*Supporting the implementation of GEOSS in the Arctic in collaboration with Copernicus*

Background

The European Union’s Horizon 2020 Work Programme 2018-2020 has published calls for a number of projects, including *Supporting the implementation of GEOSS in the Arctic in collaboration with Copernicus*. The call text[[1]](#footnote-2) reads that:

*The action should coordinate with projects stemming from the NSFs Arctic portfolio, such as the "Navigating the New Arctic" programme, and other actions of the Transatlantic Ocean Research Alliance, by establishing joint operational activities, in order to support the mission and objectives of the international initiative on Arctic observations brought forward by the Sustaining Arctic Observing Networks (SAON)*.

The scope section outlines the *action should aim at:*

1. *advancing the operationalisation of an integrated pan-Arctic Observing System in preparation for a possible future ArcticGEOSS initiative;*
2. *improving and extending the terrestrial, marine and cryospheric in-situ measurements and the community-based monitoring systems necessary for the monitoring of the Arctic;*
3. *setting up pilot services and implementing the coordinated network of those services necessary for the adaptation to climate change in the region;*
4. *contributing to the interoperability of Arctic Data systems; and*
5. *to make a positive contribution to national, regional and international decision-making processes and science strategies.*

Since several consortia are in the process to develop proposals for the call, SAON cannot associate itself with one particular group at this point in time. Following an informal meeting 17th July 2019[[2]](#footnote-3), the decision by the Board on SAON’s engagement was that short document should be drafted and offered to all known consortia by December 2019. The document should describe

1. What SAON believes that the project should address
2. The SAON engagement in the project
3. The funding of the engagement

Eligible to funding under the call are European institutions. It is known that institutions represented at the SAON Board are already engaged in one or more of the known consortia. Some SAON countries and institutions (mainly non-European) are not engaged in any of the consortia. The document should also give guidance on how these can be engaged.

SAON engagement in the H2020 project *Supporting the implementation of GEOSS in the Arctic in collaboration with Copernicus*

1. Background

SAON's vision is a connected, collaborative, and comprehensive long-term pan-Arctic Observing System that serves societal needs. SAON’ mission is to facilitate, coordinate, and advocate for coordinated international pan-Arctic observations and mobilize the support needed to sustain them.

This document proposes SAON’s expectation to the project and how SAON should be engaged in the project. The proposal should be linked to SAON’s three goals:

1. Create a roadmap to a well-integrated Arctic Observing System;
2. Promote free and ethically open access to all Arctic observational data; and
3. Ensure sustainability of Arctic observing

Through its mandate and network, the role of SAON is Arctic relevance and networking. In the context of the present call, SAON is offering connection especially to non-European countries and institutions and Arctic indigenous people.

[*There is a proposal in this context to ask non-European countries to formally stand behind SAON in the context of the call. The countries should be contacted, and the benefits of SAON engagement should be described. The financial contribution to the SAON Secretariat should be highlighted.]*

SAON has submitted an application to establish ArcticGEOSS as a so-called *GEO Community Activities* to the Group on Earth Observations (GEO)[[3]](#footnote-4).

1. Activity I: The Roadmap

SAON has identified the need for a Roadmap for Arctic Observing and Data Systems to set a course for the needed system and to specify how the various partners and players are going to collectively work towards getting it there. This includes the equitable engagement of, and partnership with, Arctic Indigenous Peoples.

A well-defined assessment process is required to establish a communal view of *societal benefit* and the intended user base of Arctic observations. A key tool for such assessment is the International Arctic Observing Assessment Framework (IAOAF, IDA 2017), jointly created by SAON and the Science and Technology Policy Institute following the 2016 Arctic Science Ministerial. The IAOAF identified 12 Arctic-specific Societal Benefit Areas (SBAs). An example of how to apply the SBA’s in value tree assessment, and to integrate economic valuation in such was initiated by the Finnish Meteorological Institute[[4]](#footnote-5). Similarly, the Impact Assessment on a Long-Term Investment on Arctic Observations (IMOBAR)[[5]](#footnote-6) provide policy makers with evidence to support long-term investments in Arctic observing systems. This type of analysis should explicitly support and justify the identification of Essential Arctic Variables (see below) and guide the development of Pilot Services that will realize broad impact across the Arctic SBA’s.

SAON has defined the ROADS process to be organized around Essential Arctic Variables (*EAVs*). These are identified for their criticality to achieving Arctic societal benefit. *EAVs* are defined by their observing system requirements (e.g. spatial resolution, frequency, coverage, accuracy), which are technology-neutral and should transcend specific observing strategies, programs or regions. They are implemented through specific recommendations based on best available technology and practices.

The activity will develop the documentation framework necessary to identify, describe and evaluate *EAVs*. It will work with communities to identify and define a series of *EAVs*.

Activities: 1) Develop the generic framework necessary to identify, describe and evaluate *EAVs*. 2) Work with 2-4 identified communities to identify, describe and evaluate 2-4 *EAVs*.

Deliverable: 2-4 *EAVs* with their documentation and impact assessments.

*The activity will address project scopes i) and v). The activity addresses SAON’s Goal 1).*

1. Activity II: Contributing to the interoperability of Arctic Data systems

In recent years, the Polar Data Community has made significant progress in many different areas of development. The foundation of this progress has been in the area of community building through activities such as meetings organized by the Arctic Data Committee and partners (e.g. Polar Data Planning Summit, Polar Data and Systems Architecture Workshop), the Polar Data Forum series, and engagement in the Arctic Observing Summit, coordination of efforts with GEO, the Research Data Alliance, CODATA and other global efforts.

Through these activities, the Community has identified priorities:

* A set of community building priorities and activities were developed at the Polar Data and Systems Architecture Workshop[[6]](#footnote-7).
* The two top technical priorities articulated are:
  + Establishment of a federated search framework that supports Arctic communities, researchers, decision makers and others in achieving their goals with respect to finding Arctic (Polar) data. This is reflected through the joint development of the Polder (*Polar Data Discovery Enhancement Research*) group through ADC, SCADM and SOOS.
  + Support the work of the ADC-IARPC-SCADM Vocabularies and Semantics Working group[[7]](#footnote-8)

Activities:   
Contribute to the ongoing efforts to develop to support community through adherence to the […]

Deliverable:

* Carry out activities […]
* Contribute to the development of […]

[Comment from Peter Pulsifer: *The emphasis/task should be on the coordinating role of SAON. The expectation could be to support ADC meetings/workshops, next Polar Data Forum or two, and some secretariat time (or a position) to support coordination efforts?*

*This effort should mainly be done under the work packages of other partners. Beyond that, it is probably not possible to include technical effort directly under the SAON budget.*

Comment from David Arthurs: Could contents from the document *Polar Data and Platform Interoperability Resource Requirements* be introduced here?

Comment from Mikko Strahlendorff: *Mikko Strahlendorff added that data systems from actors in the winning bid should be brought forward in an interoperable way towards the rest of the Arctic data community. As a deliverable, there could be a benchmark on for instance how many data sets there are put forward.*]

*The activity will address project scope iv). The activity addresses SAON’s Goal 2).*

1. Pilot services

[*Can the Board formulate expectations to the pilot services, as described under scope iii). It has been proposed that there should be at least three; with services for local, regional or global perspectives.[[8]](#footnote-9) Include their value chain into the value tree analysis. The definition of these will be driven by the IAOF. Proposal to use this framework/tool to develop services*]

1. Engaging non-European partners and indigenous people’s organisations

Eligible to funding under the call are European institutions. Among its members, SAON has a number of non-European Arctic Countries (Canada, Russia, USA), non-European non-Arctic Countries (Japan, Korea), international organisations (like WMO[[9]](#footnote-10)) and observing networks. Importantly, the Arctic is home to Arctic Indigenous Peoples, who have lived there for thousands of years. Their knowledge of the Arctic environment is crucial, and their engagement in SAON is very important to ensure that needs and perspectives of Arctic Indigenous Peoples can be addressed. However, their capacity to participate in Arctic observing and monitoring project is limited, and Arctic Indigenous Peoples engagement in the project should be secured by ensuring sufficient funds to allow for their equitable participation in the project.

The project is about an ArcticGEOSS and should be conducted with a pan-Arctic participation. The advice would be that whoever consortium wins the bid, it should be prepared to engage with non-European institutions. The advice to the consortium would be to explore options for these also to contribute financially, through human resources or travel funding.

1. Resources/Funding

Funding should cover the salary for [24]|[48] months over four years for a person to be hired at the SAON Secretariat and travel costs for attending General Assemblies. Funding should also cover two workshops and the travel expenses associated with this. As stated above, sufficient funding for an equitable partnership with and engagement of Arctic Indigenous Peoples should be planned for.

[*Depending on how the document is structured, this section should describe what capacity/assignment the mentioned Secretariat resource should have and what would be the responsibility of the consortium and its partners. A position description for the mentioned Secretariat resource should be added.*]

1. Legal perspectives

It will be the AMAP Secretariat that will sign the Grant Agreement on behalf of the SAON Secretariat.

1. Horizon 2020. Work Programme 2018-2020: <https://www.arcticobserving.org/images/pdf/Board_meetings/20190715/06_h2020-wp1820-climate_en.pdf> (page 53) [↑](#footnote-ref-2)
2. Meeting notes: <https://www.arcticobserving.org/images/pdf/Board_meetings/20190911/17_SAON_H2020_meeting_17th_July_2019._Meeting_notes.docx> [↑](#footnote-ref-3)
3. The draft GEO Work Programme for 2020-2022: https://earthobservations.org/geoss\_wp.php [↑](#footnote-ref-4)
4. Value tree for physical atmosphere and ocean observations in the Arctic: https://helda.helsinki.fi/handle/10138/300768 [↑](#footnote-ref-5)
5. https://www.researchgate.net/publication/325344166\_IMPACT\_ASSESSMENT\_ON\_A\_LONG-TERM\_INVESTMENT\_ON\_ARCTIC\_OBSERVATIONS\_IMOBAR [↑](#footnote-ref-6)
6. Summary Report: Polar Data and Systems Architecture Workshop: <https://arcticdc.org/images/download/PDSAW_preliminary_report_Draft_15Dec2018.pdf> [↑](#footnote-ref-7)
7. Terms of reference: <https://arcticdc.org/activities/core-projects/vocabularies-and-semantics-wg> [↑](#footnote-ref-8)
8. Note: Inspiration for this may be found in the recent UAF/NSF submitted project by Eicken et al. [↑](#footnote-ref-9)
9. Note: Inspiration for this may be found in the recent proposal from WMO, presented by Etienne Charptentier [↑](#footnote-ref-10)