



Partnership between the Scientific Community and Arctic Stakeholders (PaSCAS): Responding to Change Workshop for the Arctic Observing Summit (AOS) 2016



REPORT FROM ARCTIC SCIENCE SUMMIT WEEK (ASSW) 2015, TOYAMA, JAPAN

Maribeth Murray and Gabriela Ibarguchi

International Study of Arctic Change (ISAC) International Program Office, Arctic Institute of North America, University of Calgary, 2500 University Dr. NW, ES-1040, Calgary, AB, T2N 1N4, Canada www.arctic.ucalgary.ca

BACKGROUND

The annual Arctic Science Summit Week (ASSW) is an international assembly of scientists and professionals across all sectors engaged in Arctic research and interested in facilitating collaboration, coordination and science planning. ASSW includes leaders and representatives from polar organizations, research and education institutes, Indigenous Peoples, government agencies, decision makers, managers, early career scientists, and community members. The International Arctic Science Committee (IASC) takes a lead role in the planning and development of ASSW. Side events, business meetings, scientific presentations and workshops contribute to ASSW and provide opportunities for knowledge sharing and for coordinating Arctic science and international cooperation.

The International Study of Arctic Change (ISAC) is a long-term, international, multi-disciplinary Arctic environmental change program established in 2003 by the International Arctic Science Committee (IASC) and the Arctic Ocean Science Board (<http://www.arcticchange.org/>). The core components of ISAC include observing, understanding and responding to Arctic environmental change through research, monitoring, linking science and local knowledge, deployment of observing systems, data-sharing, communicating results, and knowledge translation for action and mitigation. ISAC is responsible for planning the biennial Arctic Observing Summit (AOS; <http://www.arcticobservingsummit.org/>), an event held in conjunction with ASSW. AOS is a key platform and forum for the Arctic community to address the observation needs of stakeholders, and to foster international communication and the coordination of long-term observations. Two AOS summits have taken place to date (2013 in Vancouver, Canada; 2014 in Helsinki, Finland, in conjunction with ASSW 2014); the next AOS is scheduled for March 2016 in Fairbanks, Alaska, as part of ASSW 2016 (<https://assw2016.org/>). Part of the development of the AOS includes gathering input and perspectives from the scientific community and stakeholders in the design and implementation of an international Arctic observing systems network.

ASSW 2015 recently took place in Toyama, Japan (April 23 - 30; <http://assw2015.org/>) and included a special workshop, ***'Partnership between the Scientific Community and Arctic Stakeholders: a Responding to Change Workshop for AOS 2016' (PaSCAS)***. Planning of the PaSCAS workshop stemmed from the joint understanding by the international community about the importance of knowledge translation, applications of research knowledge, and of open dialogue in conjunction with research planning to facilitate the alignment of potential stakeholder needs with solutions-based scientific research. Major drivers for planning the workshop included the growing interest and opportunities to foster collaboration among Arctic and non-Arctic nations, to share knowledge and lessons learned, and to further develop partnerships among Indigenous Peoples, global communities, and all sectors.



International participants hear opening remarks at the **Partnership between the Scientific Community and Arctic Stakeholders Workshop (PaSCAS)**, ASSW, 2015 Toyama. Photo: NIPR © 2015

PASCAS WORKSHOP: PARTNERSHIP BETWEEN THE SCIENTIFIC COMMUNITY AND ARCTIC STAKEHOLDERS

The organization of the PaSCAS Workshop was generously led by Dr. Hiroyuki Enomoto (National Institute of Polar Research, NIPR, Japan, and AOS Executive Organising Committee) and included co-organisers from ISAC¹, IARC (International Arctic Research Center, Alaska, Fairbanks), NIPR (National Institute of Polar Research, Japan), JAMSTEC (Japan Agency for Marine-Earth Science and Technology), JCAR (Japan Consortium for Arctic Environmental Research), and Hokkaido University, Japan. The PaSCAS workshop was moderated by Dr. Enomoto, Dr. Maribeth Murray (Executive Director, Arctic Institute of North America, Canada, and ISAC, and AOS Executive Organising Committee), and Hajo Eicken (IARC, USA, and AOS Executive Organising Committee).

Participants from a diverse group of Arctic and non-Arctic countries (Appendix B) were present at ASSW 2015, including leaders of polar organizations, research institutes and programs, and members representing a wide range of fields and sectors. The workshop served as an information session and workspace for discussing potential extensions and expanded collaboration opportunities to strengthen Arctic research and to address the most pressing needs of Northern communities and stakeholders through solutions-oriented science (see the workshop program, Table 1).

The key purpose of the workshop was to bring together nationally (Japan) and internationally recognized Arctic experts who are leading pilot projects with the involvement of stakeholders. Goals of the workshop included exchanging hands-on knowledge for identifying and engaging stakeholders, including policy makers and Indigenous Peoples, and building a roadmap toward solutions. The perspectives of non-Arctic countries are essential contributions for planning for AOS 2016 and a key goal of the workshop was to discuss and highlight the importance of stakeholder engagement from early

¹ Acronyms for programs and institutes is included in Appendix A.

phases, and throughout all stages, in Arctic research, planning and policy. Discussion and themes at the PaSCAS workshop centered around stakeholder engagement and scientific collaboration:

- How can Arctic research communities interact with stakeholders?
- Identifying the differences and similarities of *stakeholder groups* for Arctic states and non-Arctic states
- What would improve scientific contributions consist of for the Arctic community by non-Arctic states?
- What do Arctic states expect with respect to science from non-Arctic states?

In addition, recommendations stemming from previous AOS Summits were summarized and discussed (over 100 comments and recommendations have been received by the ISAC Program Office since AOS 2013), and these have illustrated that circumpolar nations, as well as non-Arctic countries, are willing and strong participants to contribute to a sustained, coordinated network for Arctic observing. In particular, recommendations that were of particular interest to PaSCAS participants included:

- Defining what stakeholder needs are (and who are key stakeholders)
- Improving international site accessibility and coordinated data collection
- Improving coverage, inclusion and participation of Eurasian sectors
- Improve the diversity of participants and stakeholders
- Link efforts, standards, methods, variables and indicators in use
- Engage stakeholders at all stages, from assessing needs to the creation of solutions-based, useful products

PASCAS PROGRAM AND SUMMARIES FROM PRESENTATIONS

Presentations during the PaSCAS workshop included overviews of international programs related to Arctic observing, stakeholder engagement, and themes relevant for AOS planning (Table 1). Brief summaries of presentations from leaders of these programs are included below, followed by highlights stemming from the final discussion.

**TABLE 1: Updated PaSCAS Workshop Program
(14:00-17:30, April 25, 2015; Toyama International Conference Center, Rm 204)**

14:00	Welcome and Introduction	<ul style="list-style-type: none"> • Greeting: Akinori Mori (MEXT) • Introduction: Hiroyuki Enomoto (NIPR)
14:15	Introduction of projects (focus on stakeholders)	<ul style="list-style-type: none"> • ISAC and AOS: Maribeth Murray (AINA and ISAC) • SEARCH: Hajo Eicken (IARC) • CACCON: Donald Forbes and Trevor Bell (Memorial University) • ACCESS: Michael Karcher (AWI/OAsys) • ICE-ARC: Jeremy Wilkinson (BAS) • GRENE-Arctic: Hiroyuki Enomoto (NIPR) • ArCS: Takashi Kiyoura (MEXT)
15:15	New frameworks for supporting research	<ul style="list-style-type: none"> • Northern Research Forum: Lassi Heininen (Lapland Univ.) • GEO Cold Regions: Barbara Ryan (GEO)
15:45	Break	
16:00	General discussion	<ul style="list-style-type: none"> • Recommendations from AOS/ISAC town hall meetings and feedback • How can Arctic research communities interact with stakeholders • Identifying some differences and similarities in "stakeholder groups" for Arctic states and non-Arctic states • What would be improved scientific contributions consist of for the Arctic community by non-Arctic states • What do Arctic states expect with respect to science from non-Arctic states
17:30	Summary	<ul style="list-style-type: none"> • Concluding remarks

ISAC and AOS: Maribeth Murray (AINA and ISAC). Introduction and overviews to the ISAC program and on the Arctic Observing Summit (AOS) were provided, with emphasis on the synergies between scientists and stakeholders. Key goals of the larger ISAC program, and for planning the biennial AOS, are to address societal needs for information within and beyond the Arctic and to work towards solutions-oriented research and applications. The themes for the upcoming AOS 2016 were provided and include: International frameworks and national strategies for funding and support; Technology, including a special session on UAVs (Unmanned Aerial Vehicles); Global linkages; Stakeholder engagement and needs; Private sector; and Interfacing traditional knowledge and environmental science.

SEARCH: Hajo Eicken (IARC and SEARCH). The SEARCH Program (Study of Environmental Arctic Change; USA) has the vision of promoting the scientific understanding of Arctic environmental change to help society understand and respond to a rapidly changing Arctic. SEARCH aims to provide a foundation of Arctic change science through collaboration with the research community, funding agencies, and other stakeholders. SEARCH emphasizes the knowledge to action approach to facilitate Arctic science and its relevance to society, and like ISAC, the program includes the components of understanding, predicting and responding to Arctic change. SEARCH includes an Arctic Observing Network in the USA working towards the coordination of data-collection, design, and optimization of systems. For Knowledge to Action (K2A), SEARCH includes a 5-year strategy that can proceed through 6 stages: a trickle down indirect exchange of knowledge, translation of knowledge (more specialized), participation (facilitating direct consultation), integration (funders, scientists and practitioners), and negotiation. SEARCH has action teams working on permafrost and global linkages, sea ice prediction, sea ice and walrus populations, and the Arctic Observing network. SEARCH groups include local experts from Northern communities.

CACCON: Donald Forbes (Memorial University). The Circumpolar Arctic Coastal Communities Observatory Network (CACCON) creates knowledge to support evidence-based decision making to adapt to climatic and socioeconomic changes and to create a knowledge hub for coastal communities. Key components of CACCON include the engagement of communities, co-design of projects, and solutions-oriented applied research focusing on the needs and issues surrounding coastal areas, information for decision-makers, and access to data. Many successes were highlighted but continued work is needed for cross-fertilization and international collaboration. The *State of the Arctic Coast 2010 – Scientific Review and Outlook* report² highlighted the status and trends of the physical, biological and social components of coastal regions, showing the importance and urgency of greater international cooperation to protect shorelines and to ensure that sustainable practices are adopted in collaboration with all sectors and coastal community stakeholders. CACCON aims to support decision-making, building local knowledge and capacity, and develop a network supporting co-design for adaptation.

ACCESS: Michael Karcher (AWI/OAsys). The Arctic Climate Change, Economy and Society Project (ACCESS) began in 2011, and is currently in its final year and stages of reporting. ACCESS, led by Jean-Claude Gascard and co-lead by Michael Karcher, involves over 10 countries and 27 partner institutions working towards assessments of climate change and the impacts on marine transportation, tourism, fisheries, marine mammals and the extraction of oil and gas in the Arctic Ocean. ACCESS is also focusing on Arctic governance and policy. Five working packages include Arctic environmental and

² Forbes, D.L. (editor). 2011. *State of the Arctic Coast 2010 – Scientific Review and Outlook*. International Arctic Science Committee, Land-Ocean Interactions in the Coastal Zone, Arctic Monitoring and Assessment Programme, International Permafrost Association. Helmholtz-Zentrum, Geesthacht, Germany, 178 p. <http://arcticcoasts.org>

climate change (observing, modeling and analyses of historic data); shipping and tourism (pollution, economics, and climate change effects); fisheries (socio-economic impacts, sound pollution and impacts on marine mammals, and focus on Norway); resource extraction (economics, risk mitigation and assessment, contaminants, and spill response); and governance, sustainable development and synthesis (including a marine spatial planning tool). ACCESS creates connections with stakeholders under the work packages, includes stakeholders as part of advisory boards, organizes workshops, creates communications tools and publications, and undertakes other engagement activities. To date some lessons learned include consideration that common interests must be highlighted between stakeholders and scientists to maintain long-term commitment, including the interests of commercial stakeholders, clearly defining expectations and time commitments from the start, including stakeholders from early phases, and working with funding agencies to facilitate scientist-stakeholder interaction.

ICE-ARC: Jeremy Wilkinson (BAS). ICE-ARC (Ice, Climate, Economics - Arctic Research on Change) is a four-year European Union program involving physicists, chemists, biologists, economists, and sociologists from 21 institutes from 11 countries to study Arctic sea ice dynamics and impacts of climate change, and to make predictions and reduce uncertainty about changes in the Arctic marine environment. A key focus includes economy. Six work packages include: observing and uncertainties; modelling and uncertainties; identification of socio-economic vulnerabilities; modelling of identification of socio-economic vulnerabilities; results dissemination and development of an impacts strategy for policy and management, and project management and coordination. Aims of ICE-ARC include improving stakeholder knowledge, facilitating scientist-stakeholder knowledge sharing, and facilitate joint discussion about policy and mitigation options. The European Commission recently launched a five-year coordination and support action “EU-PolarNet – Connecting Science with Society” (<http://www.eu-polarnet.eu/>) to establish a dialogue among all stakeholders (policymakers, business and industry leaders, local communities and scientists) to increase mutual understanding and identify new ways of working together that will deliver economic and societal benefits, co-designed with all relevant stakeholders and coordinated with international polar research activities.

GRENE-Arctic: Hiroyuki Enomoto (NIPR). The GRENE (Green Network of Excellence) Program funded by MEXT, Japan, includes a new initiative, the Arctic Climate Change Research Project (NIPR and JAMSTEC), bringing together over 300 scientists from 35 organizations. The project includes a cross-disciplinary approach to study the Arctic climate system (atmosphere, ocean, cryosphere, land and ecosystems). Components of the project include observation, modelling with validation, data archiving, and international collaboration. Observation activities are conducted from sites such as research facilities in Svalbard (Ny-Ålesund), Arctic cruises (the Japanese oceanographic research vessel Mirai), terrestrial observations in Alaska and Siberia, and remote sensing. The GRENE Program spans from 2011 to 2016 and includes the focus of Rapid change of the Arctic Climate System and Global Influences. The objectives for study include: understanding of warming amplification; understanding of the Arctic system for change (greenhouse gas emissions, sea level rise, terrestrial ecosystem impacts, etc.); Arctic influence on changing weather in Japan, marine ecosystems and fisheries; prediction of sea ice distribution and Arctic sea routes (short term, seasonal and over 10 years); monitoring of the Greenland Ice Sheet; and impacts on Japan and EU from the meandering Jet Stream and sea ice anomalies. The Arctic Data Archiving System (<https://ads.nipr.ac.jp/>) was developed in 2012 to make observational and modeling data available to stakeholders.

ArCS: Takashi Kiyoura (MEXT). Since 2011 MEXT has supported focal Arctic research with particular strengths in satellite-based ocean monitoring and simulation technology. Japan acquired Arctic Council Observer status in May 2013, and since then efforts have been made to better address stakeholder engagement and international collaboration. An

initiative of the GRENE Program in Japan is ARCS, Arctic Challenge for Sustainability (2015-2019) consists of a network of core institutions to support international joint research, research centers in Arctic States, early career engagement and exchanges. One aim of ArCS is understanding the Arctic in a holistic way through all themes: climate, physical, chemical, biological, biodiversity, and human dimensions. ArCS goals include studying and prediction of impacts and socio-economic changes, contributing to decision-making and to Arctic Council working groups, multi-disciplinary and international collaborative research, co-design and co-production of solutions with stakeholders, scientific communication and data accessibility (user-friendly platforms, international information management, and collaboration with global states). ArCS includes new funding mechanisms that can contribute to stakeholder engagement.

Northern Research Forum: Lassi Heininen (Lapland University). NRF, the Northern Research Forum, is an international forum or platform that links stakeholders in all sectors and the research community. The NRF is involved in all issues of global importance including community viability, social and human capital, knowledge, well-being, sustainable development, natural resources, energy efficiency, governance, human and environmental security, and environmental threats, including climate change. A biennial Open Assembly rotates among northern countries, starting in 2000, with the theme 'Our Ice-Dependent World' (Arctic, Antarctic and Himalayas) in 2011 and 'Climate Change in Northern Territories: Sharing Experiences, Exploring New Methods and Assessing Socio-Economic Impacts' in 2013. Participation of all sectors and diverse experts is encouraged, including early career scientists, who can receive grants to attend meetings, present their work, and participate in panels. The NRF includes working in initiatives such as annual reports and publications (e.g. the Arctic Yearbook: <http://www.arcticyearbook.com/>) and activities to build resilience (e.g. Global Arctic Project: <http://www.globalarctic.org/>). The importance of not isolating science from society was highlighted and requires mutual interest, more opportunities for interaction, education, and improved dialogue, which includes open-mindedness, listening, inclusivity, and diverse perspectives from various disciplines and areas of expertise.

GEO Cold Regions: Barbara Ryan (GEO). The Group of Earth Observations, starting in 2005, now includes 97 member countries. The GEO partnership is developing a Global Earth Observation System of Systems (GEOSS) that will link global Earth observation resources for the benefit of society and to improve decision-making, management, sustainability and preparedness (agriculture, biodiversity, climate, disasters, ecosystems, energy, health, water and weather). GEO supports the integration of platforms and disciplines, encourages open access policies for data, and works towards the coordination of Earth observing systems and platforms. The GEOSS portal is a discovery tool and helps broker access to other portals and platforms through other partners and data providers. The adoption of open data policies has greatly increased the use of Earth observation data with economic benefits and benefits to the global community as a whole. As part of focal initiatives, GEO has launched a GEO Cold Regions initiative with the goal of fostering collaboration, building capacity, and improving observation of the Arctic, Antarctica, and alpine regions. The next GEO - XII Plenary and Ministerial Summit will take place in November 2015 in Mexico City.

General Discussion

The following items were raised during discussion among all members present at the PaSCAS workshop.

- The Arctic Data System in Japan is being developed also as a navigation support system and for complementing 'Arctic shield' systems
- How can the research community interact with Arctic stakeholders?
 - If we ask 'what information is needed and why' as researchers we can begin to identify stakeholders that should be present in discussions from early phases
 - For stakeholder engagement, there are concerns that scientists should not be perceived as 'imposing' their views and methods

- Key question: WHO are stakeholders?
 - Defining stakeholder group that is relevant is crucial so tools and data can be adapted to suit needs/ audiences
 - Everyone is a stakeholder
 - Risk that focus on 'stakeholders in Arctic' center around economic interests; need to be more inclusive
 - For developing solutions and for improved stakeholder engagement, looking beyond the Arctic may be beneficial for learning useful tools and approaches, and for improved joint solutions (e.g. consider island states and coastal regions with impacts from climate change outside of the Arctic for examples of how working with communities or other stakeholders may work)
 - In general, governments can help draft policies to protect communities but also to encourage partnerships and open dialogue between the research community, stakeholders and Traditional Knowledge holders
- How can non-Arctic nations interact with Arctic nations?
 - Nations interested in the Arctic need to be more vocal and active to become participants in discussions and to form partnerships
 - Arctic nations already feel like they have a responsibility for polar regions since part of their territory already; need to lead commitment but should allow participation from other interested nations especially as there are global impacts (not just in Arctic nations)
- Important to develop better relationships and training so that media experts can work with scientists better to improve knowledge dissemination (accurate, timely, and balanced views, translation of technical language)
 - Information analysts may be needed to assess how media communications impact users and readers (i.e. the translation of science)
 - Key to translate science into a format that makes sense to the particular audience and reader - make it relevant
 - Published scientific papers are not the final product - must communicate results to stakeholders to be useful for society
- Important to note that audiences are changing (e.g. ICARP I, II, and III have been 10 years apart): need to remind stakeholders, funders, governments and the public why the Arctic matters (even if far away), justify why research, collaboration and solutions are critical and urgent, what progress has been made
- There is increased scrutiny and more transparency is needed from scientists and governments for society (e.g. skepticism following Japan's tsunami - lessons in becoming more open, explaining uncertainty, translate science and focus better for particular stakeholder so makes sense and is credible, while explaining why some gaps remain in our knowledge and areas of uncertainty)

RECOMMENDED ACTIONS STEMMING FROM THE WORKSHOP

- Scientists should attempt to share results more openly, including levels of uncertainty (e.g. confidence intervals, probabilities or other concepts that general audiences can understand); researchers must be willing to work with the media (e.g. co-edit material for accuracy) and journalists should be willing to show content one final time prior to publication
- Researchers must work towards improved knowledge translation, or work with collaborators to accomplish this
 - Suggested actions needed:
 - Facilitate coalitions between data providers and information seekers (including decision-makers)
 - Identify the most suitable data/information access points and those that are of particular value to stakeholders (including decision-makers)
 - Develop best practices for information transfer to stakeholders; consider developing a handbook of recommendations (adapted from existing articles and documents on successful approaches)

- Explore the possibility for Northern Research Forum to facilitate an open dialog session during the ASSW/AOS/SAO 2016 common day (March 15th).
- All sectors and researchers should attempt to better define who are the key stakeholders, work towards better definitions, and understand how term needs to be adaptive for a range of contexts, needs and research projects and their applications
 - Suggested actions needed:
 - identify the range of stakeholders or actors that are relevant in the context of PasCas activities
 - prepare a review document that summarizes (i) stakeholder nomenclature (stakeholders vs. actors vs. decision-makers), (ii) previous work in identifying Arctic stakeholders including how defined by Arctic Council working groups, (iii) distills key stakeholder categories and lessons for ISAC/PaSCAS
- Develop information brokerage, and implementation plan and a forum for matching stakeholder-led activities and needs with research groups and projects in diverse fields, all sectors, and including Arctic non-Arctic countries
 - Suggested actions needed:
 - involve networks/project leaders who participated in the PaSCAS workshop to explore what type of information and what type of linkages are possible
 - Identify key stakeholder priorities from Arctic Council Working Groups as a start
 - longer term: find host/supporter for such a hub or forum so that becomes sustainable

APPENDIX A: ACRONYMS OF PROGRAMS, ORGANIZATIONS AND INSTITUTIONS AND WEBSITES

- ACCESS - Arctic Climate Change, Economy and Society (European Union; <http://www.access-eu.org/>)
- AINA - Arctic Institute of North America, University of Calgary (Canada; <http://arctic.ucalgary.ca/>)
- AOS - Arctic Observing Summit (International meeting; <http://www.arcticobservingsummit.org/>)
- APECS - Association of Polar Early Career Scientists (International; <http://www.apecs.is/>)
- ArCS - Arctic Challenge and Sustainability (Japan; information: http://faro-arctic.org/fileadmin/Resources/DMU/GEM/faro/16.2015_FARO_Japan-report.pdf)
- ASSW - Arctic Science Summit Week (International meeting; <http://assw2015.org>)
- AWI - Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (Germany; <http://www.awi.de/en/institute/>)
- BAS - British Antarctic Survey (UK; <http://www.antarctica.ac.uk/>)
- CACCON - Circumpolar Arctic Coastal Communities Observatory Network (Canada; <http://caccon.org/>)
- GEO - Secretariat, Group on Earth Observations (International; Secretariat in Switzerland; <http://www.earthobservations.org/index.php>)
- GRENE (Green Network of Excellence) Program - Arctic Climate Change Research Project (Japan; <http://www.nipr.ac.jp/grene/e/>)
- JCAR - Japan Consortium for Arctic Environmental Research (Japan; <http://www.jcar.org/english/>)
- JAMSTEC - Japan Agency for Marine-Earth Science and Technology (Japan; <http://www.jamstec.go.jp/e/>)
- JAXA - Japan Aerospace Exploration Agency (Japan; <http://global.jaxa.jp/>)
- IASC - International Arctic Science Committee (International; <http://www.iasc.info/>)
- IARC - International Arctic Research Center, University of Alaska, Fairbanks (USA; <http://www.iarc.uaf.edu/>)
- ICE-ARC - Ice, Climate, Economics – Arctic Research on Change (European Union; <http://www.ice-arc.eu/>)
- ISAC - International Study of Arctic Change (International; <http://www.arcticchange.org/>)
- MEXT - Ministry of Education, Culture, Sports, Science and Technology (Japan; <http://www.mext.go.jp/english/>)
- NIPR - National Institute of Polar Research (Japan; <http://www.nipr.com/>)
- NRF - Northern Research Forum (International; <http://www.rha.is/nrf>)
- O. A. Sys - Ocean Atmosphere Systems (Germany; <http://www.oasys-research.de/>)
- SEARCH - Study of Environmental Arctic Change (USA; <http://www.arcus.org/search-program>)

APPENDIX B: PASCAS WORKSHOP PARTICIPANTS

Members participating in PaSCAS workshop and their affiliations. Additional ASSW participants attended the workshop and contributed to discussions, and included members from universities, government agencies, IASC, and APECS.

PARTICIPANTS

International	ISAC	Hiroyuki Enomoto (NIPR; Japan); Maribeth Murray (AINA; Canada); Gabriela Iburguchi (AINA; Canada)
	IASC	Volker Rachold (IASC; Germany)
	GEO	Barbara Ryan (GEO; Switzerland)
Japan	NIPR	Hiroyuki Enomoto; Hiroshi Miyaoka; Kazuyuki Shiraishi; Masaki Uchida; Tetsuo Sueyoshi; Tetsuo Ohata
	MEXT	Akinori Mori; Takashi Kiyoura
	JAMSTEC	Yoshihisa Shirayama; Takashi Kawano; Masao Fukasawa
	JCAR	Yuji Kodama
	JAXA	Norimasa Ito
	Hokkaido University	Sei-ichi Saito; Shin Sugiyama
	Tohoku University	Hiroki Takakura
Canada	CACCON, Memorial University	Donald Forbes
	University of Calgary	Naotaka Hayashi; Maribeth Murray; Gabriela Iburguchi
USA	IARC, University of Alaska, Fairbanks	Hajo Eicken; Larry Hinzman
UK	BAS	Jeremy Wilkinson (ICE-ARC)
Germany	AWI	Michael Karcher (O. A. Sys; ACCESS)
Finland	Lapland University	Lassi Heininen
Greenland	Government of Greenland	Sten Lund
Sweden	Stockholm University	Michael Tjernstrom