# Submitted Abstract

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## Abstract

Many environmental processes are amplified and intensified by the elevation-ranges, gradients and complex topography of mountain landscapes. As the troposphere warms and moistens, mountain-influenced terrain is exposed to a range of increasingly extreme meteorological events, driving flooding, drought, wildfire, mass-movement of regolith, and severe disruption of ecosystems. This increases the risks imposed by natural hazards on human settlements in such settings, threatening well-being, food-security, property and life (as demonstrated in British Columbia, Canada, in the latter half of 2021).

Mountain communities must therefore build resilience to the range of extreme events which may affect them. This process spans the identification of potential risks, and the development of approaches to achieve avoidance, mitigation, and/or adaptation and remediation. This in turn relies on the availability of relevant data, information and interpretive capability at appropriate spatial and temporal scales, providing the foundation for timely and appropriate responses to potentially hazardous situations as they develop.

Our presentation describes a project initiated by the Arctic Institute of North America (University of Calgary), funded by the Canadian Mountain Network, to facilitate capacity-building of this nature. Initially, the Kluane Lake Research Station (Yukon) will be developed as a hub for the provision of scientific expertise, sustaining environmental observation / monitoring activities, and associated data-management and dissemination capabilities. We seek to improve understanding of the key concerns of communities within the surrounding region, as they relate to the potential for increasing risks from natural hazards driven by rapid environmental change in mountainous terrain. One immediate example has been provided recently by the diversion due to glacial retreat of the main inflow to Łù'àn Män (Kluane Lake), resulting in major impacts on water-levels and fisheries. Where scientifically-based techniques are suggested for addressing issues of this nature, our goal is to develop and present these as complementary approaches, to be implemented in parallel with existing contributions of Traditional Indigenous Knowledge.

As activities progress, we will develop channels through which to share related information, including online resources, publications, workshops, training-courses and other knowledge-transfer events. We will also encourage bi-directional communication between communities, Indigenous Organizations, government agencies and researchers. This will promote capacity in understanding, predicting and responding to environmental conditions; encourage the sharing and evolution of insights developed through different Indigenous traditions; identify any challenges which rapid environmental change may be presenting to traditional approaches, and help to develop options for addressing these appropriately.