SAON ROADS Phase I Expert Panel Proposal - Permafrost

Intended audience:
ROADS Advisory Panel, Proposed Expert Panel

Pre-Reads:
SAON ROADS Process Expert Panel Guidelines:
https://docs.google.com/document/d/1ePr4MNVBzefmzjKXVfjj3XhbPUIWgkj4/edit

Instructions:
Please complete the following template in collaboration with the team identified to initiate a ROADS Expert Panel (EP). Submit the completed template to info@roadsadvisorypanel.org. The Advisory Panel will review your submission and respond in writing within 6 weeks.

1. Abstract of the proposed thematic focus of your Expert Panel [300 words].

The majority of Arctic communities are based on permafrost, and developing ways of sharing information needs, observations and management practices related to permafrost will contribute to making the decision-making in Arctic communities more informed. Sharing information on the ongoing changes in permafrost areas has a number of societal benefits, including helping to sustain infrastructure and ecosystems, informing adaptation measures, respecting cultural diversity, managing natural resources, understanding potential health and safety hazards, and better understanding climate change as well as global environmental processes. Ways of sharing information vary significantly between different communities and different scientific disciplines, and sometimes also within disciplines. This thematic expert panel is proposed to be set up to help address this problem by bringing together experts and stakeholders from the various communities to share their knowledge and together identify the most impactful ways and formats of observing and managing Arctic permafrost for the maximum shared benefit and to obtain a more holistic, transdisciplinary understanding of the state of permafrost. The initial composition of the expert panel includes experts from indigenous and local communities as well as scientists from social, medical, engineering and natural sciences. This interdisciplinary and -community collaboration, and transdisciplinary approach will provide the essential foci for permafrost information, observations and management practices to support informed decision-making at local, regional and global levels.

2. Scope, purpose and societal relevance of the proposed Expert Panel, including [1000 words]:

1) Scope: *The scope should include an overview of the topical/focal area, the geographic scope and a description of how the effort addresses the ROADS' Guiding Principles, especially how it compliments and integrates (or plans to) existing efforts.*
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The majority of Arctic settlements are located on permafrost. Compiling and sharing all relevant information of the ongoing and projected changes in permafrost conditions and stability of the frozen ground will provide the basis for understanding how these changes will affect Arctic communities and the Arctic in the future. This proposed panel will bring together experts in indigenous knowledge, local and traditional knowledge and scientists from

relevant disciplines (medical, natural, engineering and social), and thus provide a forum for gathering insights in an inclusive and equitable manner.
The geographical scope is to connect expertise in a pan-Arctic fashion. The planned panel composition mainly covers the western Arctic, but the aim is to also integrate knowledge from communities in the Russian part of the Arctic, if collaboration with these communities becomes feasible in the near future. The panel will build on the existing efforts, bringing together expertise, lessons learnt and the ongoing efforts from three European Union's Horizon 2020 projects "Nunataryuk" (https://www.nunataryuk.org/), "Arctic PASSION" (https://arcticpassion.eu/) and "GreenFeedBack" (https://eu-greenfeedback.com/), the "Catchment2Coast" Fram Centre project (https://www.niva.no/en/projects/c2c), and the indigenous expertise from the Hamlet of Tuktoyaktuk in Northwest Territories in Canada, as well as local knowledge from Longyearbyen in Svalbard. Collaboration with the new Illuq EU project (2024-2027) will also be essential, and this project has research sites in the western Arctic in Canada, in west Greenland and Longyearbyen in Svalbard, focussing on a participatory approach to addressing thawing permafrost.

2) Purpose: *The purpose of this work should be focused on the overall goals of the ROADS process - improving systemic shortcomings in Arctic observing and data systems while adhering to the Guiding Principles. Please briefly characterize significant shortcomings of the current Arctic observing and data systems under this theme and how this work is organized to address each Guiding Principle.*
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The systematic shortcomings within Arctic observing and data systems are notably compounded by communication challenges and the inclusion of qualitative data. These include the sharing of both observations and diverse information needs of various communities, but also sharing of local observations feeding into data pools. There are notable disconnections in information sharing on different levels; for example within communities, between communities within regions, between different geographical regions, between different fields of science, and between science and communities. Finding ways to "make all the voices heard" and bringing the compiled information back to everyone is a complex, yet worthwhile pursuit. The expert panel aims to address these issues in an equitable manner, prioritizing the collective benefit of all stakeholders and the enhancement of related observing and data systems. An initial focal point of this work is identifying ways to collaborate on openly sharing information equitably, without being exploitative or compromising information ownership. Combining different information systems and finding formats for sharing information is expected to be a challenging task, but one that will bring value to all parties involved through the shared benefit of better understanding of the state of the Arctic permafrost. The expert panel is expected also to undertake designing systems and strategies that will be conducive to stakeholder adaptation to dynamic conditions and formulate planning tools for capacity building of Arctic communities.

3) Societal relevance: *Please briefly describe the societal relevance of the proposed EP and the plan to evaluate the societal benefit. The societal relevance should be well established by describing how the EP will use the International Arctic Observing Assessment Framework (IAOAF), or applicable societal benefit frameworks that will be used or developed, to evaluate societal relevance. Please describe any potential products, services or outcomes of this work and their users or beneficiaries. This is a*

useful place to cite literature or any preparatory workshops that have taken place to support this work.

Studying permafrost in the Arctic is of significant societal relevance due to various different aspects, including environmental, economic and cultural dimensions. Permafrost contains substantial amounts of carbon that has been preserved in the frozen ground for millennia, and thawing permafrost contributes to climate change through the release of greenhouse gases carbon dioxide and methane. Permafrost degradation, consisting in thickening of the active layer (top layer of soils that undergoes seasonal freezing and thawing), increase of permafrost temperatures and development of residual unfrozen zones (that remain being unfrozen after once degraded) may impact the stability of the built environment that relies on certain ground conditions that are included in the design. Such infrastructure may include roads, buildings and other structures (pipelines, etc.). Presence of permafrost defines the functions of ecosystems, and thawing permafrost may affect overlying ecosystems. Presence of permafrost impacts the accessibility and extraction of natural resources, and better knowledge on permafrost will be helpful for management of infrastructure for extraction and transportation of natural resources. Indigenous and local communities in the Arctic often have deep connections to the land, and changes in permafrost conditions can impact these communities by affecting for example hunting, being in nature, transportation, and safety and wellbeing. Moreover, these changes may have impacts on nature relationships. Thawing permafrost may also affect or result in landslides. Finally, better understanding the state and changes in permafrost conditions will benefit the Earth System models, for which the frozen ground is an essential component that will benefit from better description of the boundary conditions.

The societal relevance assessment for permafrost is expected to be carried out following the guidelines in IAOAF, and bringing in other relevant SBA frameworks as identified by the expert panel.

What about mentioning the two Arctic Circle workshops in 2022 and 2023 as prepatory ? And the session at AC that SIOS organised with Woodwell Centre ?

3. Contributors to Expert Panel

1) Leadership [co-chairs, facilitators, Indigenous co-chair, etc.]

Name	Role	Affiliation	Contribution to EP theme	Support
Deva-Lynn Pokiak	Indigenous co-chair	Hamlet of Tuktoyaktuk	Indigenous knowledge	Arctic-PASSION project
Ilkka Matero	Facilitator	SIOS	Facilitating meetings and documentation. Data management	Arctic-PASSION project

2) List additional experts. The recommended panel size is 10-12 people, please justify if the total number is greater or less. Please describe each expert's contribution to the EP and any relevant roles they fill (e.g. boundary spanner, regional expert, ties to a global network, operational services, data manager, etc.)

Name	Affiliation	Contribution to EP theme	Support
Alexandra Meyer	University of Vienna	Social sciences	
Anatoly O. Sinitsyn	SINTEF Norway	Geotechnics and civil engineering	
Ann Eileen Lennert	The Arctic Sustainability Lab/UiT	Social Sciences	
Arja Rautio/Ulla Timlin	University of Oulu	Health sciences	
Dustin Whalen	Natural Resources Canada	Natural Sciences, support IK expertise participation	
Hanne Hvidtfeldt Christiansen	University Centre in Svalbard, UNIS	Natural sciences/Illuq/UArctic Chair Permafrost	
Kjersti Olsen Ingerø	Longyearbyen Lokalstyre	Local Knowledge / engineering	
N. N. (expected)	Arctic PASSION permafrost pilot service	Permafrost pilot service (PS2) https://arcticpassion.eu/wp/wp4/	

3) Identify planned mechanisms through which broader input can be included in the work of the EP, such as through workshops or community meetings [100 words].

Broader input in the work of the EP will be initially facilitated through communication with the expert panel members, some of which already have some community meetings planned in their research projects such as in Illuq, and the communication pathways will be further developed as part of the EP work.

4) Describe any relationship/relevance to other Expert Panels [100 words].

Putting together this expert panel is facilitated as part of the Arctic PASSION EU Horizon 2020 -project, and co-developed in parallel with two other Expert Panel initiatives in the project (on themes Wildfires and Sea Ice).

4. Expected timeline for progress through the Integrated Advisory Process [*to the extent possible at the time of initiating work*, 300 words]

A preparatory workshop for this Expert Panel Work was organized as a side meeting of the Arctic Circle Assembly 2022 in Reykjavik, and the initial EP composition and theme were developed further as part of the discussions in the meeting.

Phase 2 of the Integrated Advisory Process has already been initiated at the Arctic Circle Assembly 2023 in Reykjavik, with the majority of the expert panel members present in the workshop. Phase 2 for this work is expected to be finished through online workshops in Spring 2024. Phase 3 is expected to be finished in Autumn 2024, and Phase 4 in Spring 2025.

5. Expected funding/resources for the development of the relevant Shared Arctic Variables under the focal/topical area [*to the extent possible at the time of initiating work*, 300 words]

1) *Briefly identify funding needs. Who on the EP needs funding support for their work/contributions, and are those funding needs met? Is there funding available for in-person meetings and/or a community workshop?*

The need for support funding has been identified in terms of honorarium for the Indigenous co-chair of the expert panel, and as travel support on request for all participants for in-person workshops.

2) If there is not yet funding in place to support EP activities, what is the plan to secure funding? [300 words, *to the extent possible at the time of initiating work*]

6. Communication and engagement plan [300 words]

1) *Please describe a communication plan between leadership and experts. Planned meeting and workshops, including facilitation and location.*

Communication is planned to be done mainly online through email. Online workshop tentatively planned for March or April 2024 to finish the Societal Benefit Analysis and Phase 2 of the process.

2) Describe the engagement plan and cite any frameworks that will be used (e.g. ICC EEE, Ellam Yua Co-Production of Knowledge, etc.)

Engagement for this project will take place by members of the expert panel for each community. Leadership boards (ie. Hunters and Trappers Committee and Hamlet Council) will be consulted via zoom calls and written correspondence. The advice and comments of the leadership boards will be considered into the final deliverables. The Indigenous co-chair will facilitate these discussions.