



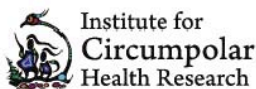
SUMMER 2011

IASC PR OGRESS

Call for Abstracts - From Knowledge to Action

IPY 2012 Montreal conference organizers ready to receive abstracts

The IPY 2012 From Knowledge to Action Conference is now accepting abstracts. You can view the full range of the proposed conference sessions on the IPY 2012 Montreal website. All those interested are invited to submit an abstract and contribute to this conference which will provide the opportunity to address challenges, share and apply knowledge of the Polar Regions and discuss findings and solutions for adapting to global change.



Canadian Polar Commission
Commission canadienne des affaires polaires



PHOTO: DAVID HIK

Social Sciences Poster Session

Peter Schweitzer, Chair of the IASC Social and Human Sciences WG, took part in a virtual poster session organized by APECS. The session was part of the event: *June Social Sciences Month*. Everyone can access the recording of the session at: <http://connect.canterbury.ac.nz/p31524974/>



ARCTIC FRONTIERS 2010 POSTER PHOTO

Arctic Frontiers 2012

Arctic Frontiers holds its 6th annual conference in Tromsø (Norway) on January 22-27, 2012 with the title "Energies of the High North". Arctic Frontiers 2012 will discuss the global energy outlook and assess the potential of traditional and renewable energy resources in the North. The call for papers for the science section is now open on www.arcticfrontiers.com.

Sweden New AC Chairmanship

From 12 May 2011 Sweden is chairing the Arctic Council. In its chairmanship program, Sweden intends to focus on several issues, such as prevention of oil emissions, climate change, resilience, biodiversity and environmental protection. Concerning the peoples in the Arctic, Sweden intends to listen to the views of the Arctic indigenous peoples, focus on languages and food safety, among others.

See the Arctic Council website for more information: www.arctic-council.org

LOGOS OF IPY 2012 MONTREAL CONFERENCE SPONSOR

The From Knowledge to Action Conference intends to bring together over 2,000 Arctic and Antarctic researchers, policy- and decision-makers and a broad range of interested parties from academia, industry, non-government, education, Arctic communities and circumpolar indigenous peoples. Together, these groups will address challenges, share and apply knowledge of the Polar Regions and discuss opportunities and solutions for adapting to global change.

Side Events & ASSW

For students and early career scientists, the Association of Polar Early Career Scientists (APECS) and the ArcticNet Student Association are working together on a career development workshop entitled From Knowledge to

Careers to be held April 19-22, 2012. For more information see www.apecs.is/workshops/ipy-montreal-2012.

Planning for other events underway include a Polar Educators' workshop, Polar Film Festival, APECS Networking event and local public events to celebrate Earth Day on April 22nd. A number of business and side meetings are being organized in conjunction with the IPY 2012 Conference, including the Arctic Science Summit Week (ASSW) 2012 on April 20-22. During these days the IASC Working Groups (WGs) will also assemble for their annual meetings. -

More information on the WG activities and contact details can be found on the IASC website www.iasc.info.

Indian Research in the Arctic: Collaborative Research on Ny-Ålesund

» Contributed by: Dr. Rasik Ravindra, Director of the National Centre for Antarctic and Ocean Research (NCAOR) Goa, India



The Indian research station Himadri, meaning the abode of snow

A comprehensive long-term science plan of research activities by Indian scientists in the Arctic realm was developed and presented at the 29th Meeting of the Ny-Ålesund Science Managers Committee (NySMAC) in Brest, on the 4th and 5th of November 2008. Following the presentation, India was formally approved as the newest member of NySMAC. To date, 57 scientists from India representing 18 national institutions, organizations and universities have participated in the Indian Arctic Programme, which is being co-ordinated and implemented by the National Centre for Antarctic and Ocean Research (NCAOR), an R&D wing of the Ministry of Earth Sciences.

Under the national science plan, Indian scientists have initiated the following long-term programs centered on Ny-Ålesund:

Atmospheric Sciences: The study of atmospheric aerosols, including the quantification of their physical and optical properties and estimating the aerosol radiative forcing over the Arctic region, form a focus area of research by the Indian atmospheric community. Efforts are underway to integrate these studies with the ongoing research by scientists from the Norwegian Polar

Institute (NPI). In addition, a project on snow-pack production of carbon monoxide and its diurnal variability in the Arctic is also in progress.

Earth Sciences and Glaciology: Multi-proxy geological studies are being undertaken to better understand the modern palynological analogs with reference to the dispersal, transportation and subsequent deposition of local and extra-local palynomorphs in the sediments. This work involves the collection of polleniferous material from the flowers. The plants in the Arctic region flower for a very short duration, just after the snow melts, and possess the maximum number of plants in their flowering state.

Glaciological Studies: Geological studies are confined to Vestre Broggerbreen. The investigations in progress comprise snow ablation/accumulation measurements, and detailed chemical analysis of snow/ice from the glacier.

Long term monitoring of the Kongsfjorden system for climate variability studies: NCAOR has recently initiated an ambitious multi-institutional program of long-term monitoring of the Kongsfjorden, deploying an ocean-atmosphere mooring with regular repeat transects to measure physical and biogeochemical parameters on a seasonal

scale. A two-pronged measurement strategy has been planned to achieve the program objectives which are:

1. To collect long-term time-series data on oceanographic (currents, temperature, salinity, turbidity) meteorological (air temperature, winds, pressure, humidity, rain/snow fall, solar radiation) and biological parameters (PAR, O₂, fluorescence) through deploying an ocean-atmosphere mooring.
2. Repeat transects, covering the three seasonal transitions per year, to monitor the variability in the physical and biogeochemical parameters on an intra-seasonal to inter-annual time scale.

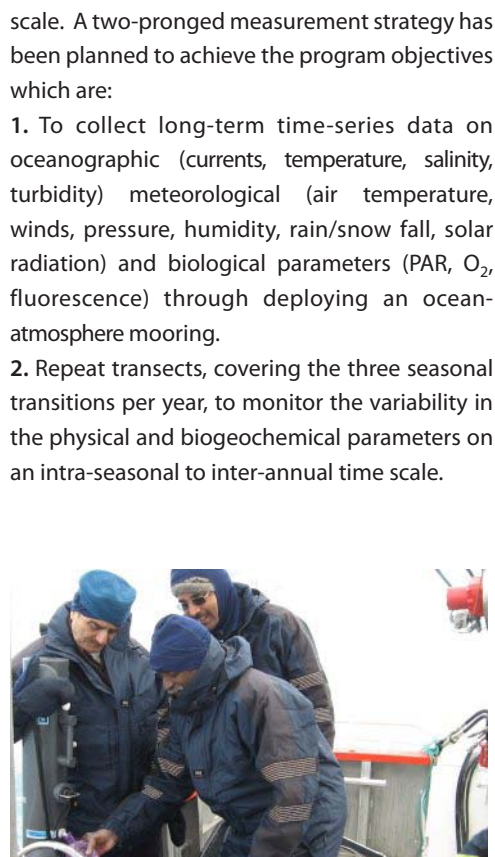


PHOTO: RASIK RAVINDRA

PUBLICATIONS

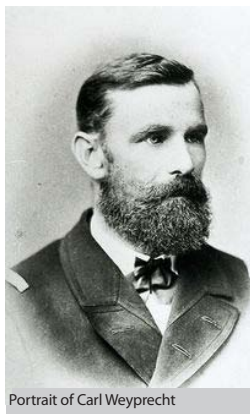
- ● ● Dhruv Sen Singh and Rasik Ravindra (2011). Geomorphology of the Midre Lovén Glacier, Ny-Ålesund, Svalbard, Arctic. (In) Geological Processes and Climate Change (Eds) Dhruv Sen Singh and N. L. Chhbra, Macmillan, pp. 269-280.
- ● ● Shetye, Suhas., Rahul Mohan., Sunil Kumar Shukla., Sudhakar Maruthadu and Rasik Ravindra (2011), Variability of Nonionellina labradorica Dawson in Surface Sediments from Kongsfjorden, West Spitsbergen, Acta Geologica Sinica. Vol.85 (3) 549-558.
- ● ● Pathan A.A, B.Bhadra, Z. Begum, S. Shivaji (2010). Diversity of yeasts from puddles in the vicinity of Midre Lovénbreen Glacier, arctic and bioprospecting for enzymes and fatty acids. Current Microbiology 60(4):307-314.
- ● ● Reddy, P.V.V., S.S.S Nageswara Rao, M S Pratibha, B Sailaja, B Kavya, R R Manorama, S M Singh, T.N.R. Srinivas, S. Shivaji (2009). Bacterial diversity and bioprospecting for cold-active enzymes from culturable bacteria associated with sediment from a melt water stream of Midre Lov'nbreen glacier, an Arctic glacier. Research in Microbiology 8:538-546.
- ● ● Srinivas, T. N. R., S. S. S. Nageswara Rao, P. Vishnu Vardhan Reddy, M. S. Pratibha, B. Sailaja, B. Kavya, K. Hara Kishore, Z. Begum, S. M. Singh, S. Shivaji (2009). Bacterial Diversity and Bioprospecting for Cold-Active Lipases, Amylases and Proteases, from Culturable Bacteria of Kongsfjorden and Ny-Alesund, Svalbard, Arctic. Current Microbiology 59 (5):537-547.

From Carl Weyprecht to the Future Polar Research Institute

A Long History of Austrian Activities in the Arctic

» Contributed by: Dr. Wolfgang Schöner, Central Institute for Meteorology and Geodynamics (ZAMG), Vienna, Austria

Today's Austrian Arctic research is clearly determined by its historical roots. In particular the Austrian-Hungarian Polar Expedition to Franz Josef Land in 1872-1874, under the leadership of Carl Weyprecht and Julius Payer, was a significant impulse for the emerging Austrian Arctic research of the 19th century. During this expedition, Carl Weyprecht formulated his fruitful idea for an International Polar Year, which was realized for the first time in 1882-83, soon after Weyprecht's death. Other milestones of Austrian Arctic research were the participations in the first (1882-83, Jan Mayen), second (1932-33, Jan Mayen) and third (2007-08, Greenland and Franz Josef Land) International Polar Years, as well as in the Expédition Glaciologique Internationale au Groenland, E. G. I. G., 1957-1960. As part of a bilateral cooperation with Russia in the 1990s, Austria established an interdisciplinary research program for the Franz Josef Land archipelago, which was, however, stopped in 1996.



Portrait of Carl Weyprecht



GPR-measurements at AP-Olsen Ice Cap, North East Greenland

PHOTO: GERNOT WEYSS

The present focus of the Austrian Arctic research is mainly on subjects of natural sciences, such as glacier changes and climate in NE-Greenland and Svalbard (University Innsbruck and Central Institute of Meteorology and Geodynamics), carbon release from cryoturbated soils (University Vienna), aerosol and gas composition of the

Arctic troposphere (University Innsbruck), vegetation ecology (University Vienna), microbial communities and microbial processes in snow, ice and atmosphere (University Innsbruck) and changes of glaciers and ice caps in the Russian High Arctic (Joanneum Research Graz). Additionally, Austrian Arctic research also has a component of social sciences including studies on the changing living conditions of indigenous people of the Arctic (University Vienna, Working group Arctic - Subarctic), as well as a component of polar history (University Vienna, Austrian Academy of Sciences).

Austrian Polar Research Institute

Austrian polar research, currently spread over several universities and research institutions, will be restructured and organized in the future within the Austrian Polar Research Institute (APRI). APRI

aims to represent the Austrian polar research at an international level (e.g. memberships in international scientific organizations) and will push forward Austrian polar research in general. Young polar scientists support is subject to the Austrian Polar Society's new Julius Payer stipends. Within the framework of the IPY 2007-08, Austria established new cooperation with the Danish Polar Center (now Aarhus University) for focussed research in the Zackenberg Station area (NE-Greenland).

Being a member of European Polar Board, Austria participated in the ESF PolarClimate Programme. From the total number of 6 projects funded within PolarClimate, one is coordinated by an Austrian scientist (CryoCarb) and one is with Austrian partnership (SvalGlac). Thus, Austria is starting in a new era of well-structured and internationally linked Arctic research.



Postal stamp in honor of the 100 year Anniversary of the discovery of Franz-Josef Land

Czech Contributions to Polar Science

» Contributed by: Dr. Josef Elster, Department Head Institute of Botany, Academy of Sciences, Czech Republic

The central European country, the Czech Republic, has been participating in Arctic science from its beginning. For example, the physicist Professor Frantisek Běhounek participated in the Italian Nobile expedition to the North Pole in the first half of the last century. In addition, the botanist Professor Emil Hadač has been studying plant societies and ecological features of selected vascular plants in Svalbard since the beginning of the second half of the last century. The Canadian-Czech plant ecologist, communist political prisoner and emigrant, Professor Josef Svoboda (University of Toronto) has been working with his students in various parts of the Canadian Arctic for many years.

At the end of the last century, with the political thaw and later political changes in Central and Eastern Europe, Czech polar research activities flourished. Several expeditions to various parts of the Arctic have been organized by Masaryk University in Brno, the University of South Bohemia in České Budějovice and the Czechoslovak (later as separate Czech and Slovak Academies) Academy of Science. At that time, several climatologists, limnologists, geologists, microbiologists, botanists and zoologists had a chance to work in the Arctic as members of international projects (Norway – Czech, Poland, UK and Japan). The Svalbard archipelago was the main locality where the research took place.

In addition, various research teams have been associated with the Abisko research station in subarctic Sweden as well as other localities, for example Siberia. The Abisko Mountains locality has been used as part of a comparative ecological study along with the upper parts of the North Bohemian and Moravian Sudeten Mountains (Giant, Jeseníky Mountains).

In the meantime, Antarctic research activities also



Czech research team at work

developed. Several projects were performed in maritime and continental Antarctica in collaboration with Polish and Belgian stations. Finally, in 2006, the Czech research station J.G. Mendel, on James Ross Island, north-eastern part of the Antarctic Peninsula, was opened.

In 2007, the Czech Republic participated in several



Temporary research containers located on the port jetty of the old Russian coal mining town Pyramiden

programs which were prepared under the auspices of the International Polar Year (IPY 2007 – 2008). One of them, Arctic climate and biological diversity, an interdisciplinary (biology and climatology) research project, was proposed as a part of the Network for ARctic Climate and Biological DiVersity Studies (ARCDIV), a multidisciplinary international research initiative. The main aim of the project was to explore the diversity of both climates and ecosystems among landscapes within the Arctic region by integrating existing and new intensive measurements of key biological and physical variables and processes at multiple circum-Arctic observational sites. The project was prepared by the Norwegian Polar Institute (Dr. Jon Borre Orbak). The Czech research team (represented by three institutions – the University of South Bohemia in České Budějovice, the Institute of Botany of the Academy of Sciences of the Czech Republic and the Masaryk University in Brno) was invited to participate in this research initiative.

The following subjects were studied:

- Investigate biological variability – diversity - productivity parameters modified by abiotic parameters, at the same habitat sites.
- Investigate climate variability modified by physical processes in the atmo- pedo-hydro-cryosphere, on several different scales.
- Connect the physical - biological variability within landscapes to both regional and hemispheric climate circulation, with the help of mathematical models.

The Czech research team has established a small temporary research station in the central part of Svalbard (Isfjord, Billefjorden, Petuniabukta). This area was suggested because of the need to cover the central part of the Svalbard archipelago in the above mentioned ARCDIV multidisciplinary international research initiative project. At present, scientists

participating in the project in collaboration with colleagues from Poznan University (Poland) are preparing a special issue of Polish Polar Research where the main results will be introduced. The research project and Czech Arctic research activities were introduced at the Arctic Science Summit Week in Bergen (2009) and Seoul (2011). In 2010, the Arctic and Antarctic research initiatives were introduced into the research infrastructure of the Czech Republic. On the basis of these recommendations, a new research project has been supported by the Czech Government: „CzechPolar – Construction and Operational Expenses“.

The aims of proposed project are: (1) construction



Old Russian hunting cabin that is rented for seasonal research

and operation of a Czech Arctic research station in Svalbard (University of South Bohemia in České Budějovice) and (2) completion of the construction and operational expenses of the research station in the Antarctic (Masaryk University in Brno). On this basis, the University of South Bohemia, Faculty of Science, established the department “Centre for Polar Ecology”. The Centre is responsible for the operation and educational activities in Arctic ecology. At present, Centre workers, with the help of University leaders, are negotiating with Norwegian representatives about the location and technical solution of the research station. More information about the South Bohemia University Polar Centre is available at <http://polar.prf.jcu.cz>. The Czech Republic is investing to establish regular and long-term research in various subjects of polar science and is currently

Further Research Needed to Address Uncertainties in the Arctic Cryosphere

The new assessment of the impacts of climate change on Snow, Water, Ice and Permafrost in the Arctic (SWIPA), coordinated by Arctic Council's Arctic Monitoring and Assessment Programme (AMAP) and produced in collaboration with IASC, WCRP-CLiC and IASSA, brings together the latest scientific knowledge about the changing state of each component of the Arctic cryosphere. It follows on from the Arctic Climate Impact

Assessment (ACIA), published in 2005, and aims to update the findings from ACIA and to provide more in-depth coverage of issues related to the Arctic cryosphere.

The SWIPA report presents 15 key findings on the observed and predicted changes in the cryosphere, the consequences for Arctic ecosystems and people and the impacts on global climate and sea level. The SWIPA findings document

that the past six years (2005–2010) have been the warmest period ever recorded in the Arctic and that higher surface air temperatures are driving changes in the cryosphere. The related decreases in sea ice on the Arctic Ocean and in the mass of the Greenland Ice Sheet and Arctic ice caps and glaciers over the past ten years are dramatic and represent an obvious departure from the long-term patterns. The Arctic Ocean is projected to become nearly ice-free in summer within this century, likely within the next thirty to forty years. The report also clearly shows that changes in the cryosphere cause fundamental changes to the characteristics of Arctic ecosystems and impact Arctic society on many levels, including challenges but also new opportunities.

The report emphasizes that changes in the Arctic matter globally. Arctic ice loss will make a substantial contribution to global sea level change, which is projected to rise by 0.9–1.6 m by 2100. Loss of ice and snow in the Arctic enhances climate warming by increasing absorption of the sun's energy at the surface of the planet. Overall emissions of methane and carbon dioxide from the Arctic could increase due to warming of soils and freshwater systems and thawing of ancient subsea permafrost. SWIPA concludes that further research is needed to reduce uncertainties. Distinguishing long-term change from natural variability and detecting cryospheric responses to changing climate requires data to be collected at many locations over many years and carefully analyzed.

For more information on the project go to www.amap.no/swipa/



Vessels and iceberg in close neighbourhood in the Iulissat harbour
PHOTO: ANDERS SKOV HANSEN / ARC-PIC.COM

A Successful Congress on Social Sciences in the Arctic

The seventh International Congress of Arctic Social Sciences (ICASS) was held in the town of Akureyri, Iceland the days of 22nd – 26th of June. The theme of the conference, *Circumpolar Perspectives in Global Dialogue*, addressed the inter-linkage of worldwide environmental changes to the development of Arctic societies. The theme also referred to the fact that the Arctic is not just an empty wilderness with endless access to resources but an area inhabited with people that have to endure and adjust to environmental changes in their society.

The conference hosted 10 sessions with 380 lectures about emerging social and cultural issues regarding the Arctic. During the Conference, an election was made about the location of the next ICASS and the IASSA Secretariat. It was decided that the ICASS VIII will be held in 2014 in Prince George, Canada. The IASSA Se-



The ICASS Conferences are held every three years and is a congress of the International Arctic Social Sciences put on by IASSA (International Arctic Social Sciences Association).

cretariat will be located at University of Northern British Columbia (UNBC) in Prince George.

Professor Gail Fondahl, University of Northern British Columbia, Prince George, Canada, has been elected new IASSA President for the term 2011-2014 and will take over as IASSA President September 1, 2011. Fondahl is also a vice-chair of the IASC Social and Human Sciences Working Group.

At ICASS, the Social and Human Sciences WG organized a successful roundtable on the perceptions and representation of Arctic science, held its annual meeting, introduced the WG activities and received a lot of input from the broad international research community represented in Iceland.

INTERNATIONAL POLAR DECADE

In June 2010 the 62nd Session of the WMO Executive Council (EC) recommended to its EC Panel on Polar Observations, Research and Services (EC-PORS) to consult with other relevant organizations to assess interest and scope out an International Polar Decade (IPD) Initiative. To support this recommendation, Roshydromet hosted a Workshop at the Arctic and Antarctic Research Institute (AARI) of Roshydromet in St. Petersburg on 14 and 15 April 2011, co-sponsored by WMO.

The workshop was well attended and represented the first multi-stakeholder consultation on the IPD initiative. The workshop was chaired by Prof. David Hik, IASC President, and Dr. Jan-Gunnar Winther, Director of the Norwegian Polar Institute. The workshop participants agreed that the next 6-12 months should be used to ensure an open dialogue with all potential stakeholders in an IPD initiative in order to better define the framework, objectives, resource requirements, timing, and organizational structure of an IPD.

Kick-Off Workshop on Atmospheric Measurements

26-27 September 2011 | Potsdam, Germany

The IASC Atmosphere Working Group is organizing a workshop on *Atmospheric Investigations on a drifting observatory in the Arctic Sea and Regional and Global Climate Model simulations*.

The workshop participants will discuss the contribution of atmospheric measurements to:

- » improve Arctic specific sub-grid scale parameterizations
- » assess the current state and shortcomings of Arctic sub-grid-scale parameterizations in Regional Climate Models (RCMs) and Global Climate Models (GCMs)
- » design an Arctic Observatory and the requested measurements including satellite data with the main aim it improve the performance of RCMs and GCMs in the Arctic

Early Career Support: Microbial Genomics of the Arctic Cryosphere

18-20 October 2011 | Dublin, Ireland

The IASC Terrestrial WG in partnership with the Cryosphere WG have provided support for early career scientists that are interested in the microbial genomics of the Arctic cryosphere to attend the CAREX Conference on *Life in Extreme Environments*. Molecular technologies in the life sciences are transforming our view of biodiversity, biological processes, ecology and evolution. This is especially true in microbiology, where application of DNA and RNA-based approaches has shown that much of the world's biodiversity lies within the three domains of microbial life. The offered travel support aims to provide early career scientists with the opportunity to gain better molecular insights into permafrost soils, thaw lakes and related extreme cold environments.

Mini Workshops at WCRP Open Science Conference

23 October 2011 | Denver USA

The IASC Atmosphere Working Group will hold two mini-workshops in conjunction with the WCRP Open Science Conference in Denver in October. The mini workshops will take place on Sunday, October 23.

The first is a workshop on polar predictability/ arctic amplification and will include participants from WCRP and other interested organizations. The focus will be on the development of a large Arctic amplification workshop co-sponsored by WCRP in early 2012. The second workshop will be to sum-up the outcome of the Potsdam Kick-Off workshop. The day will end with an open meeting of the Atmosphere WG. All workshops and meetings are open to the public. Interested people are encouraged to attend, but advanced registration is requested.

For more information about these and other IASC Working Group activities, please visit the IASC website at www.iasc.info

The Site Survey Challenge

1-3 November 2011 | Copenhagen, Denmark

The Marine WG is organizing a workshop titled: *Overcoming Barriers to Arctic Ocean Scientific Drilling: The Site Survey Challenge*.

The Arctic Ocean is the last essentially un-drilled,

un-sampled ocean basin. Arctic deep-sea drilling is the only means to acquire paleo-oceanographic and climatic records, and constrain the tectonic history of the basin. Among other issues, the lack of adequate site survey data and appropriate age models for these data hampers

the development of mature drilling proposals. The focus of the workshop is to plan site survey campaigns based on existing and planned proposals and pre-proposals that were developed as a result of the successful 2008 Magellan workshop, Arctic Ocean History: From Speculation to Reality.

IASC Council

Country	Organization	Representative
Canada	Canadian Polar Commission	David Hik, President
China	Chinese Arctic and Antarctic Administration	Huigen Yang
Denmark/Greenland	The Commission for Scientific Research in Greenland	Naja Mikkelsen, Vice-President
Finland	Delegation of the Finnish Academies of Science and Letters	Kari Laine
France	Institute Polaire Français	Gérard Jugie
Germany	Deutsche Forschungsgemeinschaft	Karin Lochte
Iceland	RANNIS, The Icelandic Centre for Research	Thorsteinn Gunnarsson
Italy	National Research Council of Italy	Carlo Brabante
Japan	Science Council of Japan, National Institute of Polar Research	Hiroshi Kanda
The Netherlands	The Netherlands Organization for Scientific Research	Louwrens Hacquebord
Norway	The Research Council of Norway	Susan Barr, Vice-President
Poland	Polish Academy of Sciences, Committee on Polar Research	Jacek Jania
Russia	The Russian Academy of Sciences	Vladimir I Pavlenko
Republic of Korea	Korea National Committee on Polar Research	Byong-Kwon Park, Vice-President
Spain	Comite Polar Espanol	Manuel Catalan
Sweden	The Swedish Research Council	Magnus Friberg
Switzerland	Swiss Committee on Polar Research	Martin Lüthi
United Kingdom	Natural Environment Research Council	Cynan Ellis-Evans
USA	Polar Research Board	Jackie Grebmeier, Vice-President