

Proposal Summary: Arctic T-SLIP

Itsunamigenic Slope Instabilities Partnership:
*Understanding and Preparing for Landslide-generated
Tsunamis in Permafrost and Glacier Regions*

Why is this work needed?

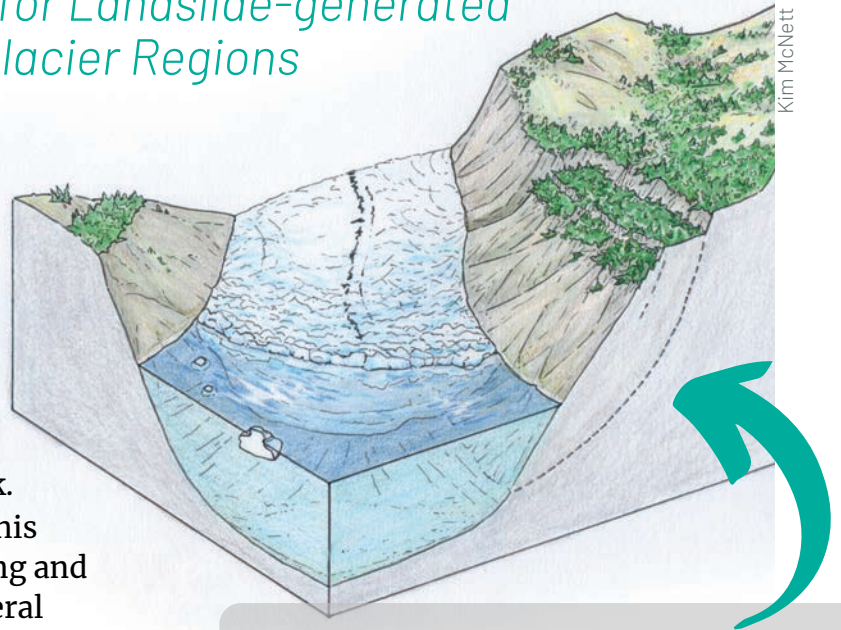
Rapidly melting glaciers and thawing permafrost are increasing hazards in Alaska's coastal mountain landscapes, via landslide-generated tsunamis (LGT) in fjords and lakes. These tsunamis have the potential to damage life and property. People living, working, and traveling close to these hazards are exposed to a higher risk. Many Arctic countries are currently facing this hazard, but are at different stages in planning and responding. For example, Norway has a federal warning system, while Alaska has yet to do a state-wide landslide inventory. This leaves residents and visitors with little information and few tools to prepare. **The goal of Arctic T-SLIP is to improve our understanding of the climate-landslide-tsunami-human system to improve safety and well-being.**

What does this project entail?

If funded, this 2-year proposal to the National Science Foundation (NSF) will support listening, relationship building, and planning efforts to address three goals: 1) grow and strengthen the T-SLIP network, 2) generate a shared understanding of LGT hazards and mitigation, and 3) jointly frame research needs and questions. To grow and strengthen the network, we will have a project website, directory, email newsletters, and fact sheets. To develop a shared understanding, we will host listening and info sessions with ~10 Alaska communities, regular webinars with presentations and discussion for the public, and an in-person workshop in Valdez with community leaders, researchers, planners, and others to draft a shared research agenda. The work completed in this planning grant will inform and advance a research agenda for LGTs that centers on the concerns of the people who live, travel, and visit the impacted regions.

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Kim McNett

What causes landslide-generated tsunamis?

When glaciers melt and permafrost thaws the underlying ground becomes unstable and can slide. When landslides release into a body of water, a tsunami might be generated. These large and powerful waves can cause flooding, coastal damage, and threaten human life and infrastructure.



Arctic T-SLIP Process Model:

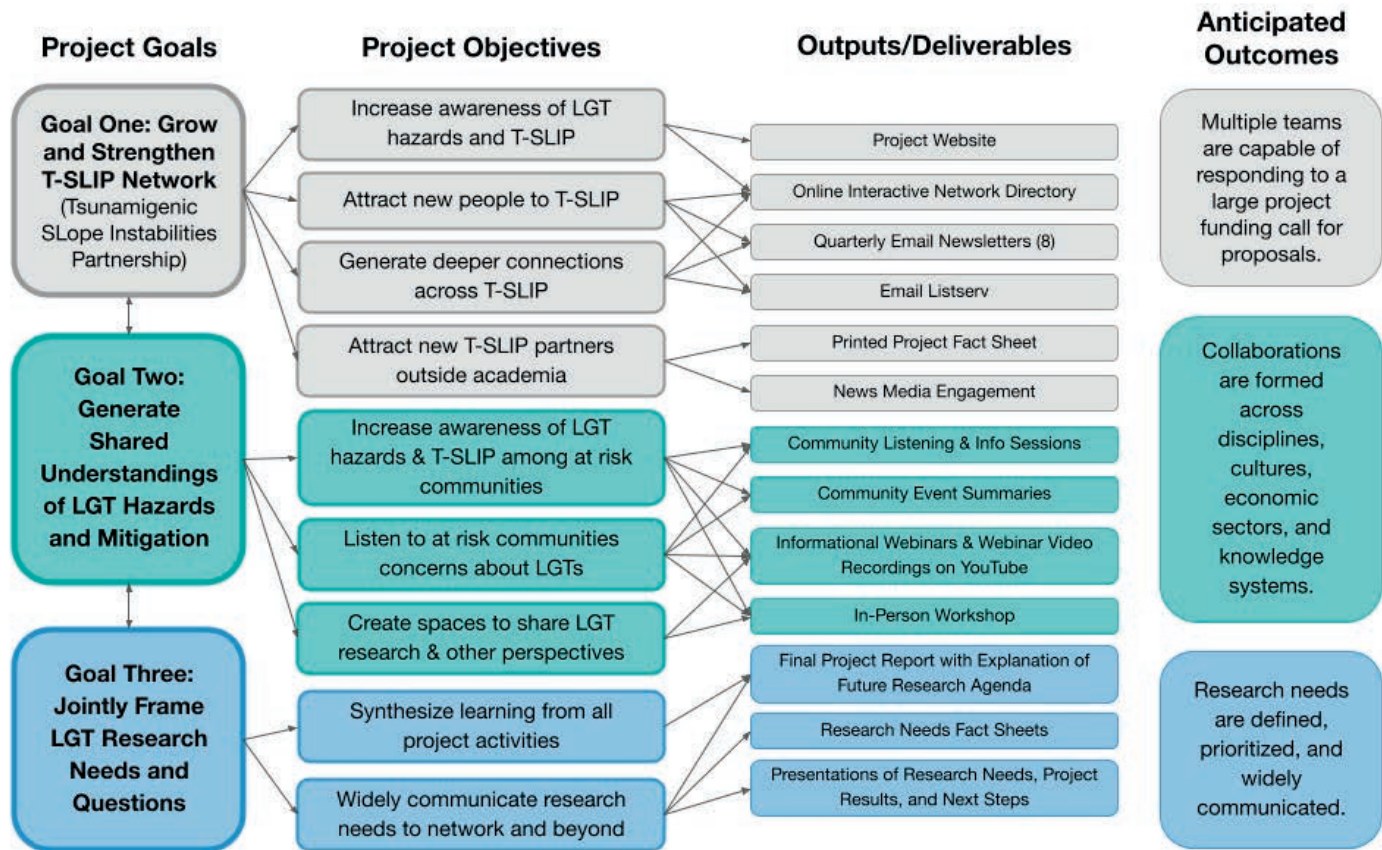


Figure 1. This model shows how the 2-year Arctic T-SLIP planning process is expected to unfold. The planning process is motivated by three goals (left), which will be addressed through various objectives and deliverables (center) that will result in several meaningful outcomes (right). After this planning process, diverse teams will be better equipped to write research proposals to NSF or other agencies.

What are the long term goals?

The Arctic T-SLIP Network currently consists of about 100 people (researchers; local, state, federal agencies; tribal organizations; business owners; etc.) across Alaska, Canada, Norway, and Greenland. We expect this community to grow and its connections to strengthen. The research questions that will emerge will form the foundation for future research proposals, both with respect to topics and team composition. By forming collaborations across disciplines, cultures, economic sectors, and knowledge systems, the T-SLIP planning process will facilitate science that would otherwise not be possible. The planning process will be grounded in a co-design framework and lead to a set of multi-faceted science proposals about the climate-landslide-tsunami-human system. We are committed to co-production and will actively involve stakeholders and rightsholders in the design, implementation, and evaluation of the effort.

What is the region of interest?

Arctic T-SLIP's region of interest includes coastal Alaska regions affected by permafrost and/or glacier change and where people live, work, and/or recreate. However, this hazard is not unique to Alaska, and we aim to learn from each other across the Arctic. Effectively addressing TGLs in Alaska requires a team with diverse backgrounds, knowledge, and experience to collectively build preparedness and emergency response capabilities for this newly recognized hazard.

Website: <https://www.woodwellclimate.org/project/arctic-t-slip>