

## WG5: "Arctic Observations in the context of Global Observing Initiatives"

### Summary/Deliberations:

The proposed SAON ROADS process that will define Arctic Essential Variables (EAVs) should be established at a rapid pace. It should be considered to test the process with a specific variable, like sea ice. It could be useful to understand the value added and the impact of observing this variable. This would be an example that is not only space-based but also require ground-truthing.

In the prioritisation process, it should be considered to focus on a few overarching issues that are expected to be key in the Arctic in the next 10-20 years, like

- The role of Arctic in global climate/weather models (what observing are still needed to improve those?);
- Impacts of changing Arctic ecosystems on food security (indigenous subsistence use of fish, marine mammals, animals, etc. - could include rain on snow, changing ocean currents, HABs, changes to hydrology, cultural health, etc.);
- Impact of receding sea ice on marine transportation (shipping, tourism, etc.);

In the process of prioritisation and the use of the *The International Arctic Observations Assessment Framework*, it could be considered to cross-walk the Arctic Societal Benefit Areas (SBAs) with the UN Sustainable Development Goals. A benefit is that mapping with phenomena has already been done. Another advantage is the that this could be a short-cut to defining common interest with global networks.

For recommendations on the need for observing, SAON should consider reviewing the Paris Accord. It contains a reference to the fast climate change in the Arctic and the Arctic as one of the major systems pushing the climate. Also review the IPCC special reports and SWIPA.

SAON should make an effort to identify relevant contact points in the global organisations These should be at the organisational level as well as on the science level.

### Findings:

In spite of the fact that the Arctic is a hotspot of global change, the Arctic Observing System is still lacking the coverage and continuity required to obtain a full picture of the nature and pace of the changes seen in all domains.

There appears to be a gap between what nations invest in Arctic observing compared to lower latitudes.

Synchronizing the Arctic Observing System with existing global observing systems requires more effort. They currently do not reach sufficiently into the Arctic. The extension has to be guided by both the global observing and the Arctic observing communities, including the indigenous and remote communities.

The global observing systems are sometimes not sufficiently driven by stakeholders, but more often by more general objectives such as climate change. Observations on 'grids' are frequently not the most relevant approach to Arctic observations that are tailored to understanding processes.

Social and health systems are generally poorly represented in observing systems. This is especially true for global observing systems. There are virtually no global systems for socio-economic, socio-cultural observations.

Near real-time observations are needed for improving services, including forecasting. The lack of sufficient communication infrastructure in the Arctic is a gap and impacts the ability to do real-time transmission.

The UN Decade on Ocean Science (UNDOS) could offer leverage and be instrumental in improving the sustained observing of the Arctic ocean so as to attain UN SDGs.

### Recommendations:

The formulation of requirements to an Arctic Observing System should be user-driven, i.e driven by people living in the Arctic and their decision-makers.

Where possible, and with a match of essential variables, global observing systems should expand into the Arctic, at least with a subset of their parameters.

Whereas an Arctic observing system should cover all domains, it should make use of the single domain observations of those global observing systems that extend into the Arctic.

The proposed SAON ROADS process that will define Arctic Essential Variables (EAVs) should be established at a rapid pace. The ROADS process should use the processes established by the global observing systems for identifying and defining EVs wherever possible.

A strong connection with global programmes, like GOOS and WMO, should be enhanced, since these can serve as conveners, having the capacity to bring relevant initiatives together. This would include endorsing the idea of establishing an Arctic GOOS.

Long-term funding of observing activities in the Arctic is an issue. Currently sustaining observing is mainly funded through research budgets, but should in the longer term be lifted out of research projects. Integrating an Arctic system into global systems is the key to sustaining observing.

Relevant data policies and structures should be part of the proposed observing strategy, including developing the capacity to follow the FAIR (Findable, Accessible, Interoperable and Reusable) principle. Efforts should be made to make data sets that have not yet been released, openly available for broad use. A strong connection with the data community through for instance the Arctic Data Committee, the Polar Data Forum and the Research Data Alliance should be enhanced.