PLENARY ABSTRACTS

THE SEARCH FOR THE FRANKLIN SHIPS AND THE DISCOVERY OF HMS EREBUS

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In early September of 2014, the wreck of one of the vessels from Sir John Franklin's 1845 expedition was found in Queen Maud Gulf. This discovery was the culmination of a six year effort that saw the development of a collaboration between partners from all sectors with multiple objectives in addition to finding the lost Franklin ships. This presentation will discuss the nature of the partnership work, how the search was driven by Inuit accounts of the events and show some of the images taken on the wreck of HMS Erebus during the two days of diving following the find.

SHARED VALUES IN HEALTH SYSTEMS STEWARDSHIP: A CASE FOR REFOCUSED UPSTREAM

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Health systems stewardship is defined as the “careful and responsible management of the well-being of the population”. Connotations of health systems stewardship embed the health systems in wider society and becomes not just about government roles in health, but also all the actors who influence health, including the private sector and civil society. In circumpolar regions the construct of wider society and the actors who influence health is complex and is influenced by decentralization and devolution of powers to regions, indigenous settlements and land claims, governmental responses to cultural and geographic needs, and the community sectors who have mandates aiming to improve health in the “north”. This presentation will take us upstream and explore the role shared values play in the promotion of health systems stewardship among circumpolar nations. Implications for health systems research and program design will be highlighted drawing from examples of current work in suicide prevention, health systems performance, and emergency measures response.

FUTURE EARTH: A NEW GLOBAL SUSTAINABILITY PROGRAM AND SYNERGISTIC OPPORTUNITIES FOR ARCTIC RESEARCH

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Future Earth is a new Global Environmental Change (GEC) program for global sustainability that will build on the past successes of the International Geosphere Biosphere Program, Diversitas and the International Human Dimensions Program in close collaboration the World Climate Research Program. The vision of Future Earth is for people to thrive in a sustainable and equitable world. This ambitious program will serve as a research platform that will mobilize thousands of researchers and stakeholders from around the globe in the spirit of co-creation and co-design of knowledge products needed for decision makers and society in order to transition to a more sustainable world. The research will be trans-disciplinary and organized under three dominant research themes: 1) Dynamics Planet, 2) Global Development and 3) Transformation towards Sustainability. The Future Earth secretariat will be globally distributed to best serve researchers from around the world. Five Global Hubs located in Montreal-Canada, Paris-France, Tokyo-Japan, Stockholm-Sweden and Boulder CO-US will serve as the networked headquarters for Future Earth. The global is to work with and set-up up Regional Hubs around the world in a networked fashion to work collective for the Future Earth mission. The Arctic research community is already very well networked and has incredible experience working across disciplines with stakeholder communities in the spirit of co-design. Future Earth would like to work collaboratively with and connect different Regional networks around the world, presenting many exciting opportunities to help create a more sustainable future. The design of the secretariat and the plan for regional engagement will be discussed.

FUTURE ARCTIC RESEARCH: A VIEW FROM EARLY CAREER SCIENTISTS

Provencher, Jennifer, J.-S. Moore, H. Mariash and Gerlis Fugmann

It is today’s early career scientists that will conduct the Arctic research of the future. Preparing and fostering their
involvement should therefore be a major priority of any international research initiative that is mindful of its long-term legacy. The Association of Polar Early Career Scientists (APECS) is one of the most important international organizations representing the interest of early career researchers working in the Polar regions with more than 4900 members from ca. 80 countries. Our organization provides services to undergraduate and graduate students, postdoctoral researchers, early career professionals in non-academic careers, educators and others with interests in the Polar Regions, the Alpine regions and the wider Cryosphere. APECS aims to stimulate research collaborations, to develop effective future leaders in polar research, and to promote education and outreach. APECS grew out of the ICARP II (2005) and the 4th International Polar Year (2007-08), which have emphasized the need to nurture the next generation of scientists in order to foster a continuum of engagement and capacity in the leadership of international research initiatives. Yearly, APECS provides a range of services to its membership that contribute significantly to fostering the next generation of leaders in Polar research. Through webinars and in-person workshops organized with partner organizations, our members participate in career development activities that develop such skills as effective communication, how to work respectfully with aboriginal communities, and how to write research grants. Members also learn valuable leadership and organizational skills by getting involved in leadership at the international level through involvement in our Council or on the elected Executive Committee, and at the national level by adopting leadership positions in the over 20 National Committees that are part of our organization. Finally, members gain the possibility to network with their peers online and in person at conferences during networking events that we regularly organize.

Working with our international partners from around the world, we noticed over the years that there is one area where there is very high demand by our members, and that is in creating opportunities to participate in the activities of international research organizations. Early career researchers are keen to learn about the international bodies steering the future of Arctic science and to make their voices heard on the international scene. Listening to the unique perspectives of early career researchers and employing their wide range of skills can provide clear benefits to organizations. We further argue that the long-term success of international science initiatives will be determined in large part by their capacity to foster and create their own future leaders so they can evolve with in time, to create a continuum with the next generation.

THE CANADIAN HIGH ARCTIC RESEARCH STATION: UPDATES AND OPPORTUNITIES FOR COLLABORATION

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The Canadian High Arctic Research Station is developing a science and technology program with the objective of meeting research needs of Northerners. It intends to support, build on and integrate well with existing work. The program will also provide opportunities for new collaborations at the national and international levels. This presentation provides updates on this science program and explains how potential partners can become involved.

CANADA’S ARCTIC COUNCIL CHAIRMANSHIP

Rigby, Vincent
Chair of the Arctic Council’s Senior Arctic Officials

The Chair of the Arctic Council’s Senior Arctic Officials, Mr. Vincent Rigby, will discuss Canada’s Arctic Council Chairmanship priorities and the evolution of the Arctic Council. Canada’s Chairmanship theme is Development for the People of the North, with a focus on responsible Arctic resource development, safe Arctic shipping and sustainable circumpolar communities.

THE FRENCH ARCTIC INITIATIVE: GENERAL OVERVIEW AND 10 SCIENTIFIC PRIORITIES

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What are the local and global impacts of climate change in the Arctic? How to improve the knowledge of processes and fundamental mechanisms involved?

The French scientific community has undeniable assets to help answer these questions of primary importance, and thus be a key player of actions that are being taken soon internationally. The Arctic remaining one of the last areas of the planet still poorly explored, it is an area of fundamental scientific discoveries. The French CNRS (Centre National de la Recherche Scientifique) was commissioned in 2008 by the Minister of Higher Education and Research to organize and structure the French scientific community to address.
these fundamental challenges that our societies will have to face. Research organizations and universities invested long in polar issues at large were involved in this process during the implementation of the Initiative. A Steering Committee, chaired by the Director of the National Institute for Earth Sciences and Astronomy gathers all these actors and includes representatives of the Ministries of Research and of Foreign Affairs. This SSC relies on scientific advices provided by a scientific council, which first goal was to establish the state of the art of French scientific strengths invested in the Arctic region. The second objective was, as expected from a scoping exercise, especially as this is the first fully interdisciplinary at the French level, to define research priorities placing the French scientific community in good position for European and international cooperation.

The success of this initiative was already demonstrated by the strong mobilization of the French community at the national conference held at College de France in June 2013 and the scoping exercise that followed and led to the definition of 10 scientific priorities recently released. These priorities published in a white paper will be presented during this meeting, and will serve as the scientific framework of upcoming calls for projects but also as the scientific support to the French National Arctic Roadmap.

BACK TO THE FUTURE: THE ARCTICNET LEGACY AND CHARS OPPORTUNITY

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ARCTIC TRANSFORMATIONS TO SUSTAINABILITY

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Both the Arctic and the rest of the world already have elements of transformative knowledge, though these elements do not necessarily connect to each other yet.

The Arctic residents do have a lot of adaptation knowledge. In a way, they define themselves as those who have been able to adapt over millennia, be it living in harsh environments or moving from igloos to the internet in one generation.

The rest of the world has successful examples of hands-on sustainable solutions. We do have best practices of "green" public-private partnerships and corporate social responsibility. Similarly, we have examples of social and economic policies and environmental safeguards that enable sustainable development.

How do we match these elements and make them talk to each other? Together with its partners, the International Institute for Sustainable Development starts an Arctic Initiative that will help the Arctic to learn from the rest of the world, and help the rest of the world learn from the Arctic.

Such mutual learning will facilitate progress on the newly-adopted UN Sustainable Development Goals. Case studies include policies to implement renewable energy solutions for remote communities, international collaborations on environmental safeguards, corporate social responsibility in the Arctic and communicating the story of Arctic transformations to the rest of the world.

COPING WITH CHANGE: ARCTIC LANDSCAPES IN RAPID TRANSITION

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The Arctic landscape is on the brink of massive change associated with climate warming, and substantial changes are already underway at many locations throughout the circumpolar North. The once stable terrain underpinning northern landscapes is beginning to thaw, with major consequences for northern communities. The permafrost region of Canada encompasses a vast area, accounting for around 50% of the country’s land mass, with diverse landscapes and ecosystems. The NSERC Discovery Frontiers project ADAPT (Arctic Development and Adaptation to Permafrost in Transition) was formulated in response to the urgent need to understand how the structure and functioning of these northern systems are linked to permafrost behaviour and climate change. Additionally, the infrastructure and resources for northern settlements, from drinking water and exploited wildlife to runways, roads and housing, critically depend upon the state of the Arctic permafrost, and ADAPT is also addressing many of these issues.

ADAPT involves 15 laboratories across Canada (www.cen.ulaval.ca/adapt/), with many collaborations, including with the European program PAGE21 (page21.org) that is focused on carbon stocks and fluxes. The program is organized as four interlocking modules: 1) Permafrost dynamics in natural and engineered environments; 2) Permafrost and aquatic ecosystems; 3) Microbes and biogeochemical fluxes of nutrients and carbon, including via thaw lakes; and 4) Tundra permafrost ecosystems: vegetation and wildlife. The activities are integrated across modules by way of common protocols, data publication in Nordicana D (www.cen.ulaval.ca /nordicanaD), community outreach activities, a conceptual three-layer model of permafrost systems, and a central hypothesis focused on the central roles of
liquid water and snow in affecting all aspects of terrestrial Arctic systems.

Coping with the rapid transitions in permafrost landscapes will require collective efforts at four levels: 1) Global collaboration to slow the rate of greenhouse gas emissions, combined with development of improved scenarios of environmental change in the North (including feedbacks), for example associated with the +2°C international target; 2) Development of conservation strategies at a regional level, to reduce the effects of multiple stressors that are superimposed on northern systems in a warming climate and to provide refugia for vulnerable species; 3) Research-based adaptation strategies to minimize and mitigate the effects of landscape change, with an integrated systems approach towards environmental planning and development at local scales; and 4) Education at all levels, from tutorials for policy makers, to school training and knowledge exchange with northern communities to cope with the large-scale changes ahead.

OVERARCHING PERSPECTIVES OF CONTEMPORARY AND FUTURE ECOSYSTEMS IN THE ARCTIC OCEAN

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The integration of oceanographic and ecologic knowledge progresses relatively slowly across the Arctic Ocean. The pan-arctic and circum-arctic perspective has not become a prioritized subject of national and international research. To counteract this lack, three minor conferences, based upon private initiatives, focused on pan-arctic integration in 2002, 2009 and 2012. Each of these conferences was or will be published in specific volumes of Progress in Oceanography (2006, 2011 and 2015, respectively). On the background of the perspectives achieved until 2011, a short summary will be provided regarding the current state of pan-arctic ecosystem research. This includes among other data perspectives on outflow shelves, on the riverine coastal domain, the deep Arctic Ocean and domains of advection. It also addresses climate change implications of a rapidly changing Arctic marginal ice zone, the drivers of nutrient supply, primary production and CO2 drawdown and marine primary production estimates. It finally focuses upon the phenology of vernal ice algae blooms, planktonic microbial diversity, abundance and processes, the polar night ecology and the future of Arctic benthos.