ELCOME TO IASC

The International Arctic Science Committee, is a hon-governmental organisation that aims to encourage, litate and promote cooperation in all aspects of Arctic research in all countries engaged in Arctic research and in all areas of the Arctic region.

IASC

The International Arctic Science Committee (IASC) is a non-governmental, international scientific organization. The IASC mission is to encourage and facilitate cooperation in all aspects of Arctic research, in all countries engaged in Arctic research and in all areas of the Arctic region. Overall, IASC promotes and supports leading-edge multi-disciplinary research in order to foster a greater scientific understanding of the Arctic region and its role in the Earth system.

To achieve this mission:

- Initiates, coordinates and promotes scientific activities at a circumarctic or international level;
- Provides mechanisms and instruments to support science development;
- Provides objective and independent scientific advice on issues of science in the Arctic and communicates scientific information to the public;
- Seeks to ensure that scientific data and information from the Arctic are safeguarded, freely exchangeable and accessible;
- Promotes international access to all geographic areas and the sharing of knowledge, logistics and other resources;
- Provides for the freedom and ethical conduct of science;
- Promotes and involves the next generation of scientists working in the Arctic; and
- Promotes bipolar cooperation through interaction with relevant science organizations.

IASC WORKING GROUPS

The core elements of IASC are its Working Groups (WGs). IASC WGs 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 Arctic Council.



IASC WORKING GROUPS

- Terrestrial
- Marine
- Social and Human Sciences
- Atmosphere
- Cryosphere



Terrestrial WG Members: Potentially 2 per country

Terrestrial Steering Group

Chair Terry Callaghan- Sweden Vice Chairs Torben Christensen - Denmark Warwick F. Vincent - Canada Benjamín Viñegla Pérez - Spain

Secretary

Kristján Kristjánsson for Mare Pit

Working Group Members

Inger Greve Alsos - Norway Stephen Coulson - Norway Yoo Kyung Lee - Korea Phil Wookey -UK Wiesław Ziaja - Poland Piotr Głowacki - Poland Daniel Sanchez-Mata - Spain Eva-Maria Pfeiffer - 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 Svala Jonsdottir - Iceland Jon S. Olafsson - Iceland Luo Wei - China Antero Järvinen - Finland



Scientific Scope

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.



Geographic Scope

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 Aleutian 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

- Estimating past changes in arctic geo- and biodiversity, measuring current change and predicting future changes
- Determining the net effect of the terrestrial and freshwater environmental and biosphere's processes that amplify or moderate climate warming
- Developing high spatial resolution models of terrestrial geosystems and ecosystem change, and other tools that can be used by arctic stakeholders for adaptation strategies and sustainable management of natural resources and ecosystem services



Scientific Foci (cont.')

- Developing unifying concepts, fundamental theories
 and computer models of the interactions among species,
 interactions between species and their environment,
 and the biology of life in extreme environments
 - Determining the role of connectivity in the functioning of arctic terrestrial systems, including connections within the arctic and the global system



Existing Commitments

- Representation and advocacy of "Microbial genomics of the Arctic cryosphere" research at the CAREX Conference, October 18-20, Dublin (Ireland). Special emphasis on early career scientists support and capacity building. Cross-cuts with the Cryosphere WG. <u>Committed funding from the Terrestrial budget € 5000,-</u>
- Mini conference on "Interactions between sea ice, near coastal processes and terrestrial ecosystem dynamics", September 2011. Cross-cuts with the Marine, Cryosphere and Atmosphere WG. *Committed funding from the Terrestrial budget € 5000,-*
- Circum-Arctic Lithosphere Evolution (CALE) Network. A pre-working group commitment in cooperation with the Marine WG.
- Tandem Workshops on polar genetics. A pre-working group commitment in cooperation with the Marine WG.



Next Steps

Priority :

- Develop an action plan for research on the factors that shape biodiversity in the Arctic: a draft proposal on invasive species is already in preparation.
- Facilitate building capacity for species identification, for making a biodiversity inventory and an improved biodiversity monitoring program.
- Develop an action plan to improve the measurement and monitoring of greenhouse gas emissions and other feedbacks to climate focusing initially on the lability of carbon in arctic soils and permafrost to give input to the IPA carbon mapping project
- Assess and improve our current understanding of landscapes in rapid transition.



Examples of possible CBMP-IASC collaborative activities

Nuuk, Greenland, GreenCyclesII-DEFROST Mini-conference: Coordination of biodiversity monitoring activities with tracegas flux monitoring.

Circumboreal Vegetation Map (CBVM): Endorsement and help with coordination of international workshops.

International Arctic Vegetation Database (Concept paper): Endorsement and international workshops to design and implement the plan.

GreenCyclesII-DEFROST Mini-Conference

'High latitude trace gas exchanges: the role of ocean-land interactions'





GreenCyclesII-DEFROST Mini-Conference

Project Rationale

- Aim: Improved understanding of the coupled behaviour of the components of the Earth system that contribute to the evolution of GHG concentrations, climate responses, and impacts
- Tool: Earth System Models to test understanding and predict behaviour
- Methods: evaluate, improve, apply range of ESMs, review of and contribution to appropriate measurements to be made
- Scope: all important GHGs

GreenCyclesII-DEFROST Mini-Conference

Guiding principles: Initial training of researchers

- Improve career perspectives of researchers in the first five years of their research career
- Use trans-national networking to structure existing highquality training capacity

Circumboreal Vegetation Map (CBVM)



Circumboreal Vegetation Map (CBVM)

- Produce vegetation map at 1:7.5 million scale with geobotanical database and derived products of entire boreal biome
- Unified international method
- **True vegetation map** *sensu* **Bohn et al. (2003)**
- Basic map units will be physiognomic, and/or combination of physiognomic-floristic units
- Braun-Blanquet nomenclatural system, or closest equivalent, is logical choice for cataloging boreal plant communities
- **Build on the CAVM to link these two global-scale maps**



International Arctic Vegetation Databases

An International Arctic Vegetation Database –

a foundation for Panarctic biodiversity studies

CAFF Strategy Series Report No. Concept Paper