Report of the First Meeting of the Arctic Data Committee

Mercure Hotel Potsdam City
Lange Brücke
14467 Potsdam
Germany

10-11 November 2014
Meeting Details

Meeting: First Meeting of the IASC Data Standing Committee (IDSC) and SAON Committee on Data and Information Services (CDIS)

Time: 10 November 2014, 14:00 – 18:00 ; 11 November 08:30 – 13:00 (CET)

Location: Mercure Hotel Potsdam City
Lange Brücke
14467 Potsdam
Germany
Room: Studio 1+2.

Attending:

Canada: Julie Friddell (National Representative), David Hik
Finland: Hanna Lappalainen (National Representative)
GEO/GEOSS: Yubao Qiu (GEO Cold Regions)
IASC: Volker Rachold (Executive Secretary)
Iceland: Halldór Jóhannsson (National Representative)
Italy: Paolo Mazzetti
Japan: Hironori Yabuki
Korea: Byon-Kwon Park
Norway: Stein Tronstad (National Representative), Øystein Godøy (Norwegian Meteorological Organization) Helge Sagen (Institute of Marine Research)
Poland: Agnieszka Beszczynska-Möller (National Representative)
SAON/AMAP: Jan Rene Larsen, Executive Secretary
Spain: Óscar Bermúdez Molina (National Representative)
Sweden: Ulf Jonsell
United Kingdom: Alex Tate (National Representative)
United States: Peter Pulsifer (Chair, National Representative), Erica Key (National Science Foundation)(Virtual)
Summary of Outcomes

Key motions requiring broad input and decision:

1. The Chair and all meeting participants moved that the IASC Data Standing Committee and the SAON Committee on Data and Information Services be merged to form a single committee. This Committee would be open to interested and engaged individual and organizational participants rather than limited to appointed national representatives. The current working name for this committee is simply the Arctic Data Committee.
2. Confirmation of primary work packages established during the meeting:

**Work Package 1.** Establishing a map of the arctic data management “ecosystem” or “universe”. This will be both a concept map indicating projects, services and relationships as well as a geographic map indicating location. The effort was started during the meeting and will be continued. Peter Pulsifer will be leading this effort.

Task lead: Dr. Peter Pulsifer, ELOKA/NSIDC, USA

**Work Package 2.** Develop recommendations on a common set of metadata elements relevant across Arctic sciences, to facilitate interoperability and sharing between Arctic data repositories and online portals. To start, this effort will focus on identifying Arctic data centres or initiatives that have established a metadata template/schema/profile etc. Initially, a limited set of disciplines or focus areas will be identified to make the scope manageable. Wherever possible and practical, the effort will build on and/or contribute to other related initiatives.

Task lead: Dr. Julie Friddell, Polar Data Catalogue, Canada

**Work Package 3.** Provide a report and guide on data publication and citation for Arctic researchers. This would provide the Arctic community with a resource to help researchers them to understand developments in this area, including DOIs (Digital Object Identifiers). This initiative will be carried out jointly with a project already established under the SCAR Standing Committee on Antarctic Data Management.

Task lead: Alex Tate, British Antarctic Survey, UK

**Work Package 4.** An interoperability experiment for presentation at the Arctic Science Summit Week / ICARP III meeting in Toyama in April 2015. We will bring together a number of data services under a single interface to address Societal/Science Priority Areas identified under the NSF-led Arctic Observing Assessment and other similar efforts (i.e. GEO/GEOSS etc.). The key focus will be selected areas of societal significance including health and well-being, food security, freshwater security, built infrastructure, coastal and riverine vulnerability, and tele-connections. These are complex areas of interaction between humans and their environment.

Task Lead: Jointly led with early participation interest indicated by Canada, Iceland, Norway, United Kingdom, United States
**Detailed Report**

1. **Introductions**

All participants attending the meeting introduced themselves including their name, affiliation and background.

2. **Overview and Background of Committees:**

   a. **Volker Rachold, Executive Secretary, IASC**

   Dr. Rachold welcomed the group to Potsdam and provided background on the formation of the IASC Data Standing Committee, including reference to the IASC *Statement of Principles and Practices for Arctic Data Management* as a foundational document.

   b. **Jan Rene Larsen, Executive Secretary, SAON**

   Mr. Larsen provided the group with an overview of the formation of the SAON Committee on Data and Information Services in conjunction with the formation of the SAON Committee on Observations and Networks. Both of these committees play important, interrelated roles in moving SAON forward. Key elements of the data strategy include making more data accessible, and establishing long-term funding to maintain this.

   c. **David Hik, IASC and SAON Executive, former President, IASC**

   Dr. Hik started his comments by indicating that both the IASC and SAON executive bodies have discussed the idea of merging IASC DSC and the SAON CDIS. Both Executive bodies agree that merging the committees is desirable in terms of avoiding confusion amongst arctic researchers and the broader Arctic and global community, providing a focus for funders, and strengthening global collaboration. This topic is discussed in Session 5 of Day 1.

   d. **Peter Pulsifer, representative for USA, Chair**

   Dr. Pulsifer started with a brief presentation with a suggested agenda and set of goals for the meeting. See Appendix A.

3. **Discussion Session: Understanding and refining the mandate of, and relationship between, IDSC and CDIS**

   Dr. Pulsifer provided a summary of the material distributed before the meeting at [http://www.arctichub.net/groups/adcn/wiki/MainPage/IDSCCDISOverview](http://www.arctichub.net/groups/adcn/wiki/MainPage/IDSCCDISOverview)
Following David Hik’s statement that the IASC and SAON Executives are open to merging the IDSC and CDIS this discussion was brief. The value of merging the committees was confirmed and a set of follow up tasks was established. See Section 7.

4. Presentation Session: *Identifying and Understanding the Needs of Science and Society*
   
   a. Presentation: *Identifying and Understanding the Needs of Science and Society*, David Hik. See Appendix B.

Dr. Hik provided an overview of key science and societal priorities. It is critical for us to consider these when taking decisions on priorities, directions, and application development in the context of Arctic data management. As indicated in the presentation, there are many resources to draw on (reports, assessments, etc.).

   b. Presentation: *A roadmap for the future of Arctic research: ICARP III and IPPI*, David Hik. See Appendix C.

An important ongoing initiative to look to for guidance and to which we can contribute.

   c. Presentation: *Societally Significant Observing*, Erica Key, Arctic Observing Network program, National Science Foundation (Virtual). See Appendix D.

5. Discussion Session: *Linking Arctic Data Resources*

Building on an Arctic data resources network map created based on input prior to the meeting, participants collaboratively identified existing, potential or critically important but non-existent relationships between the resources identified. Resources identified were in the form of technology, people, organizations, funding or others. The objective in this session was to go beyond identifying individual resources and to start understanding the current status of Arctic data management resources as a network and the gaps in connectivity. Throughout the process the group associated the discussion with science and societal needs identified earlier in the day. Additionally, the group identified broader relevant initiatives (e.g., World Data System, Research Data Alliance). Using concept mapping software, a draft map was created. The map is currently being refined and will be published in draft form soon to continue the process of developing the map. A work package has been defined to manage this effort.
DAY 2

6. Establishing current priorities for Arctic Data Management in the context of IDSC/CDIS

Following the discussion of science and societal priorities and carrying out the preliminary exercise to link Arctic data resources on Day 1, Day 2 started with a discussion of possible priorities for the Committee. Key items of the discussion included the following:

a. The IASC Statement of Principles and Practices for Arctic Data Management indicates that the IASC DSC would review data management plans for projects seeking IASC endorsement. When would this activity be expected to start? In theory, this could start immediately, however in practice it will take time to introduce this practice to the broader Arctic research community. Additionally, many projects seeking IASC endorsement do not have data components, so the overall demand is not expected to be large. While the Committee is indicated as the body that will manage the review process, this does not necessarily mean that Committee members will perform the review. They can act in the role of an editor or editorial board and seek qualified reviewers. This process recognizes the state of data in the context of Data Science and the professional processes that entails.

b. Establishing a polar metadata profile in keeping with the SAON Tasks and other initiatives established in the past. A number of questions and concerns were raised: is this really necessary as this is a daunting challenge that may be addressed in other contexts? It was recognized that it is helpful to use the same metadata standards but not absolutely necessary for a base level of interoperability. Brokering technologies were discussed as a method for reducing the need for full standardization. However, there was also recognition that some level of standardization or model development is required to ensure that vocabularies used in metadata can be shared and understood across centers and individuals. There was also recognition that brokering techniques require an understanding of an underlying model to support mediation across metadata collections. The suggestion was made that the scope of the task could be managed by examining existing metadata schemas or profiles being used for Arctic data collections. A number of examples were cited including standards and profiles being used (i.e. DIF, ISO 19115) as well as projects and catalogues (i.e. ADIwg, British Antarctic Survey, IASOA, NSIDC, Polar Data Catalogue). It was agreed that establishing a way forward in this regard, whether it be to develop a recommended set of Arctic or polar metadata elements (for the sake of clarity, we are not using the term
“profile”), or to engage with an existing initiative that will serve the needs of the Arctic/polar community. A work package will be established focusing on this priority. Julie Friddell has offered to coordinate this effort as it fits with ongoing efforts that she has been leading.

c. There was recognition of the increasing importance of data publication and citation. Currently, there are many developments and activities related to this (i.e. Research Data Alliance-World Data System Interest Group on Publishing Data). All participants agreed that this is a critically important area of development in terms of ensuring recognition of data contributions, establishment of provenance, fulfilling new requirements by journals etc.. A work package will be established focusing on this priority and in particular aiming to develop a summary report for the Arctic community that helps to guide people through the emerging data publication process. This work would be carried out in conjunction with efforts already started under the SCADM workplan. Alex Tate has offered to coordinate this effort as it fits with ongoing efforts that he has been leading, thus this initiative will be carried out jointly with a project already established under the SCAR Standing Committee on Antarctic Data Management.

d. The importance of making a wide variety of different data accessible in a meaningful context was highlighted as a priority, particularly for the SAON initiative. There was recognition that many of the science and societal priorities areas highlighted on Day 1 will require data from many different contexts, disciplines, data centers etc. to allow us to come to a better understanding of the issues and necessary responses (e.g. considering food security requires observations and other input from Arctic residents, physical scientists social scientists and others. This establishes a need for interoperability and aligns with previously established priorities (see. meeting background documents). To make progress in this area a "interoperability experiment" will be defined and carried out with the first results of the experiment presented during ASSW/ICARP III/ISAR 4 in Japan at the end of April 2015.

7. Establishing a way forward

The proposed method for addressing the priorities established in the form of action is to develop a core set of work packages (collection of related tasks) that include concrete deliverables on a clear timeline. Each work package will have a lead individual who will coordinate the effort with other interested participants. The agreed upon work packages are outlined in the Summary of Outcomes section and Section 6. Online tools such as Trello.com will be used to facilitate the management of the effort.
8. Understanding and refining the mandate of, and relationship between, IDSC and CDIS: revisited
   a. As indicated, there was agreement that the IDSC and CDIS be merged.
      To complete the process we need to:
      i. Confirm this with committee members and other stakeholders who are not at meeting
      ii. Establish a new name – proposal is for “Arctic Data Committee”
      iii. Decide on future of the Arctic Data Coordination Network as an entity. Is there still a need for the ADCN?
      iv. Create a statement confirming new name and distribute, ideally at Arctic Change conference in Ottawa, December 2014.
   b. There was recognition of the various other active data initiatives that exist within the Arctic/polar context (e.g. Arctic Spatial Data Infrastructure, SEARCH, GEO/GEOSS, WDS, RDA, etc.). The “Arctic Data Committee” needs to reach out to these bodies to ensure that various efforts are aligned and efficient. This will begin as part of the Committee executive function, but may evolve into a specific Work Package.
   c. The Polar Information Commons (PIC) was [http://www.polarcommons.org/] established during the International Polar Year and beyond. PIC is clearly relevant to the interests of this Committee, however the long-term plans for PIC are unclear. Some of the initial individual champions who drove the initiative have now moved on to other roles and the initial core funding has been used. Additionally, Jonsell of Sweden notes that the PIC-cloud (primary data repository) is off-line and has been for quite some time as he understands it. PIC-cloud needs to be included when the relation CDIS/PIC is discussed. In general, clarity is needed on the status of this particular initiative. If there are plans to continue the effort, then the Committee needs to coordinate appropriately. If not, then the core elements of the PIC can be addressed within the mandate of the Committee. In this case, the PIC can be considered a foundational building block of the Committee.

9. Adjourn meeting.

Meeting was adjourned at 12:50 local time.

10. Informal Working Session

To be reported in a separate document.
Introduction: First Meeting of the IASC Data Standing Committee (IDSC) and SAON Committee on Data and Information Services (CDIS)

Mercure Hotel, Potsdam, Germany
10-11 November 2014
Welcome

- Background: [http://www.arctichub.net/groups/adcn/wiki/MainPage/IDSCCDISOverview](http://www.arctichub.net/groups/adcn/wiki/MainPage/IDSCCDISOverview)

- Agenda: [http://www.arctichub.net/groups/adcn/wiki/MainPage/IDSCCDISOverview/IDSCCDISMeeting1DraftAgenda](http://www.arctichub.net/groups/adcn/wiki/MainPage/IDSCCDISOverview/IDSCCDISMeeting1DraftAgenda)

- Supporting Document: [http://www.arctichub.net/groups/adcn/wiki/MainPage/ArcticandRelatedDataManagementDirectoriesandInitiatives](http://www.arctichub.net/groups/adcn/wiki/MainPage/ArcticandRelatedDataManagementDirectoriesandInitiatives)
What We Have

- Foundation, mandate and momentum coming out of IPY and other initiatives
- Data
- Metadata
- Services
- Applications
- *** Talented, dedicated people ***
- Support of international organizations such as IASC, SAON
What We Need

- Stronger international coordination that will help us to focus these resources at a global scale to address the needs of science and society
- A base level of standards, specifications, vocabularies that allow linking of network nodes
- Additional resources to facilitate network development
Challenge to Group

• By end of meeting identify one or more achievable objectives to move us forward

• By end of month, commit to achieving at least one objective on a specific timeline

• Establish a clear plan by end of this year

• Deliver something tangible, even if it is only a small part of a larger objective, by ASSW/ISAR-4/ICARP-III end of April 2014.
APPENDIX B
Identifying and Understanding the Needs of Science and Society

an overview of priorities established for and by the science community and society

David Hik
Chair, ICARP III
Vice-Chair, SAON

10-11 November 2014, Potsdam
Why are we observing the Arctic?

and how do we make this data accessible?
Greenland ice sheet melting

Air temperature increasing

Loss of spring snow

"Greening", biodiversity changing

Resource development

Arctic sea ice melting

Thawing permafrost and gas hydrates

More shipping
...and the Arctic is a region of global importance

teleconnections

Black carbon

Polar vortex
Research and observational activities in the Arctic region must lead to predictive skill for:

• Integrated real-time ice-ocean-atmosphere-hydrosphere forecasts for present and future residents and users;

• Ecosystem status and change as the best indicator of overall Arctic health and as the basis for material and cultural wealth;

• Economic and social factors and trends, local and distant, that will require and constrain local, regional and global responses;

• Individual and community health and well-being;

• Impact of a rapidly changing Arctic and global climate on all of the above.

from SAON reports (2008)
Scientific Curiosity

THE SCIENCE
Economic Development
Many recent regional, national and international programs, initiatives and assessments

Many interests and players...

Common theme is access to reliable, timely information
EU Framework programs and scientific cooperation in the Arctic:

ACCESS: 'Arctic Climate Change, Economy and Society'

and

ICE-ARC: 'Ice, Climate, Economics - Arctic Research on Change

Michael Karcher,
Jean Claude Cascard,
Jeremy Wilkinson
ACCESS

Ocean of Tomorrow call of the European Commission Seventh Framework Programme
**ICE-ARC**

Four interconnected objectives:

• **Reduce uncertainties in Arctic marine climate predictions.**

• **Elucidate the impact Arctic marine change has on the ecosystem and human communities.**

• **Understand the global socio-economic impact of Arctic marine change.**

• **Provide concrete evidence-based policy measures in response to change in the Arctic marine system.**
Industry operational requirements lead to product development and tools...

Publically available chart from The NOAA National Ice Center

Highly detailed charts produced by the Shell Ice and Weather Advisory Center
Shell developed and manages a fit-for-purpose operational ice and weather forecasting service to fill the gaps left by commercial and national services.

SIWAC (Shell Ice and Weather Advisory Center) produces focused and operation-driven forecasts and provides advisory services for planning managers.

Forecasts are communicated to operations through several methods, including the siwac.com website.
Pulling it all together…

Internally, Shell integrates the ice and weather forecasts into a mapping web service that includes up to the minute tracking of our vessels and aircraft for operational support and project oversight.

Client control panel allows user to select content displayed in map.

Alaska Internal Shell basemap Service

SIWAC Ice Forecasting Service

BlueSky Realtime Vessel Tracking

ImpactWeather Current Alaska Weather Service
All data shared with National Oceanographic & Atmospheric Administration (NOAA)

- Ocean & Weather buoy data shared real time through the National Data Buoy Center (NIC)
- Ice maps shared with National Ice Center with a 48 hour moratorium on further release
- All data housed and served by AOOS.org

Twice weekly meeting/telecon with NIC

- Collaborative forecasts

Through AOOS data can be utilized by third parties for research purposes.

Net result – Improved forecasts
Societally Significant Observing

Meeting Needs Now for a More Resilient Future

NSF
National Science Foundation
Arctic Observing Network Program

AOA
ARCTIC OBSERVING ASSESSMENT

http://www.arctichub.net
The **Cryosphere** includes snow, sea ice, lake and river ice, glaciers, ice caps, ice sheets, permafrost and seasonally frozen ground, and solid precipitation.
Building relationships between users and implementers

> a living assessment of user needs relevant to shared priorities and the observing and information science capability available to meet those needs

> focusing on 13 areas of societal significance:

- Food Security
- Freshwater Security
- Health and Well-Being
- Sustainable Economic Development
- Regulatory and Organizational Change
- Built Infrastructure
- Coastal and Riverine Vulnerability
- Environmental Safety
- Ecosystem Health
- Information Access and Security
- Environmental Awareness
- Climate Change Adaptation and Mitigation
- Teleconnections

> user need documents, resources, products, and information sources will be searchable, exportable, with visualization support
Networking the observations

An example from Food Security

> Key nodes
> Supporting docs
> Information streams

Coming soon:
> Cross-cuts
> Crowdsourcing
Connecting *visually* with stakeholders in observing for awareness, collaboration, integration, and access.
Arctic Data Interface (ADI): An Information Data Square (in development by the Arctic Portal)
Visualize the Data

Browse population health indicators through interactive thematic maps

- Population
- Fertility
- Mortality
- Reproductive Outcomes
- Disease Incidence
- Socioeconomic Conditions
- Health-Related Behaviours
- Health Care Resources
About

Arctic Collaborative Environment (ACE) Joint Capability Technology Demonstration (JCTD) is an internet-based, open-access, Arctic-focused, environmental research and decision support system that integrates data from existing remote sensing assets with products from existing and new environmental models to provide monitoring, analysis, and visualization based on earth observation data and modeling. With an initial focus on the Arctic region, researchers, students, search-and-rescue operators, native hunters, etc can draw from the open-access data.

Arctic Cap Nowcast/Forecast Model Animation

Getting Started

Welcome to the Arctic Collaborative Environment

This page will help you get more comfortable with navigating ACE.

Q: I've just created my user account in ACE. What's next?
A: Watch a general overview video on ACE (Click here)

General: ACE Overview Video (mp4)

Submitted by Gina Wade on Mon, 11/26/2012 - 15:11
The training video shows how users can utilize ACE.

Social Networks

Follow ACE on Twitter   Follow ACE on Facebook
Recommend satellite products for “Cryosphere Now” on GCW website.

Contribute “trackers”.

globalcryospherewatch.org
Data, data everywhere

Information has gone from scarce to superabundant. That brings huge new benefits, says Kenneth Cukier (interviewed here)—but also big headaches

WHEN the Sloan Digital Sky Survey started work in 2000, its telescope in New Mexico collected more data in its first few weeks than had been amassed in the entire history of astronomy. Now, a decade later, its archive contains a whopping 140 terabytes of information. A successor, the Large Synoptic Survey Telescope, due to come on stream in Chile in 2016, will acquire that quantity of data every five days.
The ‘Normalization’ of Data Sharing

• IPY experience
• post-IPY initiatives
• **Promote interoperability** of observing and data management systems and identify improvements;

• **Identify useful approach** for developing “union catalog” of data sets (e.g. Polar Information Commons, ICSU, CODATA Task Group, WMO Information System, CBMP, etc).
A Conceptual Architecture for the Polar Information Commons
Statement of Principles and Practices for Arctic Data Management
April 16, 2013

All IASC-endorsed scientific results shall be verifiable and reproducible through ethically open access to all data necessary to produce those results. Data shall be preserved, accessible, and used in accordance with scientific norms of fair attribution and use.

To this end, IASC Council approves the following actions:

1. Endorsement of the Statement of Principles and Practices for Arctic Data Management;

2. Establishment of an IASC Data Standing Committee;

3. To undertake measures towards adoption of national data policies consistent with the principles and practices described below.
International Forum on
Polar Data Activities in Global Data Systems
Communiqué

Recommendations & Observations Arising From
the ‘International Polar Data Forum’

15–16 October 2013, Tokyo (Japan)

Participants in the International Polar Data Forum (comprising of data managers, scientists, and research coordinators) share their observations about the current state of polar data activities and their recommendations for enhancing and sustaining core data services into the future.

General Remarks
Despite the focus generated by the International Polar Year 2007–2008 (http://www.ipy.org/) there are still unresolved deficiencies in the way polar data are managed. These shortcomings continue to hamper our ability to discover and reuse existing and new data assets. The significant public investment in polar science made through national and international research programs is accompanied by an expectation that data should be preserved and be openly available for reuse and verification purposes. This is the responsibility of both scientists and science funders supported by data managers. Achieving these goals requires implementation of open data policies, development of long-term funding strategies to support data repositories, and a change in scientific practices to require the sharing and citation of data. In addition, the ideas and interpretations that have traditionally underpinned research publication need to be updated accordingly. Scientists must factor the costs of managing and publishing data in their research/monitoring funding proposals, and explicitly address these tasks in research/observing system plans.

The Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Committee (IASC), the two lead non-governmental organizations coordinating international polar research, are now embarking on long-term science planning activities (i.e., the SCAR Science Horizon Scan and the 3rd International Conference on Arctic Research Planning). Both organizations are committed to recommending—through their strategic-direction setting initiatives—not only that the development of robust polar data networks is seen as a science-funded activity but also that this activity has visibility in IASC- and SCAR-sponsored science plans and strategies. Through their policies and actions, IASC and SCAR member countries are encouraged to promote the funding of data management as an integral part of science implementation and to contribute to the design and development of shared global data infrastructure. Participation in the ICSU World Data System (ICSU-WDS, a global system of accredited scientific repositories and data service providers) is one mechanism for member countries to engage in such collaborative infrastructure and capability development.

Forum Observations & Recommendations
Improving polar data discovery, data preservation, and reusability rates is part of building more panoptic systems interoperability. This interoperability is now a commonly stated goal for polar research organizations, but it is recognized that interoperability needs to be addressed at a number of different levels and covers both social and technical aspects, the combination of which is difficult to address. Considerable investment
ADCN provides IASC/SAON with knowledge, advice, pool of experts for committees.

ADCN requires IASC/SAON to promote group/products, endorse developed standards and protocols, act as connectors.

ADCN LTK/CBM SubNetwork

Collaborate

from Pulsifer et al. 2011 (AGU)
Still a mess!
Challenges for Arctic Observing and Data

• 'Forecasting' (daily to seasonal scale)
  – Observations (atmosphere, ice thickness, ocean)
  – Modelling (predictability)
  – Education on realistic capabilities (→ natural variability)

• Increasing societal demand for Arctic research
• Basic research to applied research
• From interdisciplinary to cross-sectoral
  → needs Training & Time to work across sectors
• Guidelines for public research cooperation with industry
• Improved access to data for all users (preservation, interoperability)

• Funding (e.g. observing networks, cross-sectoral and idea-driven projects)

thanks to Michael Karcher
A roadmap for the future of Arctic research: ICARP III and the IPPI
International Conference on Arctic Research Planning (ICARP)

Convened periodically by IASC and its partners to identify key scientific questions and issues:

- **ICARP I, Hanover NH 1995**
  - Reviewed the state of Arctic science and resulted in a series of IASC-supported research projects.

- **ICARP II, Copenhagen 2005**
  - Twelve forward-looking science plans - resulted in many international projects and programs, especially within the framework of the International Polar Year.

**ICARP III, 2014-2105 - underway**

The outcome will be a ‘roadmap’ for the next decade of Arctic research.
Identify Arctic research priorities for the next decade;

Improve coordination of various Arctic research agendas;

Inform policy makers, people who live in or near the Arctic and the global community;

Build constructive relationships between producers and users of knowledge.
The program

- formal launch at the Arctic Science Summit Week (ASSW) 2014 in Helsinki, Finland;
- many meetings and events during 2014/15;
- culminating in a final conference during ASSW 2015 in Toyama, Japan

Call for Abstracts open until 10 November
http://www.assw2015.org/
What will be the outcomes of ICARP III?

All ICARP III partners will play a role in shaping the future of Arctic research needs:

- **Activity Summaries & Reports**
- **Consensus Statement**
- **Roadmap**

Contributions to a potential International Polar Partnership Initiative (IPPI)
INTERNATIONAL POLAR PARTNERSHIP INITIATIVE (IPPI)

Co-Chairs: D. Hik, J.-G. Winther; Vice-Chair: Ø. Hov
IPY Legacies

- **Scientific legacy:** prototypes of observational systems and networks; technologies; baseline data sets; deeper understanding of the Earth System
- **Collaborative Legacy:** enhanced collaboration and joint funding; information sharing
- **Human Legacy:** next generation of researchers and leaders; involvement of Arctic residents; public awareness and interest
Initial idea for a Polar Decade...

A new and novel framework for long-term cooperation in the Polar Regions

- addressing the emerging challenges identified within the IPY;
- optimizing and better coordinating existing resources and facilities;
- developing mechanisms for concerted investments in areas where activities are lacking.
Paris, February 2014

• concise (3 page) concept
• timetable for the way forward

• new partners, e.g. Future Earth, Mountain Research Initiative, International Hydrographic Organization

• understanding that the initiative is 100% compatible with and/or builds on ongoing research planning undertaken by IASC (ICARP III), SCAR (Horizon Scan) and others

• clear understanding of highly economical nature of the initiative (e.g. “microsecretariat”)

International Polar Partnership Initiative (IPPI)

► Agreement to cooperate
► Implementation Plan for common activities
IPPI Concept

Promote cooperation in research on human and natural processes in the poles and help to identify synergies and effectively use existing resources to address important polar issues of common interest.

Engage multiple stakeholders and support the activities that are relevant to societal issues and benefit from enhanced collaboration and coordination.

Specifically, IPPI aims to:

- Create, upgrade, and maintain necessary polar components of observing assessment, prediction, and services systems;
- Strengthen interdisciplinary/multiplatform data collection, search and rescue, exchange, archival and access, and related interoperability;
- Build long-term capacity in the communities of polar scientists and practitioners providing services; and
- Develop a common language and cooperative synergistic relations between local peoples, social and natural scientists, and practitioners.
IPPI *Timetable*

(1) 2014: seek comments at following meetings

   **WMO EC-PORS** - February 2014  
   **Arctic Council Task Force** - April 2014, June 2014 and October 2014  
   **IASC** - April 2014 (ASSW 2014)  
   **IASSA** - May 2014 (ICASS VIII)  
   **UNEP** - June 2014  
   **WMO** - June 2014 (EC-66)  
   **IOC/UNESCO** - July 2014 (EC-47)  
   **SCAR** - August 2014 (SCAR 2014)  
   **Arctic Parliamentarians** - September 2014

(2) update of IPPI concept and submission of formal proposal for endorsement by end of 2014

(3) 2015: final endorsement of the concept for IPPI

   **ASSW 2015** and **ICARP III**  
   **Arctic Council** Ministerial Meeting  
   **WMO** Congress-17  
   **IOC/UNESCO** Assembly-28
Comments on and input to the IPPI concept are welcome

Development of the IPPI Implementation Plan, documenting the benefits of IPPI to its stakeholders and participants, is underway.
Societally Significant Observing
Meeting Needs Now for a More Resilient Future

Erica Key
National Science Foundation
Arctic Observing Network Program
Resilience is at the nexus of need and knowing

Information for
- Understanding
- Decision-making
- Planning
Connecting *visually* with stakeholders in observing for awareness, collaboration, integration, and access.
Building relationships between users and implementers

> a living assessment of user needs relevant to shared priorities and the observing and information science capability available to meet those needs

> focusing on 13 areas of societal significance:

- Food Security
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> user need documents, resources, products, and information sources will be searchable, exportable, with visualization support
Networking the observations

An example from Food Security

> Key nodes
> Supporting docs
> Information streams

Coming soon:
> Cross-cuts
> Crowdsourcing
Arctic Observing Assessment

Legend:
- Nodes represent categories or resources
- Lines between nodes represent related concepts

Search:

Search Results:
- Mercury in fishes of Alaska with emphasis on subsistence species
- Mercury
- 2001-2012 Total Mercury in Alaskan Fish
- Total Mercury Concentrations in Alaskan Fish
- Mercury in the Arctic
- Technical Background Report for the Global Mercury Assessment 2013
- Mercury in Northern Pike from Koyukuk Nwr & Imnoko Nwr
- Mercury in fishes of Alaska with emphasis on subsistence species
- Mercury in Northern Pike from Yukon River
- Mercury in Northern Pike from Yukon Delta National Wildlife Refuge
- Mercury in Northern Pike from Northwest Alaska
- Fish Consumption Advice for Alaskans: A Risk Management Strategy to Optimize the Public Health
- Technical Background Report for the Global Mercury Assessment 2013
- Mercury in the Arctic
Linking to documents and resources
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