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| Meeting of the SAON RMTF | |
| When | 6th May 2019, 15-16 CET / 9-11 am EST |
| Venue | Teleconference |
| Participants | |  |  |  | | --- | --- | --- | | Attilio Gambardella | European Commission | [Attilio.GAMBARDELLA@ec.europa.eu](mailto:Attilio.GAMBARDELLA@ec.europa.eu) | | David Arthurs | Polar View | [david.arthurs@polarview.org](mailto:david.arthurs@polarview.org) | | Eva Kruemmel | ICC | [ekruemmel@scientissime.com](mailto:ekruemmel@scientissime.com) | | Hajo Eicken | AOS co-chair. University of Alaska, Fairbanks, | [heicken@alaska.edu](mailto:heicken@alaska.edu) | | Jan Rene Larsen | SAON Secretariat | jan.rene.larsen[@amap.no](mailto:amap@amap.no) | | Roberto Delgado | NSF, USA | [robdelga@nsf.gov](mailto:robdelga@nsf.gov) | | Sandy Starkweather | SAON vice-chair, NOAA, USA | [sandystarkweather@yahoo.com](mailto:sandystarkweather@yahoo.com) | | Stein Sandven | INTAROS | [stein.sandven@nersc.no](mailto:stein.sandven@nersc.no) | | Tom CHristensen | CAFF/CBMP | [toch@dmu.dk](mailto:toch@dmu.dk) | | Yuji Kodama | Japan | [kodama.yuji@nipr.ac.jp](mailto:kodama.yuji@nipr.ac.jp) | |
| Meeting notes | Jan Rene Larsen |

**Agenda:**

Presentations:

1. Eva Kruemmel: Canadian National Inuit Strategy on Research / ICC Alaska Food Security Report
2. Hajo Eicken: A roadmap from coordination to implementation – Actions in support of sustained coordinated observations of Arctic change
3. Sandy Starkweather: A Framework for Ocean Observing
4. Attilio Gambardella: Roadmap 2018: Strategy Report on Research Infrastructures / Upcoming Horizon 2020 call (LC-CLA-20-2020)

Questions:

* Would you consider this a template for a SAON Roadmap? Or is this a complementary observing strategy that a SAON Roadmap should develop in alignment with? Or both?
* How were indigenous perspectives engaged in the development of this input (or not)?
* Describe the specifics of how this input or example could inform a SAON Roadmap?

**Meeting notes:**

**A roadmap from coordination to implementation – Actions in support of sustained coordinated observations of Arctic change (Presented by Hajo Eicken)**

The white paper lays out a process that supports the roadmap development but also helps in restructuring key elements of the Arctic Observing Summit, bringing it in under SAON in a more formal way. It also lays out an initial effort that can help bring together different bodies of expertise to explore how to work to consolidate, integrate, and implement key observing campaigns as a part of a more integrated Arctic observing network.

The document refers to an effort that the authors hope to move forward as a design with an international set of activities. Activities would not be ongoing only within the USA; the hope is to be able to obtain support at the national level but then to coordinate at an international level.

Figure 1 shows the three SAON Goals, and the described effort will build something that is related to Goal 1 and 2. It combines some of the expertise and capacity under AOS, CON and ADC. RMTF is asked to help all these efforts unfold in a more defined and targeted matter.

Figure 2 illustrates what the authors believe should be put in place in a larger framework of a pan-arctic roadmap. It is a better link between processes of coordination, processes of design and development, and processes related to information infrastructure. It is a recurring three element process where the first step would be to work on joint coordination at the international level; the restructured AOS process summit would help. The design and development is the second element. The third is information structure which links different observing activities to data users. These three elements, especially coordination will have to be driven out of the AOS and happen in collaboration with other entities. Design and development is much more of an observing system implementation. Information structure falls under the Arctic Data Committee.

Figure 4 lays out the first step to explore how different entities from different countries could collaborate on improving coordinated observing activities. It is a more action oriented way of representing what is shown on figure 2. The figure is inspired by the framework developed by GOOS. It is a framework of how to structure and move forward observations in a way that links SBAs and applications that have already been identified through various processes like the STPI/SAON report and IMOBAR. Recognising that there are observations already existing, this is not an attempt to design a system from scratch.

Building on AOS, ASM and other, *food security* [and|in] coastal communities has been identified as a broader thematic concern. The proposal is to focus on a specific Arctic region for several reasons: 1) It is an an area that already has internationally coordinated activities such as DBO; 2) it has significant interest by indigenous peoples in the region; and 3) there are strong pressures from rapidly changing conditions in the Bering and Chukchi Sea. Also considering that Japan hosts the next ASM; that may feed into that process as well.

Moreover, *food security* is a good starting point because of the urgency behind it and because it brings different groups together. There are regions where there is maturity behind it in terms of existing observing programs, and this could be scaled up to the pan-Arctic level. In addition, it could be one out of a series of products that could come out of an ArcticGEOSS along the lines of what GEO is supporting in global agricultural prediction and information system GEOGLAM. The roadmap as defined through SAON should identify specific products that the community believes should be part of an Arctic observing system that is relevant at the local, regional, and pan-Arctic scale.

Figure 6 is a work in progress, but currently shows how the three elements coordination, design/development and information infrastructure iterates around a process that would be part of the AOS, but it also shows how the different efforts are tied to the ADC, CON and a steering group to be established for the AOS.

Attilio Gambardella asked about the nature of the input that RMTF should provide

Sandy Starkweather believed that the document should provide information and context. The RMTF should ideally develop definitions that could support and give guidance to groups like this.

Sten Sandven asked how to engage the broad community of different scientific disciplines who are working in the Arctic. He noted that in INTAROS there is a challenge to work with organisations that are global organisations.

Hajo Eicken responded that projects like INTAROS have an important role to play since they have members and project elements that are specifically linking to global or regional programs. He believed that there are several bridges to build: 1) In terms of global programs, the process has to ensure that there is representation from for example WMO, WCRP or GEO. In terms of 2) Arctic specific projects, then these should also be involved in identifying a strategic objectives and these should populate some of the working groups or task teams that would come into place under a road map effort so that they have actual representation. Thirdly, the process should use the more regionally focused initiatives that focus on a specific theme. In the *food security* case that would be DBO and different national programs, like from the US the Beaufort Gyre Observing System.

Sten Sandven added that in Europe there are the research infrastructures that are meant to be important mechanisms for long-term funding of observation systems and some of these are partly in the Arctic and there are issues whether there should be specific Arctic infrastructures or if there should be Arctic components of European infrastructures which are not Arctic yet but may want to become so.

Attilio Gambardella responded that this is an element that should be considered. Unfortunately at present the only example of a truly Arctic infrastructure, SIOS, is no longer part of the system. He added that the focus on a single element, *food security*, requires reflection, but may be attractive from a European level.

Stein Sandven: Different organisations often ask the question: Why do we need a specific Arctic observing system, when the global observing systems are meant to take care of most of it? It is realised that there are certain specific challenges in the Arctic, which will justify that there is something Arctic specific, but many of the variables are globally important and should be managed globally with the Arctic as a region under a global system. The global systems are probably not able to do it and are so technically and logistically constrained.

Eva Kruemmel responded that she believed that there is a need for something Arctic specific because of the Arctic indigenous peoples that have very clear ideas about how research and monitoring should be conducted.

**ICC Alaska Food Security Report (Presented by Eva Kruemmel)**

The document explains indigenous knowledge from an Inuit perspective, the Inuit way of monitoring and viewing the ecosystem in a holistic way and this is what is needed for the Arctic. With respect to contents, then the document could be an example for the roadmap. There are certain things that must be understood in order to create a successful roadmap and the document lines this out. It raises questions like ‘What is a conceptual framework?’; ‘Research and monitoring – for what purpose?’; How is it or can be relevant for policy and management?’; ‘What are the dimensions of Arctic observing?’; ‘What are the different fields and topics within those?’; ‘What is holding it together?’; What is needed for monitoring and research in the Arctic and the identification of barriers for this?’

Eva Kruemmel believed that the document should be referenced – not necessarily just in the three-page document, but it points to the need for a more comprehensive document.

**Canadian National Inuit Strategy on Research (Presented by Eva Kruemmel)**

The document could be useful as a template for a more elaborate document. It has aspects of ‘What is the vision?’, ‘Why is a roadmap needed?’, ‘What are the priorities?’, and ‘What is Arctic monitoring and observing needed for?’. Another headline is “Research is a tool for creating social equity”.

The document discusses the current structure of Arctic observing through questions like “What are the actors in research and monitoring activities?”; “How do we deal with the data?”; ”How do we build capacity?”; “How can it be funded sustainably?”. A roadmap should contain elements like 1) specific actions aligned with priorities that should be done in order to implement the roadmap; 2 a list of objectives and actions, 3) an evaluation plan for measuring progress, 4) research ethics, 5) a partnership approach with Arctic indigenous peoples, 6) building capacity and equity conditions and governance for the Arctic

There is a need that Arctic Indigenous people take ownership of monitoring activities in the Arctic when it comes to their own region. A definition of the Arctic is needed.

**A Framework for Ocean Observing (Presented by Sandy Starkweather)[[1]](#footnote-1)**

The document could serve both as a template.GOOS should be on the list of observing frameworks that the RMFT would want to align with. The SAON roadmap should advance GOOS regionally.

The framework was able to achieve acceptance as an internationally accepted process that was going to be used by people who participated as institutes, nations, and agencies. The frameworks is conceptually sound, but not over-specified and leaves room for existing groups and parties to come into the process, and that will be critical for the SAON roadmap as well. Groups are not asked to redefine themselves too much but give them the opportunity to continue the work they are already doing well, but to continue it in alignment around some more central organising principles.

The Frameworks uses *Societal Benefit Areas* to bring interests together. There are three overarching themes: *Climate*, *Operational Ocean Services*, and *Ocean Health*. These have been further divided into more specific SBAs, and these were the issues that drove the requirements setting.

The framework can be used for SAON to consider to identify and develop *essential variables* (EVs). SAON could bring together EVs of the global system, and redefine these within the Arctic. EVs seek to define a high-impact list of observing targets. They could be thought of more as organisational units than actual variables themselves.

The list of variables are arrived at through and understanding of those observations that are both going to have the highest impact across the SBAs and research objectives, but also begin highly feasible. The EVs become about an organisation not just about the current observing but also for the future observing. They are technology neutral, independent of the observing system, and independent of the program or network that might be actively funded and in place.

In addition, overlap between EVs of different programs is recognized. An important point of debate to bring forward in the roadmap definition is what role EVs might play and how to work with other existing EV frameworks.

The framework was developed by a steering committee. The RMTF could be the top of such a steering committee that could potentially be build out from the existing SAON Committees. The Ocean Observing Framework used panels. There are about 30 EOVs, grouped into physical oceanography, biogeochemical oceanography, and ecological and biological marine systems. Three different panels were responsible for developing the definitions of the EOVs. The definitions include requirements, best practises, data management at the variable level and were comprised by experts of the realm of observing. They let the EOVs develop according to readiness. The panels then hand out the recommendations to implementation teams, and these are comprised of the existing networks and observing systems.

An additional organisational structure is the *regional associations* like the Southern Ocean Observing System (SOOS) and SAON has been invited to be the Arctic Regional Observing System for GOOS. It is through this regional interface, SAON could be aligned with GOOS.

**Roadmap 2018: Strategy Report on Research Infrastructures (Presented by Attilio Gambardella)**

ESFRI is the *European Strategy Forum on Research Infrastructures* and is a framework developed at the level of the European Union for the development of research infrastructures of pan-European relevance. The described methodology may be of relevance. SIOS has been taken out of the framework.

**Upcoming Horizon 2020 call (LC-CLA-20-2020) (Presented by Attilio Gambardella)**

The final text is likely to be published end June 2019. The evaluation will be done in two phases. The first runs until February 2020, where a short version of the idea of the project should be presented. The second deadline will be 4-5 months later, in September 2020.

**Final remarks**

Sandy concluded the meeting, noting that this is a useful way to collect insight. The process will continue at the next meeting. After this point it would be valuable to pull out components into a conceptual framework.

1. <http://www.goosocean.org/index.php?option=com_content&view=article&id=7&Itemid=101> [↑](#footnote-ref-1)