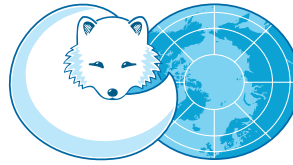


SAON  
SUSTAINING ARCTIC  
OBSERVING NETWORKS



ARCTIC COUNCIL



Report to the Arctic Council and the International Arctic Science Committee  
**“Plan for the Implementation Phase of SAON”**

The Goal of SAON is to enhance Arctic-wide observing activities by facilitating partnerships and synergies among existing observing and data networks (“building blocks”), and promoting sharing and synthesis of data and information.

Final Report (February 2011)

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## INTRODUCTION

The history of development of SAON (Sustaining Arctic Observing Networks) parallels the development of the International Polar Year (IPY) 2007-2008. The scoping document for the IPY called for a legacy of sustained Arctic observing. The Arctic Council recognized its potential role in creating this legacy and included in its Salekhard Declaration (2006) the request for Arctic states and partners to work toward such a capability. In response to this Declaration, the SAON process was initiated in early 2007. An informal SAON Initiating Group (IG), consisting primarily of representatives from several international Arctic organizations came together and agreed that SAON should have the purpose to support and strengthen the development of multinational engagement for sustained and coordinated pan-Arctic observing and data sharing systems that serve societal needs, particularly related to environmental, social, economic and cultural issues.

The SAON IG submitted a final report in December 2008 that concluded that the SAON process had value and should continue, and recommended that the Arctic Council, in collaboration with partners, take on the formal leadership of SAON. In response to this report, the Arctic Council in spring 2009 agreed to lead further development of SAON and established the SAON Steering Group (SG), composed of representatives from the Arctic Council, the International Arctic Science Committee and the World Meteorological Organization (members listed in Appendix 3). The SG worked most closely with the eight Arctic countries and consulted with experts in community-based monitoring and in data management. It created a new website ([www.arcticobserving.org](http://www.arcticobserving.org)) where all SAON reports can be found. The SAON SG further specified the potential roles and responsibilities of SAON and agreed that the consultation and planning processes for SAON had gone as far as needed, and that transitioning to an implementation phase was the next logical step. The Arctic Council endorsed this view and called for an implementation plan, to include an “institutional framework” and an initial list of tasks to be undertaken (listed in Appendix 2). This report presents the SAON Steering Group’s plan for the implementation phase of SAON.

This report describes the implementation phase of SAON, including the proposed scope of activities, and a structure for implementing the activities. SAON will be implemented through a number of Task Teams, with participation being voluntary and open to most organizations. In particular, any country may participate in SAON and join the proposed SAON Council. The plan contains a draft Terms of Reference for the SAON Council and a listing of the first set of proposed SAON Tasks. These Tasks show a diversity of participation with Task Leaders coming from Arctic Council Working Groups (AMAP, CAFF, SDWG), Arctic Council Permanent Participants (AIA, ICC), Arctic Council Member States (Canada, Norway, Sweden, US) and non-Arctic countries (Germany, Netherlands). All eight of the Arctic Council Member States are involved in one or more of the proposed Tasks, as are 15 of the IASC Members.

*The SAON SG asks that the AC and the IASC review this document, approve the formation of the SAON Council and the associated implementing arrangements, assign a co-chair from each organization to lead the SAON Council, and encourage the availability of the resources needed to support the work of SAON, including its associated Task Teams.*

## Plan for the Implementation Phase of SAON

The SAON SG proposes that the Arctic Council (AC) and the International Arctic Science Committee (IASC) jointly establish the SAON Council and its implementing arrangements, with each organization providing a permanent co-chair of the Council. A key feature of the Council is that it would establish its own rules of operation and not be bound by either the AC or IASC rules. In this way, both Arctic and non-Arctic countries may participate on an equal basis, and work of interest to a subset of the Council can go forward without the need for unanimous consent.

The core work of SAON would be undertaken by a number of Task Teams, established by voluntary agreement to define and implement a task that advances the goal of SAON. Members of each Task Team are responsible for providing the resources needed for the task. Task Teams may have as partners any country or organization that wishes to contribute to the advancement of SAON.

If the AC and the IASC agree to this plan and establish the SAON Council and its implementing arrangement, the initial meeting of the Council should occur in summer/fall of 2011. The SAON SG will provide a draft Terms of Reference to the Council, but leave it to the Council itself to complete and adopt the Terms of Reference that meet their needs.

## Description of the Implementation Phase of SAON

### 1 | What is SAON?

The Sustaining Arctic Observing Networks (SAON) process was initiated by the Arctic Council and has been underway since early 2007. Its purpose is to support and strengthen the development of multinational engagement for sustained and coordinated pan-Arctic observing and data sharing systems that serve societal needs, particularly related to environmental, social, economic and cultural issues. SAON promotes the vision of well-defined observing networks that enable users to have access to free, open and high quality data that will realize pan-Arctic and global value-added services and provide societal benefits. Its goal is to enhance Arctic-wide observing activities by facilitating partnerships and synergies among existing observing and data networks (“building blocks”), and promoting sharing and synthesis of data and information. SAON also is committed to facilitating the inclusion of Arctic indigenous people in observing activities, in particular by promoting community-based monitoring (CBM) efforts.

### 2 | What activities are outside the scope of SAON?

SAON itself will not undertake science planning, policy setting, observations, data archival, or funding of these efforts, which will remain the responsibility of the ongoing networks/sites/systems and data centers, the organizations that support them, or appropriate policy officials.

### 3 | Why are sustained observations needed?

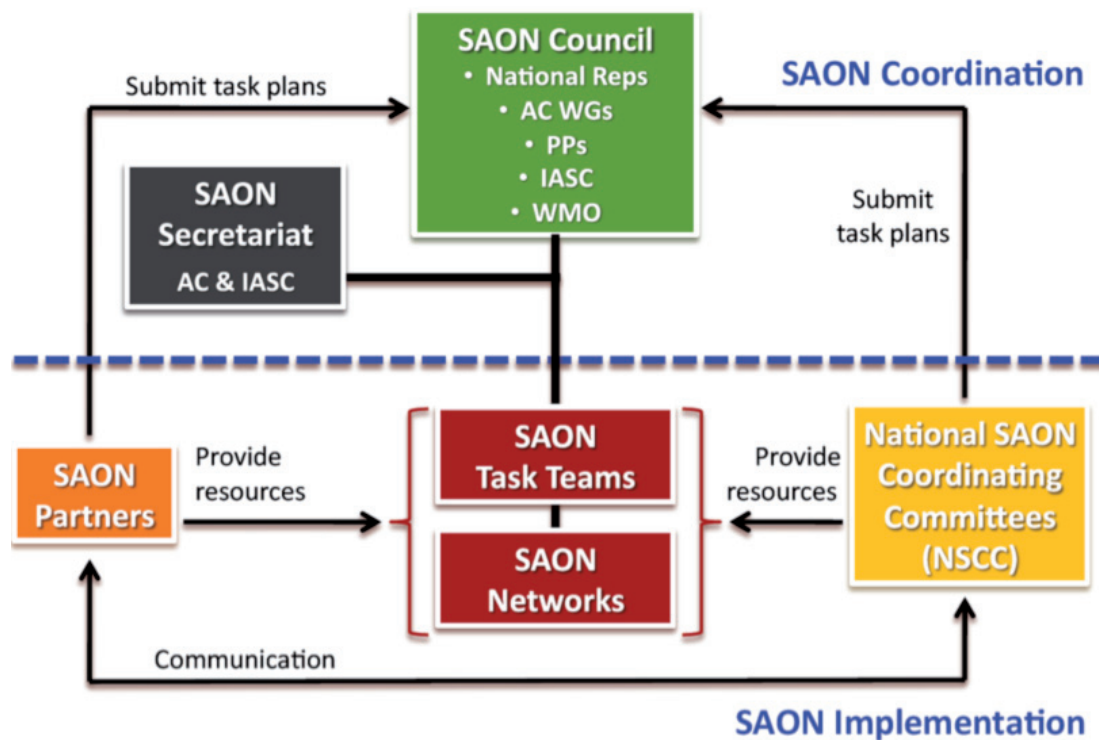
Climate change, contamination, biodiversity loss and changes to the physical environment of the Arctic

have serious impacts both inside and outside the Arctic. Trends indicate that the severity of the impacts is projected to increase in the near future, subjecting Arctic countries and their people with new environmental, economic and societal challenges. Global activities affect the Arctic environment while changes in the Arctic environment have global consequences. Hence, the broader global community must be engaged in improved monitoring of the Arctic to better understand the changes and their effects, and must address the social and economic issues in Arctic observations. The need for comprehensive, sustained and interdisciplinary Arctic observations and data management was recognized at the initiation of the Arctic Council, and stressed again in more recent documents, such as the Arctic Climate Impact Assessment (ACIA) and the report of the International Conference on Arctic Research Planning (ICARP II), among others. Although the International Polar Year 2007-2008 (IPY) provided an opportunity to implement new observing activities in the Arctic, most of those activities were of short duration, and many have already concluded.

#### 4 | What is the SAON approach and how will it work?

SAON will be organized as an independent activity under the co-sponsorship of the Arctic Council (AC) and the International Arctic Science Committee (IASC). It will be implemented as a Task-based activity allowing both bottom-up and top-down identification of needs. SAON will be constructed of several elements: SAON Task Teams supporting specific activities that advance the goal of SAON, SAON Council, SAON Secretariat, National SAON Coordinating Committees, and SAON Partners. See diagram for functional relationships.

Figure 1 shows the proposed SAON Structure



## **5 | What is the role of the National SAON Coordinating Committee (NSCC), and how is it formed?**

All countries are welcome to participate in SAON on an equal basis. The NSCC, or an equivalent existing national structure, is a key element in the success of SAON. It is internal to a given country and may be composed of representatives from national agencies or ministries that perform or finance environmental or social observations and/or data management related to the Arctic. It may also have representatives from sub-national governments, local and indigenous organizations, private organizations or other institutions engaged in observing. Each country will determine the composition of its committee. Each NSCC, or equivalent, will be aware of national activities and/or priorities for Arctic observing and data management, and the level of resources available to support the work of SAON.

## **6 | What is the role of the SAON Council and how is it formed?**

The SAON Council is composed of national representatives from the Arctic countries as well as other participating countries, along with representatives of the participating AC Working Groups (WGs) and Permanent Participant organizations (PPs), and the IASC. In addition, international organizations relevant to the work of SAON will be invited to join the Council. Initially, the WMO will be a Member of the Council, with other organizations added as appropriate. The Council will be co-chaired by two people, one each selected by the AC and the IASC. The Council will be supported by a Secretariat drawn from both the AMAP and IASC Secretariats. Both AMAP and IASC have indicated that existing resources are sufficient to handle this new responsibility at the initial stage.

The Council will be a coordinating and reporting mechanism, and will have an outreach function to engage with the broad community. It will review proposed Tasks and endorse those that meet the criteria (see 8. What are SAON Task Teams...). As needed, the Council may provide advice and guidance to Task Teams, and may encourage the development of new Task Teams to take on work deemed important by the Council. The Council will meet at least annually to discuss progress on SAON Tasks, and identify new priorities. Council meetings will be open to observers, but Executive Sessions may be called as needed. The Council may decide to create an Executive Committee (approximately 6-10 people) to do the inter-sessional work of SAON. See appendix 1 for the working draft of the Terms of Reference for the SAON Council.

## **7 | What is the role of the PPs on the SAON Council?**

Each of the AC PP organizations is invited to nominate a person to participate on the Council. PP representatives should be able to discuss observing and data management activities being conducted under their auspices or with their involvement, and also be aware of such activities being undertaken by the indigenous communities they represent. The PPs can advocate for SAON Tasks of importance to them, and can act as an intermediary promoting information exchange between indigenous communities and government agencies, observing networks, and other organizations.

## **8 | What are SAON Task Teams, how are they formed and how do they interact with the SAON Council?**

SAON will be implemented as a series of Tasks that support the SAON Goal (See 1. What is SAON?). The task-based approach allows for countries and partners to engage in work that supports the SAON Goal and meets their own needs and priorities, thus making funding and participation from the countries and

partners more likely. The work of SAON is conducted by Task Teams, composed of organizations actually involved in resourcing and/or conducting a specific task that contributes to the purpose of SAON. Various national agencies are likely to provide most of the resources needed for SAON, yet other partner organizations have much to offer and are welcome to join in supporting and/or conducting tasks.

Initially, Task Teams are being formed through initiatives stimulated by SAON SG members, existing networks, or other organizations with the encouragement of SG members. Over time, the Council will become more active in promoting certain tasks, while “bottom-up” ideas will continue to be encouraged. Early proponents of a task have the responsibility of seeking international partnerships to implement the task. The key criteria for creation of a SAON task are that it contributes to attainment of the SAON Goal, and that it has identified sources of funding/staffing. Task Teams will be asked to report on progress to the Council, and may receive guidance or suggestions from the Council.

### **9 | How will the Council interact with the broader community?**

The Council has the responsibility of maintaining awareness of current SAON tasks, and of determining the most useful path for future SAON tasks. The latter responsibility will require periodic consultation with a broad segment of the Arctic community. This can be accomplished in several ways, two of which are suggested here. The Council may invite certain individuals or groups to attend its meetings to provide specific information on possible future SAON tasks. Also the Council may host meetings (Arctic Observing Summit) or “town halls” in conjunction with other events or as stand-alone activities in order to capture efficiently the thinking of outside experts.

### **10 | Who might be the SAON Partners?**

The work of SAON will be conducted by a mix of partner organizations. National agencies are expected to be the core of SAON’s work, but involvement is to be encouraged from many other groups. Partners may be drawn from international organizations, regional governmental bodies, private industry, private foundations, etc. There is no type of legal organization that is categorically excluded from the ranks of potential partners. However, becoming a SAON partner requires active participation in work that supports the SAON goal.

### **11 | What is the link between SAON and its co-sponsors?**

SAON will be co-sponsored by the AC and the IASC. Each group will select a co-chair for SAON, who will have the responsibility of ensuring good two-way communication between SAON and the sponsors. The co-chairs will provide advice from the Sponsors on the nature of work being proposed for SAON to avoid duplication of work with either the AC or the IASC.

### **12 | How will the implementation phase of SAON be initiated?**

The initial meeting of the SAON Council will be called by the new co-chairs (or the existing SG co-chairs if necessary). The SG will prepare an initial version of Terms of Reference (ToR) for the Council for discussion by the Council, but the Council itself will agree on a final ToR that meets its needs. At the first meeting, the Council will review the current set of Tasks, identify areas for which new Tasks are needed, and initiate a process for development of new Task proposals. It will also review the existing observing inventories

from the eight Arctic countries, ask for appropriate updates and invite the other participating countries, networks, and organizations to provide similar inventories. Each national representative will have the opportunity to inform others on the process for national coordination.

### **13 | What is the SAON view on access to data, and data citation?**

Given the SAON interest in free and open access to data, it is expected that several tasks will be undertaken to enable and enhance this process and to demonstrate the scientific and societal value that can be obtained from use of integrated data sets. SAON may propose some guidelines and best practices to improve access and exchange of high quality data. The IPY data management committee has endorsed the “Polar Information Commons” idea ([www.polarcommons.org](http://www.polarcommons.org)), which includes a way to link a data set to its creator so that proper notice and recognition is given when a data set is accessed or used.

Each country that participated in the recent IPY agreed to the principle that IPY data will be readily available, so SAON will operate on the assumption that such data are available, and work to ensure that access is possible with minimum effort. SAON will encourage that all data be available, not just those for the IPY period, and that data creators be recognized and cited in all publications or other products. It may be desirable to formulate a specific SAON task to develop details of how this could be accomplished. It must be noted that SAON itself will not undertake data archival or distribution work.

### **14 | How will costs for participation on the Council be supported?**

Other than the Secretariat functions, which are provided by AMAP and by IASC, all other SAON activities are to be funded by the participants or by financial sponsors in response to proposals from the participants. SAON will not collect funds to support travel or any other activity. Thus participants on the Council will be responsible for covering their own expenses or for finding a funding source.

### **15 | How will the SAON approach provide benefits?**

Even though there are a wide range of ongoing observing programs, networks and observational platforms, many Arctic observing activities are still fragmentary and exist in varying stages of development. Most existing observations are managed by individual sponsors for specific purposes. Other observations are made on a project basis and may not be readily available. For some of the international networks, the networking aspects are voluntary and often not fully implemented. From the present fragmentary state, there is a need to fill spatial, temporal and disciplinary gaps in observing records, to strengthen the sustainability of observing programs, and make data more readily available. When common scientific interests exist, the benefits of sharing data are great compared to the cost of duplicative acquisition or analysis.

Many science interests in the Arctic require observations over both long time-scales and large spatial scales. International cooperation is often a necessity to blend data from diverse sources to create a more comprehensive, system-wide view of the Arctic and its connections to lower latitudes. Data applications that go beyond a narrow time or space view will benefit from enhanced sharing of data, through provision of more reliable and confident interpretation. Through data sharing and reciprocity arrangements, data providers will be able to achieve their aims at lower cost, and data users will get more reliable outputs.



**16 | What is the relationship between the SAON Council and the established monitoring networks?**

The established observing and monitoring networks provide most of the long time-series Arctic data and are intended as major beneficiaries of the work of SAON. The SAON Council will communicate closely with these networks and anticipates inviting network leaders to join in Council activities. In many cases, the networks will have significant involvement in specific SAON Task Teams, and will provide valuable perspective on the need for additional Tasks that would benefit their work and the goal of SAON.

### **Purpose: Encourage adoption of the SAON Vision and Goal.**

Provide an international process for:

- Reviewing and coordinating current work on SAON Tasks;
- Identifying desirable new SAON Tasks;
- Engaging with the existing observing networks and encouraging new networks as needed;
- Consulting with the broad science and user communities;
- Reporting and responding to co-sponsors;
- Publicizing SAON achievements; and other purposes to be determined.

### **Membership:**

- Each country that participates in the work of SAON is entitled to one seat on the Council, ideally by selecting a member of that country's National SAON Coordinating Committee, or equivalent.
- Each AC PP organization may send a representative to the Council, as may each AC Working Group that participates in the work of SAON.
- The IASC may also select a member of the Council in addition to the IASC member country participants.
- The WMO also will have a seat on the Council.
- In addition there will be two permanent co-chairs, one selected by the AC and one by the IASC, who will share equally the associated duties.

All Members have equal status on the Council. The Council may establish an Executive Committee or other subsidiary bodies as needed. The Council will be supported by a Secretariat, drawn from the Secretariats of the International Arctic Science Committee (IASC) and the Arctic Monitoring and Assessment Program (AMAP) of the AC.

**Responsibilities of Members:** Council members are responsible for representing the country or organization that appointed them by having full knowledge of the relevant observing and data management activities and priorities of their country or organization and providing that knowledge to the Council as a whole. Also, Council members will be expected to evaluate current SAON tasks and networks, and identify new tasks or networks, and encourage action to implement them. Council members will work with their organizational colleagues and with partner organizations to find the resources needed to undertake SAON tasks. Council members will be responsible for the costs of their participation on the Council.

Frequency and Types of Meetings: At a minimum, the Council will meet annually, and may hold additional meetings or tele-meetings as needed. Meetings of the SAON Council will be open to observers, but the Council may go into Executive Session if needed.

Decision-Making: In most cases, the SAON Council will work to achieve general agreement on issues, but if a formal vote is required, a simple majority of Members present will be required to achieve approval of the action. The Terms of Reference may be amended by unanimous agreement of the full Membership. The agenda and final version of minutes of all Council meetings and decisions will be available on the SAON website.

Relationship to the Arctic Council and International Arctic Science Committee (The SAON Co-Sponsors): The Council will have a co-chair from the AC and another from the IASC. The co-chairs are responsible for reporting to the Co-Sponsors, and for reporting to the Council any information from the Co-Sponsors.

## APPENDIX 2 | Summary of Tasks Proposed for Implementation under SAON

As of January 18, 2011, seventeen unique proposals had been submitted for consideration as SAON Tasks.

In a broad sense, they fell into the following categories:

- Workshops – 5
- Data management – 4
- Network status and improvement – 5
- Data access, integration, visualization - 3

The SAON SG reviewed each proposal and determined that all were relevant to the work of SAON. Each proposal was assigned one or more members of the SG to assist with further development. The full SAON Task Proposals are available on the SAON website, with the titles, lead authors, and SG liaison assignments given below.

### SAON Task Proposals

1 | *IPA workshop on data user requirements definition for permafrost observing GTN-P*

Task leader: Hugues Lantuit, AWI, Germany

E-mail: hugues.lantuit@awi.de

2 | *Polar Metadata Profile and Recommended Vocabularies*

Task leader: Ira Van Den Broek, NIOZ, the Netherlands

E-mail: Ira.van.den.broek@nioz.nl

3 | *Circumpolar Health Observatory*

Task leader: Kue Young, University of Toronto, Canada

E-mail: kue.young@utoronto.ca

4 | *Role of Remote Sensing in Arctic Monitoring*

Task leader: Yves Crevier, Canada

E-mail: yves.crevier@asc-csa.gc.ca

5 | *The Canadian IPY Data Assembly Centre Network: A Case Study*

Task leader: Scott Tomlinson, Canada

E-mail: scott.tomlinson@ainc-inac.gc.ca

6 | *Establishing an Arctic network on environmental monitoring of hazardous substances*

Task leader: Ola Glesne, Climate and Pollution Directorate, Norway

E-mail: ola.glesne@klif.no

7 | *Polar data and information management principles and practice (workshop)*

Task leader: Simon Wilson, AMAP Secretariat

E-mail: s.wilson@inter.nl.net

8 | *Coordination of existing Arctic relevant Meta-databases and Project Directories*

Task leader: Lars-Otto Reiersen, AMAP Secretariat

E-mail: lars-otto.reiersen@amap.no

9 | *An International Review of Community-Based Monitoring in the Context of Sustaining Arctic Observing Networks Process (Canada and ICC)*

Task leader: Eva Kruemmel, ICC, Canada

E-mail: ekruemmel@inuitcircumpolar.com

10 | *Development of Community-Based Monitoring Classification to Improve Standardization of Vocabularies*

Task leader: Victoria Gofman, AIA

E-mail: victoriag@alaska.net

11 | *PEOPLE – ACE* (two proposals. However, the proposer has later suggested that only the # 1 proposal to be discussed at this meeting)

Task leader: Marty Kress, USA

E-mail: mkress@vcsi.org

12 | *Arctic Observing Summit*

Task leader: Taneil Uttal, NOAA, USA

E-mail: taneil.uttal@noaa.gov

13 | *Arctic Marine Biodiversity Monitoring Plan (CAFF/CBMP)*

Task leader: Mike Gill, Canada

E-mail: mike.gill@ec.gc.ca

14 | *Arctic Ocean Structure (IPY)*

Task leader: Gleb Panteleev, IARC, Univ. of Alaska

E-mail: [gleb@iarc.uaf.edu](mailto:gleb@iarc.uaf.edu)

15 | *Expand Historical Climate Analysis to the Pacific Sector of the Arctic*

Task leader: James E. Overland, NOAA, USA

E-mail: [james.e.overland@noaa.gov](mailto:james.e.overland@noaa.gov)

16 | *CBM Workshop (CAFF)*

Task leader: Tom Barry, CAFF Secretariat

E-mail: [tom@caff.is](mailto:tom@caff.is)

17 | *INTERACT (SCANNET)*

SCANNET is a network of Arctic (terrestrial) observatories, stations and sites. INTERACT is a (time-limited) observing and research program at these stations.

Task leader: Terry Callaghan, Abisko, Sweden

E-mail: [terry\\_callaghan@btinternet.com](mailto:terry_callaghan@btinternet.com)

## APPENDIX 3 | Sustaining Arctic Observing Networks - Steering Group (SAON-SG)

### *Co-chairs*

John A. Calder	Arctic Monitoring and Assessment Program (AMAP)
David Hik	International Arctic Science Committee (IASC)

### *National Representatives*

Helen Joseph	Canada	(Department of Fisheries and Oceans)
Anne B. Klitgaard	Denmark	(Ministry of Science, Technology and Innovation)
Jesper Madsen	Denmark	(National Environmental Research Institute) - alternate
Jouni Pulliainen	Finland	(Finnish Meteorological Institute)
Lone Nukaaraq Møller	Greenland	(Agency of Culture, Education, Research and Church)
Halldor Johansson	Iceland	(Arctic Portal)
Helgi Jensson	Iceland	(Environment Agency of Iceland) - alternate
Ola Glesne	Norway	(Norwegian Climate and Pollution Directorate)
Igor Ashik	Russia	(Arctic and Antarctic Research Institute)
Tove Lundeborg	Sweden	(Swedish Environmental Protection Agency)
Ulf Jonsell	Sweden	(Swedish Polar Research Secretariat) - alternate
Martin Jeffries	USA	(Office of Naval Research)
Peter S. Murdoch	USA	(US Geological Survey) – alternate

### *Arctic Council Permanent Participants*

Victoria Gofman	Aleut International Association
James Gamble	Aleut International Association - alternate
Bridget Larocque	Gwich'in Council International
Eva Kruemmel	Inuit Circumpolar Council
Rodion Sulyandziga	Russian Association of Indigenous Peoples of the North
Gunn-Britt Retter	The Saami Council
Cindy Dickson	Arctic Athabaskan Council

### *Arctic Council Working Groups*

Aevar Petersen	Conservation of Arctic Flora and Fauna (CAFF)
Tom Barry	Conservation of Arctic Flora and Fauna (CAFF)

Mike Gill                      Circumpolar Biodiversity Monitoring Program (CAFF)  
Ann Heinrich                Emergency Prevention, Preparedness and Response (EPPR)  
Allison Saunders            Emergency Prevention, Preparedness and Response (EPPR) - alternate  
Joan Nymand Larsen       Sustainable Development Working Group (SDWG) & IASSA

*World Meteorological Organization*

David Grimes  
Bruce Angle - alternate  
WMO Secretariat - alternate

*SAON Secretariat*

Volker Rachold              International Arctic Science Committee (IASC)  
Lars-Otto Reiersen         Arctic Monitoring and Assessment Programme (AMAP)  
Odd Rogne                    Arctic Monitoring and Assessment Programme (AMAP)