaccination campaigns; the first semester of the thesis work will focus on the state of the art.

The proposed thesis will be conducted over three years and is in line with the cross-cutting themes of the LETG laboratory's "Coastal" and "Continental Environments" axes, entitled "risks and adaptation", "dynamics and management of landscapes and biodiversity" and "long time and paleoenvironmental legacies".