International Arctic Science Committee (IASC)

Jackie Grebmeier, US Delegate to IASC

Polar Research Board Meeting

Washington, DC

May 9, 2011
IASC is a non-governmental, international scientific organization established to encourage and facilitate international consultation and cooperation in all aspects of arctic research. IASC is an International Scientific Associate of the International Council for Science (ICSU), observer on the Arctic Council.

The IASC mission is to encourage, facilitate and promote leading-edge multi-disciplinary research to foster a greater scientific understanding of the arctic region and its role in the Earth system.
IASC Council and Executive Committee

- Representatives of the national science organizations from all 19 IASC member countries form the **IASC Council**.

- The **President of IASC** is elected by Council which also elects **4 Vice-Presidents** to serve on the **Executive Committee**.

- Council usually meets once a year during the **Arctic Science Summit Week (ASSW)**.

- **IASC Executive Committee** operates as a board of directors and manages the activities of IASC between Council meetings. The **Chair** is the **President of IASC**.

Action Groups

IASC Action Groups (AGs) provide strategic advice to the Council and Working Groups on both long-term activities and urgent needs. They are dynamic groups that act within a limited timeframe of two years.

Networks

IASC provides seed money and in-kind support for the founding and development of thematic networks that assist the organization in fulfilling its scientific mission. In general IASC supported networks are international, encourage circum-arctic activities and strive to involve early career scientists.

ISIRA

International Science Initiative in the Russian Arctic (ISIRA) to discuss and facilitate bilateral science efforts by IASC countries and Russia.
Initiatives

**SWIPA:** Climate Change and the Cryosphere: Snow, Water, Ice and Permafrost (SWIPA) in the Arctic to compile and evaluate information from Arctic monitoring networks and recent international research activities to better understand the recent changes to the cryosphere and their human impacts and implications for the ecosystem.

**SAON:** Sustaining Arctic Observing Networks is a process to support and strengthen the development of multinational engagement for sustained and coordinated pan-Arctic observing and data sharing systems to serve societal needs and are related to environmental, social, economic and cultural issues.

**ISAC:** The International Study of Arctic Change is a long-term, multidisciplinary program to study the effects of environmental changes on the circumpolar Arctic system and the globe. The main objective is to observe and understand the characteristics of the entire Arctic System including the social domain and its responses to change in order to develop the best adaptation and mitigation strategies to counteract negative effects due to greenhouse warming, other anthropogenic activities, and changes caused by natural variability affecting the region.
The IASC member organizations are national science organizations covering all fields of Arctic research.
The IASC Secretariat implements decisions of the Executive Committee and Council, manages IASC finances, conducts outreach activities and maintains international communication.

The IASC Secretariat is based in Potsdam (Germany). The IASC secretariat is hosted by the Alfred Wegener Institute (AWI) for Polar and Marine Research and co-financed by the German Science Foundation (DFG) through 2013.

http://iasc.arcticportal.org/
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UPDATE: planned May 19 meeting between Akademician Lavorov Russian Academy of Sciences, Russian IASC delegate Vladimir Pavlenko and US delegation of IASC President David Hik, Vice-Presidents of IASC Executive Committee from Arctic countries (Susan Barr-Norway, Naja Mikkelsen-Denmark and Jackie Grebmeier-USA) to discuss Russia’s concerns related to the IASC structure and direction
IASC Working Groups

**Working Groups** identify and formulate science plans, research priorities, encourage science-led programs, promote future generations of arctic scientists and act as scientific advisory boards to the Council; countries can nominate up to 2 members to each group; 10 US working group member appointed by NAS

- **Terrestrial** Working Group
- **Cryosphere** Working Group
- **Marine** Working Group / **Arctic Ocean Sciences Board**
- **Atmosphere** Working Group
- **Social** and **Human** Working Group
The role and responsibilities of the new IASC working groups include:

• Identify priority areas for international research
• Encourage and support international scientific efforts
• Encourage means of initiating, coordinating and maintaining long-term observational systems
• Address data management issues
• Ensure interaction with other relevant organizations
• Develop cross-cutting proposals where appropriate
• Provide scientific advice to the Council and outside organizations
• Initiate conferences, workshops and educational events
• Promote future generations of arctic scientists, and
• Encourage the exchange and dissemination of information
USA IASC Working Group

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IASC WORKING GROUPS WORKSHOP
12-14 JANUARY 2011

Purpose: The purpose of the IASC Working Group Workshop was to bring together, for the first time, all the members of the five IASC Working Groups. Each Working Group summarized the state of research in their field, discussed gaps in research and identified priority areas for international collaboration. A major emphasis of the workshop was to identify cross-cutting issues which more than one working group may wish to address. IASC Council has allocated as set annual some of money for each working group for activities during 2011.

Agenda included:

• reports by interim chairs: atmosphere, social, cryosphere, marine terrestrial
• outline major cross-cutting issues (e.g., ISAC, SAON, SWIPA)
• examples cross-cutting issues, such as US leadership in developing ideas
  • Marine: Arctic in Rapid Transition
  • Marine/Cryosphere: Arctic Ocean Reanalysis Effort (IASC and WCRP)
  • Atmosphere: Connection of Hemispheric Climate to Accelerated Sea Ice Loss
• Relationship to other international organizations (ISCU, SCAR, WCRP, Arctic Council, EPB, PAG, IASSA
• outreach and data issues
• IASC Secretariat support to each working group (Sara Bowden, Marit Pit)
IASC Working Group Report

TERRESTRIAL WORKING GROUP REPORT 2011

Chair
Terry Callaghan - Sweden

Vice Chairs
Torben Christensen - Denmark
Warwick F. Vincent - Canada
Benjamin Varela Pérez - Spain

Secretary
Kristján Kristjánsson for Mare Pit

Working Group Members
Inger Grove Aasoe - Norway
Stephen Coulson - Norway
Yoo Kyung Lee - Korea
Phil Worsley - UK
Wieslaw Ziaja - Poland
Piotr Glowiak - Poland
Daniel Sanchez-Mata - Spain
Eva-Maria Pfiffner - Germany
Karsten Piepjohn - Germany
Takayuki Nakatsubo - Japan
Hiroshi Kanda - Japan
Donald A. (Skip) Walker - USA
Vanessa Lougheed - USA
Thierry Boulinier - France
Jelte Rozema - The Netherlands
Mads Forchhammer - Denmark
Ingibjorg Sula Jonsdottir - Iceland
Jon S. Olafsson - Iceland
Luo Wei - China
Antero Järvinen - Finland

The scientific scope of the Terrestrial Working Group shall include any scientific research on arctic terrestrial and freshwater environments, landscapes and biota, and their responses to, and interactions with, other components of the Earth system. The remit encompasses the dynamics of the arctic system; past, present and future.

Geographically, the main area of interest of the IASC Terrestrial Working Group encompasses lands and fresh water within the area north of the latitudinal treeline with arctic climate and arctic vegetation. Several adjacent areas are included where highly relevant for certain disciplines and projects (a) boreal oceanic tundra (e.g. the Averian Islands, North Atlantic Islands), (b) alpine tundra that is continuous with the arctic tundra (e.g. the central highlands of Iceland, the Scandes Mountains, the Polar Urals), (c) the forest tundra, and (d) drainage basins to the south that connect with freshwater and marine areas of the Arctic.

Scientific Foci

- Determining the net effect of the terrestrial and freshwater environmental and biosphere’s processes that amplify or moderate climate warming
- Estimating past changes in arctic geo- and biodiversity, measuring current change and predicting future changes

The Arctic has always been changing as a result of the geological processes that form the landscapes, through the geomorphological processes that shape landscapes to ecological processes that provide an array of important ecosystem services. It is necessary to document past processes to understand the current geography, and the diversity of landscapes and biota of the Arctic. Furthermore, the current rapid changes in many arctic landscapes and ecosystems together with their importance at local to global scales require a better predictive capacity to be deployed.
The geographic scope of the Marine Working Group shall be the Arctic Ocean and the Subarctic Seas.

The scientific scope of the Marine Working Group shall include but not be limited to any marine natural science or engineering research.

Scientific Foci

- Arctic Ocean System: Predicting and Understanding Rapid Changes in the Arctic
  - There is widespread agreement that the Arctic Ocean is now in a state of rapid transition with potentially tremendous economic, social and environmental consequences. This transition is best exemplified by the marked reduction in sea-ice cover witnessed in instrumental records over the last 30 years. Scientific knowledge of the present status of the Arctic Ocean and process-based understanding of the mechanisms of change are required to make useful predictions of future conditions throughout the arctic region.
  - These predictions are also urgently needed to plan for the consequences of climate change. For example, understanding the feedbacks between physical and biogeochemical components of the Arctic Ocean are extremely important not only for the arctic environment but for the global community as well. The Marine WG intends to play a leading role to further our understanding of this complex system.

- Sea ice, its structure, dynamics and role in the arctic system
  - The IPY has provided a wealth of extensive and intensive observations of the Arctic Ocean, of its hydrography, circulation and interaction with other parts of the Earth climate system. At the same time, nature exhibited a most drastic example of arctic change by creating the smallest summer ice extent observed to date - an event that defied the model projections, and whose occurrence and consequences have been analyzed and debated, without conclusive answers being found.
  - Building on knowledge gained during the IPY and on new observational technologies the Marine WG will endeavor to better understand sea ice structure, its growth and decay and its dependence and dynamical interactions with the radiation balance, the atmosphere and the ocean within the arctic system. It will also include evaluation on the impacts of these changes on the associated sea ice biota.

- Ecosystem responses to changing physical parameters in the Arctic
  - Although recent major changes in the physical domain of the Arctic are well documented, such as extreme retreats of summer sea ice in 2007, large uncertainties remain regarding potential responses in the biological domain. Reduction in sea ice extent in the Arctic has been seasonally asymmetric, with minimal changes until the end of June and delayed sea ice formation in late autumn. The effect of this seasonal asymmetry in sea ice loss on ocean primary production is equivocal, with satellite images showing variable chlorophyll concentrations with no secular shifts for the region as a whole. However, clear changes have occurred at higher trophic levels, including shifts in species ranges for zooplankton, benthos, and fish, and loss of sea ice as habitat and platform for marine mammal species. The Marine WG intends to play a role in increasing our understanding of potential ecosystem changes under further loss of sea ice.

- Understanding Geochemical process in the Arctic Ocean and Subarctic Seas
  - The changes in the sea ice coverage of the
The geographic scope of the Social and Human Sciences Working Group shall be the Arctic as defined in the map accompanying the Arctic Human Development Report (AHDR). The geographic scope can be extended south where it is appropriate for an understanding of arctic social and human processes.

The scientific scope of the Social and Human Sciences Working Group (WG) shall include all aspects of social sciences and humanities research in the Arctic, as well as their connections with other IASC Working Groups. The actual work of the Social & Human Sciences Working Group (WG) will be determined by a dynamic list of scientific focus areas.

Scientific Foci

The WG members agreed upon the following list of scientific foci. It is to be expected that this list will be significantly refined within the first year of the WG’s existence and continually updated thereafter.

- Indigenous peoples and change: adaptation and cultural and power dynamics
- Exploitation of natural resources: past, present, future
- Histories and methodologies of arctic sciences and arts
- Perceptions and representations of the Arctic
- Human health and well-being
- Security, international law and cooperation

Cross-cutting Issues

Based on the scientific foci, the following list of cross-cutting issues was adopted. The list is based on WGN’s needs as well as opportunities provided by the focus areas of other working groups. The list of cross-cutting issues is as dynamic as the list of scientific foci. Its development and refinement will depend on actual cross-working group interactions.

- Human health, well-being and ecosystem change
- Collaborative community research on climate change: Competing forms of resource use in a changing environment
- People and coastal processes
- Perception and representation of arctic science

Priority Activities

The WG agreed on the following priorities and initiatives for the coming year:

- A community-based workshop on Kodiak Island, Alaska, focused on local ecosystem changes and adaptations. The Working Group will collaborate with the community and local industry in planning and conducting the proposed workshop.
- Inventory existing funding opportunities and further advocate the humanities and social sciences in the funding structures for international arctic research.
- Organize a roundtable on “Perceptions and Representations of Arctic Science” at the Seventh International Congress of Arctic Social Sciences (ICASS VII).
The geographic scope of the Atmosphere Working Group shall be the Arctic but will also include the Arctic’s responses to global change processes (arctic amplification) and impacts of arctic changes on the northern hemisphere atmospheric circulation.

The scientific scope of the Atmosphere Working Group includes scientific research towards understanding and prediction of arctic change, and considering the fate of perennial sea ice and the global atmospheric consequences of its disappearance. This includes past climate states, investigation of arctic processes across data sets and approaches, and climate model projections. The scope includes local and regional impacts of arctic change.

Scientific Foci and Cross-cutting Issues

The Atmosphere WG will address many of the direct large scale and regional climate change issues for IASC. We view our function as promoting science, but not focusing on monitoring or future assessments.

- Support for increased tropospheric observations

The Atmosphere Working Group supports the Integrated Arctic Ocean Observing System (IAOOS) concept of 10-20 drifting ocean/sea ice buoys. Specifically, engineering work is needed to add atmospheric radiation and temperature profiling capability to the drifting buoy plans for IAOOS.

We hope that this action can be conducted jointly with the Marine and perhaps Cryosphere WGs of IASC with IASC support for joint projects. We will also supply moral support to SAON and IASC activities, as well as other observational coordination efforts.

- Perceptions and Representations of Arctic Change

The Atmosphere WG wants to promote joint work of the IASC Atmosphere and Social & Human Sciences WGs on this topic. The IASC Social & Human Sciences WG will be identifying the best social scientists for this topic in the next months and are planning a roundtable discussion about it at their meeting at ICASS VIII in Akureyri in late June. After that, they will be ready for joint activities. A joint session at 2012 ASSW maybe a possible forum.

Priority Activities

- Large-scale Climate theme: Arctic Amplification, loss of sea ice, natural and forced variability, and global linkages. To advance this topic, the Atmosphere WG will promote presentations and special sessions on these topics at scientific meetings. The Atmosphere WG will work with the newly developing WCRP polar prediction project and in particular hold a joint planning workshop to further promote these Atmosphere WG research topics.

- Regional Impacts theme: effects of ocean, sea ice and soil processes on regional climate, regional coupled modeling, dynamic and statistical downscaling, and coupling to the global climate system. AWG will encourage Regional impacts projects at the national and international levels, such as the WCRP CORDEX effort, REKLIM-Regional Climate Change Initiative in Germany, and the DOI Alaskan Downscaling Conference in the US. To improve arctic regional science, the WG will bring together modelers and observationalists in a small workshop in September 2011 in Potsdam. The focus of the workshop will be to discuss the contribution of atmospheric measurements to improve Arctic specific sub-grid scale para-
The geographic scope of the Cryosphere Working Group shall be those areas of the Arctic and contiguous areas of the sub-Arctic where one or more element of the cryosphere (including the Greenland ice sheet, mountain glaciers, ice caps, icebergs, sea ice, snow cover and snowfall, permafrost and seasonally frozen ground, and lake- or river-ice) plays an important role in surface-climate interactions and/or the freshwater budget. It will normally include the Arctic Ocean and surrounding seas (including the Baltic), Alaska, Canada’s northern territories, Greenland, Iceland, Svalbard and the Russian Arctic archipelagos, and parts of Canada, Scandinavia, and northern Russia that lie polewards of the southern limit of discontinuous permafrost.

The scientific scope of the Cryosphere Working Group shall include any scientific or engineering research relating to the arctic and sub-arctic cryosphere, including its interactions (past, present and future) with the climate, oceans, and biosphere. It shall also include the promotion of good practices for the management of scientific data relating to the arctic cryosphere and its interactions with other components of the arctic system.

Scientific Foci

The scientific foci of the Cryosphere Working Group shall be:

- The cryosphere as an indicator of climate change
- The cryosphere as a climate amplifier
- The role of the cryosphere in arctic hydrology (including the relationship between arctic glaciers and global sea level change, glacier-ocean interaction, and the role of the cryosphere in the water balance of large river basins)
- The biology and biogeochemistry of icy environments (including landscape and vegetation responses to climate change in regions where these responses are mediated by cryospheric change; fluxes of sediment, nutrients, and contaminants to the ocean from large river basins and coastal erosion; the effects of cryospheric change on microbial processes and the exchange of greenhouse gases between land, atmosphere and ocean)

Cross-cutting Issues

Cross-cutting issues identified by the WG as potential foci for action in collaboration with other WGs were:

- Linking microbial processes in permafrost to greenhouse gas fluxes in a changing climate – effects of site characteristics and permafrost state, properties of organic carbon, microbial community structure and function.
- Impact of changing snow cover and permafrost characteristics on water and material fluxes (sediment, carbon, nutrients and pollutants) in arctic rivers.
- Response of tidewater glaciers to climate change in the Arctic – roles of ice-ocean interactions, terminus dynamics, and glacier hydrology; impacts of tidewater glacier change on regional scale mass balance.
- Measuring and modeling snow cover, snow water equivalent and glacier mass balance across different scales – development and validation of approaches.
- Interactions between the oceanic and atmospheric boundary layers across a broken sea ice cover – representation in
# Table of Priority Activities 2011 / 2012

<table>
<thead>
<tr>
<th>Priority Activity</th>
<th>Terrestrial</th>
<th>Marine</th>
<th>Social &amp; Human</th>
<th>Atmosphere</th>
<th>Cryosphere</th>
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<tbody>
<tr>
<td>Arctic in Rapid Transition (ART) (Development of Implementation Plan)</td>
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<td>IVOOS Legacy Phase Observing Plan (Publication)</td>
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<td>Distributed Biological Observatory (Workshop)</td>
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<td>Site Survey: Deep Ocean Drilling (Workshop)</td>
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<td>IYF Data Synthesis (Pilot Project)</td>
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<td>Sea ice boundary layer and pola amplification (Workshop with WCRP)</td>
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<td>Microbial Processes in Permafrost (Initiate program with IA)</td>
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<td>Glaciation-elastic adjustment correction to estimates of ice sheet mass balance derived from satellite altimetry and GRACE satellite gravimetry (Workshop 2012, with SCANIMAP)</td>
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<td>FSC Predictions (Workshop with WCRP)</td>
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<td>Microbial biodiversity and processes in extreme environments (Session)</td>
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<td>Greenhouse gases and feedback likely of carbon in Arctic soils and permafrost (Action Plan)</td>
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<td>Landscapes in rapid transition (Inventory/Assessment)</td>
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<td>Sea ice–Land Islands: Sea Ice Implications for Adjacent Terrestrial Realm (Session / Workshop)</td>
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<td>Community-based workshop on local ecosystem changes and adaptations</td>
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<td>Roundtable on Perceptions and Representations of Arctic Sciences at ICASS PR</td>
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<td>Inventory of International funding opportunities for humanities and social science research in the Arctic</td>
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<td>Contribute to Arctic Human Development Report II</td>
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<td>Independent / Supported before IYF kick-off</td>
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<td>IMPETUS (Workshop)</td>
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<td>Teddy Bears Workshops on polar genetics</td>
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*Lead means that this WIG is the initiator and lead WIG for the activity. Other WIGs for which the activity is of interest are marked with an X.*
Joint SCAR-IASC EXCOM Meeting – Minutes

Potsdam, 12th January 2011 1500-1700
Telegrafenberg A45, IASC Secretariat

Attendees: Susan Barr (IASC Vice President), Jackie Grubesic (IASC Vice President), David Hik (IASC President), Ad Itiuskes (SCAR Vice President), Mahlon "Chuck" Kennicutt (SCAR President), Naja Mikkelson (IASC Vice President), Byong Kwon Park (IASC Vice President), Volker Rachold (IASC Executive Secretary) and Mike Sparrow (SCAR Executive Director)

SCAR and IASC took the opportunity to hold a joint Executive Committee meeting at the IASC Secretariat in Potsdam during the IASC Working Groups workshop. This also allowed the SCAR representatives to interact with the new IASC working groups.

Several issues were on the agenda of the meeting, which were dealt with sequentially.

1. New BipAG II (SCAR/IASC joint Bipolar Action Group on Science Cooperation) group.

Volker Rachold and Mike Sparrow updated the two EXCOMs on progress with the new BipAG II. The membership has been finalized, with Cymon Ellis Evans agreeing to act as chair of the group.

See [http://www.scar.org/about/partnerships/iasc/bipag2.html](http://www.scar.org/about/partnerships/iasc/bipag2.html) for further details.

**ACTION:** Secretariats to make an announcement about BipAG II on the SCAR and IASC web pages and to work with the new chair on taking the group forward, including setting a date for a first meeting ASAP.

2. Joint Science Issues

During the IASC Cryosphere WG meeting joint sponsorship of ISMASS was agreed.

**ACTION:** Management/funding of joint ISMASS group to be discussed by IASC and SCAR Secretariats. By end March 2011.

Several other possible bipolar interactions are under discussion, for example a possible bipolar group on contaminants, joint sponsorship of IPICS, data issues etc. These will be taken forward by BipAG II.

**ACTION:** V. Rachold and M. Sparrow to i) work with BipAG chair on time/venue for next meeting and ii) to ensure that BipAG II is aware of bipolar issues already under discussion ASAP.

3. Early Career Scientists

IASC and SCAR have a joint MoU with APBCS (see below). The joint EXCOMs discussed the role of IASC and SCAR in supporting APECS as part of the IPY Legacy. There was concern over how the APECS secretariat would be funded in the future.

**ACTION:** Secretariats to work with Jenny Bardsen to write a letter of support to the Norwegian hosts of the APBCS Secretariat reminding them of the Arctic Council statement of the importance of continued support of APECS. By mid February.

4. Other IPY Legacy Issues

Developments with regards to the Southern Ocean Observing System (SOOS) and SAON were discussed. The SOOS now has a Secretariat in Hobart, Australia in order to aid implementation. An Executive Officer for the SOOS office will be appointed early in 2011. The SAON Steering Group is currently finalizing the report to be presented to IASC Council at ASW 2011 and to the Arctic Council at its Ministerial Meeting in May. The overall message will be that, after the endorsement by IASC and the Arctic Council, the SAON process be transitioned from a planning phase to an operational phase. The Arctic Council and IASC will be asked to jointly establish an institutional framework for the future SAON program.

5. MoUs and Letters of Agreement

**SCAR/IASC Letter of Agreement**

The SCAR/IASC Letter of Agreement signed in 2006 ([http://www.scar.org/about/partnerships/iasc/ WP34 IASC pdf](http://www.scar.org/about/partnerships/iasc/ WP34 IASC pdf)) remains in
ASSW 2009
The first Science Symposium “Arctic Connections - results of 150 years of arctic research” held at an ASSW turned out to be a great success. The major event held in Bergen, Norway, attracted over 300 scientists, students, policy makers and other professionals.

ASSW 2010
The ASSW 2010 took place in Nuuk (Greenland) from 15 - 19 April. This ASSW consisted of business meetings and a common day.

ASSW 2011
The next ASSW with a three day Science Symposium will be held on 29 March – 1 April 2011 in Seoul, Korea. The theme of the Science Symposium is: “The Arctic: The New Frontier for Global Science”.

ASSW 2012 Montreal, Canada
The ASSW Business Meetings of 2012 will be held in Montreal, Canada. The meetings will take place in conjunction with the IPY Conference “From Knowledge to Action”.

2011 Arctic Science Summit Week

The purpose of ASSW is to provide opportunities for international coordination, collaboration and cooperation in all fields of Arctic science and to combine science and management meetings. The ASSW also offers insight into Arctic research undertaken by the host country and membership countries. Side meetings organized by other groups with interests in Arctic science and policy will take place at the same time.

The ASSW in 2011 will include not only Business Meetings but also a 3-day Science Symposium. The symposium will take place from 29-31 March, 2011.

SCIENCE SYMPOSIUM ON
THE ARCTIC:
NEW FRONTIER FOR GLOBAL SCIENCE

29-31 MARCH 2011, SEOUL, KOREA

**Sessions**

**Disciplinary Sessions**
- Arctic Atmosphere, Climate Processes and Teleconnections
- Arctic Change and Implications for Terrestrial Ecosystem Services
- Arctic Marine Climate Change: Causes and Impacts on the marine system
- State of Glaciers and Permafrost and Associated Feedbacks to the Climate System
- Societal Changes in the Arctic and North-South Relations

**Interdisciplinary Sessions**
- Ecosystem Responses to Climate Change: Past, Present and Future
- State and Fate of Sea Ice and Legal and Policy Consequences on the Global Community
- Observing, Modeling and Prediction of Arctic Change

*A complete description of each session is provided at following website: www.assw2011.org or www.2011assw.org

**Convenors**

Dyong-Kwon Park (Korea)
Korea National Committee on Polar Research

Jacqueline Grebmeier (USA)
Chesapeake Biological Lab, University of Maryland Center for Environmental Science

**Scientific Steering Committee**

Alexey Pavlov (Russia / APECS)
Alexander King (UK / IASSA)
Byong-Kwon Park (Korea / IASC)
Hanne H. Christiansen (Norway / IPA)
Jacqueline Grebmeier (USA / PAGI)
Roland Neuber (Germany / Nysmac)
Sara Bowden (Secretary / AOSB)
Volker Rachold (Executive Secretary / IASC)

- Number of registered participants: 334
- Participants from 23 countries
- Large number of early career scientists
ISIRA Meeting, Jan. 2011

Prepared for the International Science Initiative in the Russian Arctic (ISIRA) Advisory Group Meeting, International Arctic Science Committee, Potsdam, January 2011 by Lee W. Cooper, University of Maryland Center for Environmental Science (cooper@umces.edu)

I. Bilateral Activities and Projects in the Russian Arctic Involving U.S. and Russian Scientists

General Basis for U.S. funded research in the Arctic. The Arctic Research and Policy Act (ARPA) of 1984. U.S. Public Law 98-373, 31 July 1984; amended as Public Law 101-609, 16 November 1990 provides for a comprehensive U.S. national policy dealing with research needs and objectives in the Arctic. The ARPA established an Arctic Research Commission and an Interagency Arctic Research Policy Committee (IARPC) to help implement the Act. IARPC includes representatives of all U.S. federal agencies supporting research in the Arctic: the National Science Foundation, Department of Commerce (e.g., National Oceanic and Atmospheric Administration (NOAA)), Department of Defense (e.g., Office of Naval Research (ONR)), Department of State, Department of Health and Human Services, Office of Science and Technology Policy, Department of Agriculture, Department of Energy, Department of the Interior (e.g., National Park Service, Fish and Wildlife Service, Bureau of Land Management), Department of Homeland Security (e.g., U.S. Coast Guard), National Aeronautics and Space Administration, Environmental Protection Agency, and the Smithsonian Institution.

http://www.mnf.gov/ocd/opp/arctic/iarpc/start.jsp (IARPC)
http://www.arctic.gov/ (Arctic Research Commission)

II. Active Individual National Science Foundation Projects with U.S. – Russian Scientific Cooperative Elements

1. "Millennial Scale Arctic Climate Change for the last 3.6 My: Scientific Drilling at Lake El'gygytgyn, NE Russia" The sedimentary record of Lake El'gygytgyn, an impact crater in northeastern Siberia, has been a focus for paleoclimatic research, and it is an endorsed project under the International Continental Drilling Program (ICDP). Sediment cores retrieved from the deepest part of the lake (170 m) in 1998 and 2008 revealed a basal age of ~250 ka to nearly 300 ka, and reproducibly demonstrated the sensitivity of the lake to climatic change across NE Asia at millennial timescales. The current phase of the project has supported acquiring deeper cores in spring 2008 through to bedrock, and these samples are currently being analyzed as part of the U.S. contribution to the multi-national ICDP effort that joins contributions from the Canadian, German and Russian governments. This project is also sanctioned under the Russian Academy of Sciences-U.S. National Oceanic and Atmospheric Administration Memorandum of Agreement on World Oceans and Polar Regions, which helped facilitate international permitting for logistics, sample recovery and transfer.

Contacts: Julie Brigham-Grette, juliebg@geo.unmass.edu (University of Massachusetts, Amherst); Olga Glushkov and Pavel Minyuk (Northwest Interdisciplinary Scientific Center, Magadan); Elena Bobrova and Grinyov Fedorov (AARI-St.Petersburg); Martin Melles (University of Leipzig, Germany)

http://www.geo.umass.edu/lake_e/index.html
http://www.geo.umass.edu/projects/chukotka/elg.html
http://www.icdp-online.de/sites/elgygytgyn/news-news.html
http://www.aari-potsdam.de/www/polgeo/elgygytgyn.html

2. "IPY: Collaborative Research on Carbon, Water, and Energy Balance of the Arctic Landscape at Flagship Observatories and in a Pan-Arctic Network" This project is establishing two terrestrial environmental observatories, in the U.S. and Russia, that form a part of a pan-Arctic network of observatories where coordinated measures of landscape-level carbon, water, and energy balance are carried out and results made available in a unified database. The observatories are located at two existing sites of research on landscape-level carbon, water, and energy balance: Toolik Lake (Alaska) and Cherskiy (Siberia). The network of observatories across the Arctic where similar long-term observations of carbon, water and energy variables are made will include Toolik, Cherskiy, Akhob (Sweden, the main site of the ABACUS project), Zackenberg (Greenland), and several sites in Arctic Canada. This project specifically provides for instrumentation improvements and personnel at Toolik and Cherskiy, as well as international workshops and visits among the sites to ensure that data and instrumentation are easily comparable. Rather than studying one process at a time, this effort focuses on simultaneous measurements of carbon, water, and energy fluxes of the Arctic terrestrial landscape at hourly, daily, seasonal, and multiyear time scales.

Contact: Syndonia Brest-Harte, mbnharte@alaska.edu (University of Alaska, Fairbanks)

http://ecosystems.mbl.edu/src/AON/index.html
http://aon.iaib.nsf.gov/AON_Study_Sites.html

3. "Black carbon in Arctic snow and ice and its effect on surface albedo" Two decades ago, measurements of the black carbon (BC) content of snow on land and sea in the western Arctic suggested that BC was responsible for possible reductions of albedo of 0-4%. However, more recent measurements suggest that the BC content of snow in the Arctic Ocean may have changed. This project is surveying the BC content of snow, with sampling near the time of maximum snow depth on the Arctic Ocean, in tundra areas of Russia, Alaska, and Canada, in both wet-snow and dry-snow zones of the Greenland Ice Sheet, and on ice caps in Iceland. As the snow melts, BC tends to concentrate at the surface, where it has a greater effect on albedo than if uniformly distributed. The effect of BC on the surface albedo will be estimated both regionally and seasonally. Air-sampling concurrent with snowfall events is also being carried out at select locations, to determine the scavenging ratio, which is needed in atmospheric transport models that link emissions of aerosols to deposition in precipitation. The distribution of BC throughout the Arctic snowmass and its seasonal variability may have important effects on climate variability due to their influence on albedo.

http://www.atmos.washington.edu/sootsonsnow/
http://www.atmos.washington.edu/sootsonsnow/

4. "IPY: The Polaris Project: Rising Stars in the Arctic" The Polaris Project is engaging students and early career scientists in a multifaceted effort that includes: a field course and research experience for undergraduate students in the Siberian Arctic; several new Arctic-focused undergraduate courses taught colleges across the United States and in Russia; the opportunity for the participants to initiate research programs in the Siberian Arctic; and a wide range of outreach activities. The unifying scientific theme for the project is the transport and transformations of carbon and nutrients as they move with water from terrestrial uplands to...
IASC Updates

• Germany prepared a five-year financing plan that indicates secure host country contribution for the IASC Secretariat until end of the 2013. Council should begin a discussion about hosting the Secretariat beyond the current commitment from Germany and the US, particularly possibility of multi-country support via form of distributed secretariat (Note: German Secretariat support is additional 2/3 of annual dues all countries combined)

• No annual due increase for next 2 years, but spending down savings to support working groups; issue in front of Council is Secretariat continuation, reformat, or rotation

• Russian discussions still pending

• **ACTION**: US IASC Working Group members would like to have fall US IASC all hands meeting 1 day before PRB to overlap PRB by one day, thus 2 day fall meeting