## [Goal](file:///C%3A%5C%5CSAON%20Strategy%20Framework%5C%5CUpdating%2008NOV%20version%5C%5C02_30NOV_WA_11_SAON_Strategic_Framework_08NOV_PLP_WGA.docx%22%20%5Cl%20%22_djrrklsokyrs) 2: Free and ethically open access to Arctic observational data

One of SAON’s guiding principles is to promote ethically free and open access[[1]](#footnote-2) to ethically-collected data. The approximately sixty international participants at the 2016 Polar Connections Interoperability Workshop and Assessment Process agreed that the key current challenges impeding the development of a globally connected, interoperable system are social and organizational rather than technical: supporting human networks, promoting standards, and aligning policy with implementation.

A review of relevant Arctic data management efforts and results have guided the SAON vision for an open, interconnected, international system for sharing data across disciplines, domains, and cultures. Requirements and characteristics of such a system include but are not limited to:

* A distributed design that connects different data repositories and other resources. This implies and requires interoperability that supports sharing data among various information systems in a useful and meaningful manner;
* Many linked catalogues fostering ‘single window’ search;
* High quality, ethically open data sustainably preserved over time;
* Data as a responsive, “live” service rather than simple download approach;
* Inclusive of Indigenous and local perspectives and information;
* Access to “big data” and powerful analytical tools (e.g. cloud platforms); and
* Cost effective, maximizing the investments made to develop and maintain the system.

In recognizing the elements of the envisioned system and the key challenges identified by the community, SAON will first focus on improving connections, and cooperation between actors. This will be achieved by working with the global Arctic data community, including data providers, data scientists, funders, users and beneficiaries within society. This effort will provide the necessary collaborative foundation needed to achieve the desired system.

Goal 2 has three objectives:

### Create a road map outlining the steps towards achieving a system that will facilitate access to Arctic observational data.

### Advance a system to facilitate access to Arctic observational data.

### Establish a persistent consortium of organizations to oversee the development of a sustainable, world-wide system for access to all Arctic data.

### Objective 2.1: Create a road map outlining the steps towards achieving a system that will facilitate access to Arctic observational data.

Description: Facilitating the emergence of a world-wide system requires an understanding of the existing and emerging technical and human “nodes” in the system. This enhanced understanding will underpin the activities necessary to enhance cooperation and the establishment of the global network.

Urgency: High

Activitities: 2017 - 2019

* Historical: In late 2014, the IASC-SAON Arctic Data Committee (ADC) established the ”Mapping the Arctic Data Ecosystem” initiative. In late 2016, the ADC collaborated with the Belmont Forum funded Pan-Arctic Options Project to establish additional resources for this effort. In the middle of 2017, a postdoctoral fellow was hired to dedicate time to this effort. The Pan-Arctic Options component will contribute to the ADC effort. Initial focus of this effort will be on analysing the corpus of the Arctic Council working groups and the connected data resources and infrastructures.
* Additional activities through ADC, project outputs, national efforts will complement the Pan-Arctic Options results..
* Ongoing: In addition to Arctic Data Ecosystem efforts, there are a number of projects and programs producing or discussing the production of relevant materials. Most notable are the Horizon 2020 funded EU-PolarNet and INTAROS projects. Additionally, IARPC in the U.S. and the Canadian Consortium on Arctic Data Interoperability are proposing to do work focused on their national systems.
* Last quarter of 2017, propose initial technical model for collecting and disseminating data about systems at different scales so that they can be used together.
* Quarter 1 and Quarter 2 of 2018. Perform initial publication and analysis of system data combining various sources (e.g. Arctic Data E-CoSystem, EU-PolarNet, and other interested partners). Present results at POLAR 2018 conference.
* Quarter 3 of 2018. Iterate through analysis process; work with global community to establish model to sustain the (eco)system mapping efforts over time.
* Quarter 4 of 2018. If possible, present results at Second ASM as part of broader SAON and partner submission.
* 2019. Continue to populate and grow system capabilities. Provide analytical results to global efforts to enhance collaboration, cooperation etc.

Board: *(To be completed)*

Committees:

* ADC: Convening role
* CON: Contributing role as connection to the observing systems

Networks: Leadership, as central partners

National SAON organisations: Leadership, as central partners (Note: This could be challenging in short term, but may improve with effectiveness of initiative)

Involvement of Permanent Participants/Indigenous organisations; Indigenous/Local knowledge: Leadership, as central partners (Note: Follows also from Permanent Participants’ representation on ADC).

Relationship with international/other organisations: Currently there are many initiatives that are funded or conceptualized which are or should be engaging at a global level. To achieve the initial goals, the following initiatives should engage at minimum global efforts: Global Cryosphere Watch/YOPP, GOOS, ICES, RDA; Regional initiatives such as: Arctic Portal, University of the Arctic, SCADM, SOOS , EU-PolarNet, INTAROS as part of the new EU Arctic Cluster, CAFFs Arctic Biodiversity Data Service (ABDS), ESA Arctic, SIOS Data Management System; GEO Cold Regions Initiative, Polar View, Arctic Spatial Data Infrastructure; National institutions such as IARPC, Canadian Consortium for Arctic Data Interoperability; Asian partners (e.g Polar Research Institute of China, National Institute for Polar Research in Japan, KOPRI Korea, Russian partners etc.), SIOS; Private industry (Google, World Ocean Council (WOC), Association of Arctic Oil Producer, Publishers?); Academia including University of the Arctic

Outreach: SAON, IASC, Arctic Council, Arctic Portal, ARCUS, European Polar Board, EU Arctic Cluster, Arctic Observing Summit.

Resources and funding: i) Leverage existing funding (e.g. Arctic Data E-CoSystem, ADC member contributions etc.)

### Objective 2.2: Advance a system to facilitate access to Arctic observational data

Description: Advancing a system to facilitate access to Arctic observational data will require global cooperation. There are many projects and programs across a range of scales that are active in polar data management and stewardship. Many of those initiatives now have resources available and are making progress towards an envisioned connected, interoperable polar data system. The international polar data community is eager to improve cooperation and coordination of their efforts. SAON can play a central role in bringing together the actors who will build the system.

Urgency: High

Activites: 2017-2019

* In the spring of 2018, representatives from a wide range of different active programs and projects will meet to focus on coordination of efforts to facilitate data access. This meeting will complement past workshops and fora (e.g. IPY, Polar Data Forums etc.) that have been effective in defining important community challenges and technical issues. The focus of the planned meeting will be to generate detailed plans on how best to mobilize activities to develop a particular international data sharing case study.   A decision on the nature of the case study will be made during the fall of 2017.
* Historical: July 2017:proposal submitted to NSF by ADC Chair Peter Pulsifer, Dr. Colleen Strawhacker, and Prof. Maribeth Murray. Grant awarded. Project start date 1 October 2017.
* September 16-18, 2017: ADC-SCADM meeting: Set foundation of concept and consulted with members of the community on value of the workshop and planning details.
* Q4 2017.
	+ Confirm preliminary co-organizers of the spring 2018 workshop. For example, Global Cryosphere Watch, EU Arctic Cluster, Polar View GEOCRI, Arctic Spatial Data Infrastructure have all confirmed intention to co-organize.
	+ Establish clear model for continued engagement of Permanent Participants.
	+ Confirm process to: i) confirm the focus of the “case study” and the initial contributing partners;this will consider societal relevance, appropriateness of scope, existing capacity etc. ; ii) establish a model that will allow for sufficient representation at the workshop while maintaining a group size that is small enough to remain productive ; iii) confirm the schedule, location and other logistical details of the workshop.
	+ Start the process of obtaining work plans and relevant resource levels (funds, human resources, infrastructure) from each project. These will be analysed by the organizing team to establish opportunities for synergy, overlap, gaps etc. across projects/programs.
	+ Start initial technical discussions to establish high level architecture (e.g. foundational protocols, services etc.)
	+ December 2017: present on workshop goals, plans etc. at Arctic Change conference; community engagement, outreach.
* Q1 2018
	+ Iterate through process started in Q4 2017
	+ January 2018: present at ISAR-5 Conference, Tokyo, Japan; community engagement and outreach (particularly valuable for engaging the Asian community).
* Q2 2018 - 22-24 May 2018 (Boulder): Main Workshop.
	+ Detailed work planning and project “sign off” - associated with specific issues identified by community through previous activities
	+ Confirmation of system architecture
	+ Confirmation of key overacting priorities based on other activities (EU-PolarNet, Interoperability workshop, INTAROS, etc.)
* POLAR 2018, Arctic Observing Summit, June 2018, Davos, Switzerland:
	+ Hold ½ - 1 day meeting to share results of the the May workshop. Room has been reserved.
	+ Reporting results of workshop at POLAR conference and AOS; consultation, feedback, visibility
	+ Community engagement, outreach.

2018 Berlin Arctic Science Ministerial;

* Present a collectively-developed road map and architecture outlining a world-wide system that will provide researchers and others with access to a significant set of Arctic data related to a particular case study.
	+ A coordinated, integrated work plan identifying goals and objectives.
	+ Will include hard infrastructure as well as “soft” models establishing societal value, a related viable business model, and value to researchers and others.
* Present a representation of the Arctic data system (Results of Objective 2.1)

Board: Provide support in planning efforts. Review of proposed process, outreach and community engagement, review of outcomes.

Committees:

* ADC: Convening role
* CON: Contributing role as connection to the observing systems

Networks: Leadership, as central partners

National SAON organisations: Leadership, as central partners (Note: This could be challenging in short term, but may improve with effectiveness of initiative)

Relationship with international/other organisations: As for 2.1. The meeting will be co-led and co-organized by key polar data projects and programs. Currently, organizers include: IASC/SAON Arctic data Committee; SCAR Standing Committee on Antarctic Data Management; Southern Ocean Observing System; Global Cryosphere Watch and related WMO activities; Polar View; Arctic Spatial Data Infrastructure; EU Arctic Cluster including 8 current EU funded projects; SIOS Data Mangement System; GEO Cold Regions Initiative; Canadian Polar Data Workshop Network; Canadian Consortium on Arctic Data Interoperability; representatives from the Arctic Social Science Community; Research Data Alliance. One International Indigenous organization, Inuit Circumpolar Council, was part of the initial conceptualization of project in June of 2017 and more input is needed and is actively being sought from Indigenous organizations.

Involvement of Permanent Participants/Indigenous organisations; Indigenous/Local knowledge: Leadership, as central partners (Note: Follows also from Permanent Participants’ representation on ADC)

Outreach: ARCUS, IASC, European Polar Board, EU Initiatives

Resources and funding: i) Leverage existing funding; ii) Leverage existing NSF workshop grant; iii) ESA; iv) Others.

### Objective 2.3: Establish a persistent consortium of organizations to oversee the development of a sustainable, world-wide system for access to all Arctic data.

Description: The initial results of the Arctic Data Committee’s Mapping the Arctic Data Ecosystem initiative and a series of other related meetings and activities confirm there are many stakeholders who will be part of developing a world-wide system for access to all Arctic data (cf. Pulsifer talk on 4 October at [https://www.arcus.org/research-seminar-series/archive)](https://www.arcus.org/research-seminar-series/archive%29). Additionally, developing such a system will require ongoing effort of many years. Thus, it is critical for SAON to work cooperatively to establish a persistent consortium of organisations to oversee this development. In recent years, the Arctic Data Committee has consistently taken a leadership role in coordinating community activities. Moving forward, this must continue and expand to ensure that all stakeholders are represented in the process.

A primary goal under Objective 2.1 will be to identify the stakeholders who need to be part of the process. A primary goal under Objective 2.3 will be to establish a persistent global consortium of organizations and a process to oversee the development of a world-wide system for access to all Arctic data.

Urgency: High

Timelines:

* The process has already started through the activities of the Arctic Data Committee and a number of other organizations.
* Foundational work will continue through fall 2018 as part of Objective 2.2
* Ongoing

Board: Extensive guidance and engagement in establishing persistent body.

Committees:

* ADC: Convening role
* CON: Contributing role as connection to the observing systems

Networks: Leadership, as central partners

National SAON organisations: Leadership, as central partners (Note: This could be challenging in short term, but may improve with effectiveness of initiative)

Relationship with international/other organisations: As for 2.1. The establishment of a persistent consortium will be co-led and co-organized by key polar data projects and programs and ideally the Permanent Participants of the Arctic Council. Currently,, organizers include: IASC/SAON Arctic data Committee; Arctic Portal; University of the Arctic; SCAR Standing Committee on Antarctic Data Management; Southern Ocean Observing System; Global Cryosphere Watch and related WMO activities; Polar View; Arctic Spatial Data Infrastructure; EU Arctic Cluster including 8 current EU funded projects; SIOS Data Management System; GEO Cold Regions Initiative; Canadian Polar Data Workshop Network; Canadian Consortium on Arctic Data Interoperability; representatives from the Arctic Social Science Community; Research Data Alliance. One International Indigenous organization, Inuit Circumpolar Council, was part of the initial conceptualization of project in June of 2017 and more input is needed and is actively being sought from Indigenous organizations.

Involvement of Permanent Participants/Indigenous organisations; Indigenous/Local knowledge: Leadership, as central partners (Note: Follows also from Permanent Participants’ representation on ADC)

Outreach: IASC, SAON, ARCUS, IARPC, European Polar Board, EU Initiatives, many others.

Resources and funding: i) Leverage existing funding; ii) Leverage existing NSF workshop grant; iii) ESA; iv) Others.

1. The source of this concept is *International Arctic Science Committee, 2013. Statement of Principles and Practices for Arctic Data Management*: <https://www.iasc.info/data-observations/iasc-data-statement> [↑](#footnote-ref-2)