

## Coastal Arctic Communities in the Context of Climate Change:

### Interaction between Coastal and Riverine Processes and the Built Environment

#### *Workshop I*

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*Motivation.* Civil engineering and community infrastructure are key for community health, functionality, and long-term sustainability in coastal Alaska. Uncertain impacts of climate-driven environmental changes are expected to affect infrastructure and the “built environment.” Planning and climate adaptation for Arctic communities thus requires an in-depth understanding not only of the impacts of these processes on local infrastructure, but also the impacts of infrastructure and engineering solutions on the surrounding environment and natural processes. However, current gaps in datasets and lack of thorough understanding of processes in a given region restrict the advancement of knowledge in this matter. Therefore, there is a strong need for novel monitoring strategies and tools that allow data collection, as well as monitoring of natural processes and infrastructure, in partnership local stakeholders and communities to increase the length and spatial coverage of available data.

*Goals.* To help tackle the above described gaps in knowledge, this project aims to:

- 1) **Develop research hypotheses and questions that will guide research which will lead to a significant advancement of the relationship between natural coastal and riverine processes and the Arctic built environment, in the context of climate change.**
- 2) Identify data collection and monitoring strategies that enable continuous/frequent monitoring over longer periods and at more locations, to yield meaningful datasets about natural processes leading to long-term community adaptation.
- 3) Identify the specific expertise and needs required to investigate the hypotheses and research questions related to environmental impacts to the coastal built environment, and assemble a diverse and interdisciplinary research team to pursue new research efforts.
- 4) **Engage Arctic coastal communities and stakeholders in goals 1-3, and set the pathway for community and stakeholder engagement in future data collections and projects.**

Workshop I will focus specifically on goals 1 and 4.

***Invitation:* We invite you to participate in the workshop and contribute to this project through your experience, knowledge, and opinion on the relationship of natural coastal and riverine processes and the Arctic built environment in the context of climate change.**

*Workshop structure:*

1. Pre-workshop survey to be completed through a written online form or through voicemail. The pre-workshop survey will enable all participants to state their perspective on key topics of the workshop.



2. Virtual workshop sessions 1-4 through Zoom (online or phone call-in options).
  - Virtual workshop session 1: Introductions, reporting and discussion of pre-workshop survey.
  - Virtual workshop session 2a: Changes in natural Arctic coastal and riverine processes in response to climate change.
  - Virtual workshop session 2b: Current and future vulnerability of infrastructure and the built environment in Arctic communities.
  - Virtual workshop session 3a: Relationships between natural coastal and riverine processes and the Arctic built environment.
  - Virtual workshop session 3b: Current knowledge gaps and associated research needs.
  - Virtual workshop session 4: Summary
3. Post-workshop synthesis through review and feedback round of workshop report.

*Important dates:*

Registration deadline **April 5<sup>th</sup>, 2021** (no registration fee!): [Registration form](#)

Workshop schedule (all in Alaskan Daylight Time):

April 20 <sup>th</sup>	09:00 a.m.-10:30 a.m.:	Virtual workshop session 1
	10:45 a.m. -12:15 p.m.:	Virtual workshop session 2 (breakout sessions)
	12:30 p.m. -01:00 p.m.:	Virtual workshop session 2 (reporting)
April 21 <sup>st</sup>	09:00 a.m. –09:10 a.m.:	Summary of Day 1
	09:15 a.m. -10:45 a.m.:	Virtual workshop session 3 (breakout sessions)
	11:00 a.m. -11:30 a.m.:	Virtual workshop session 3 (reporting)
	11:30 a.m. -12:00 p.m:	Summary (virtual workshop session 4)

*Workshop Organizers:*

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This is a collaborative research study by Virginia Tech under IRB-20-541, the University of North Carolina at Chapel Hill under IRB-21-0148, and Brigham Young University under IRB-2021-031. Eligible participants for this study are: Academics, members of federal or the state of Alaska's agencies, commercial, and private stakeholders with interests in Arctic coastal community infrastructure are eligible. Participants have to be 18 years and older. The time commitment for this study is approximately 9 hours distributed over two workshop days and a survey. Audio and video recordings will be occurring.