

ARCTIC COUNCIL SAO MEETING
17-19 NOVEMBER 2020, REYKJAVIK ICELAND
MEETING CODE: SAOIS202_2020_RVK_VIRTUAL1

DOCUMENT TITLE

Progress report from the SAON Roadmap for Arctic Observing and Data Systems(ROADS)

AGENDA ITEM NUMBER

13

SUBMITTED BY

SAON

DOCUMENT FILENAME

SAOIS202_2020_RVK-Virtual1_13_SAON-Defining-a-roadmap-to-the-implementation-of -sustained-observing-
in-the-Arctic

NUMBER OF PAGES, NOT INCLUDING THIS COVER SHEET

2

Sustaining Arctic Observing Networks (SAON): Defining a roadmap to the implementation of sustained observing in the Arctic

In recent decades, scientific, Indigenous and local observations of the Arctic System have revealed a pace, magnitude, and extent of change that is unprecedented by many measures. Presently, a diverse range of independently sponsored activities collect and disseminate Arctic observations. Remarkably there is no comprehensive mechanism for linking and coordinating them. The collective challenges associated with deploying, sustaining and integrating pan-Arctic observations in response to rapid environmental and social change motivated the initiation of *Sustaining Arctic Observing Networks (SAON)*.

SAON is a joint initiative of the Arctic Council and the International Arctic Science Committee (IASC) that was created to strengthen multinational engagement in and coordination of pan-Arctic observing (*2011 AC Nuuk Declaration*). In recognition of the complex dimensions of Arctic observing activities, and the equally complex organizational patchwork of observing activities and infrastructures, SAON's intent as an open initiative is to unite Arctic and non-Arctic countries, Indigenous Peoples, academia, industry and other key partners in support of a systematic network through structured facilitation. SAON's vision is to bring these parties into a connected, collaborative, and comprehensive long-term pan-Arctic observing and data system that serves societal needs. To achieve this vision, SAON facilitates and advocates for coordinated international pan-Arctic observations and aspires to mobilize the support needed to sustain them.

In its recent strategic plan, SAON identified the need for a *Roadmap for Arctic Observing and Data Systems (ROADS)* to set a course towards systematically defining the needed observing and data systems and to specify how the various partners and players are going to collectively work towards achieving that system. A central objective of such a roadmap is to bring coherence to the many needs of such a system and formulate strategic approaches to addressing them.

The ROADS process is first and foremost oriented towards generating societal benefit within the Arctic region, and one starting point is *The International Arctic Observing Assessment Framework*.

SAON has reviewed network-building organizational approaches employed by a variety of global and regional observing networks. The *essential variable* strategy emerged as a good practice for supporting network development and is compatible with societal benefit assessment frameworks. Essential variables are conceptually broad observable phenomena (e.g. "sea ice") that critically contribute to characterizing an aspect of the system of interest.

The essential variable approach should support a systems-level view of observing and data infrastructure needs, as a comprehensive set of interconnected variables/processes evolves, yet can proceed step-wise as the most impactful ones are identified. *ROADS* should focus on a select list of highly impactful variables/processes that would be broadly beneficial and are not currently well-specified by the global networks, rather than generating a long list of very specific variables.

Shared benefit of the observing system is a guiding principle of *ROADS*, so the term Shared Arctic Variables for the essential variables/processes has been developed under *ROADS*. Specifically, observations and data systems that warrant the level of effort associated with the *ROADS* process should serve multiple sectors and data user groups and ideally address priorities at the intersection of Arctic community-identified needs, regionally identified cross-sectoral needs and those of the global observing programs (Figure).



Figure. Shared Arctic Variables (SAV), which characterize a fundamental aspect of the Arctic System, are identified at the intersection of benefit realization from at least two communities of use. An ideal SAV would realize benefits in Indigenous communities (light red), across a range of regional decision-making needs (blue), inform science questions and integrate with global needs (green).

References:

- SAON's Strategic Plan (SAON, 2018) outlined Mission, Vision, Goals and Guiding principles for SAON: <https://www.arcticobserving.org/strategy>
- The International Arctic Observations Assessment Framework: <https://www.arcticobserving.org/news/268-international-arctic-observations-assessment-framework-released>