

IACS



International Association of Cryospheric Sciences (IACS)

www.cryosphericosciences.org

INTRODUCTION

The International Association for Cryospheric Sciences (IACS) is the Association of the International Union of Geodesy and Geophysics (IUGG) that is concerned with snow and ice science and which provides expert advice on cryospheric issues to governmental and non-governmental organizations. The objectives of IACS are to:

- Promote studies of cryospheric subsystems of the Earth and solar system.
- Encourage research in the above subjects by members of the cryospheric community, national and international institutions and programmes, and individual countries through collaboration and international co-ordination.
- Provide an opportunity on an international basis for discussion and publication of the results of the above research.
- Promote education and public awareness on the cryosphere, and facilitate the standardization of measurement or collection of data on cryospheric systems and of the analysis, archiving and publication of such data.

ADMINISTRATION

The business of IACS is managed by a Bureau of elected officers. IACS held its most recent bureau meeting from 12-14 November 2012 in Sanya, China. In attendance were BMs Ian Allison (President), Charles Fierz (President-Elect), Olga Solomina (Vice President), Cunde Xiao (Vice President), Cecilie Rolstad Denby (Head, Glaciers and Ice Sheets), and Hiroyuki Enomoto (Head, Marine and Freshwater ice). Andrew Mackintosh (Secretary General) attended via Skype, and remaining bureau members provided input in advance of our meeting. The meeting was opened by Prof. Qin Dahe, Chair of Chinese National Committee for IACS (Chinese Academy of Sciences). IACS facilitates the transfer of research methods and explores new avenues in cryospheric science through Standing Groups and Working Groups devoted to a theme or subject and composed of experts in the particular field of study. The currently active Working Groups (WG) of IACS are the WG on 'Flow law for polycrystalline ice' (2010-2014) and the newly established WG 'From quantitative stratigraphy to microstructure-based modeling of snow' (2012–2016). The WG on Glacier Mass Balance Terminology and Methods successfully completed its 4-year term in 2012, culminating in the publication of the "Glossary of Glacier Mass Balance and Related Terms", published by the International Hydrological Programme of UNESCO. The current Standing Groups (SG) are the Joint commission on Volcano-Ice Interactions (with the International Association of Volcanology and Chemistry of the Earth's Interior - IAVCEI), the SG on Glacier and Permafrost Hazards in Mountains (GAPHAZ, a joint SG with the International Permafrost Association IPA) and the Steering Committee of the Global Terrestrial Network for Glaciers (GTN-G).

ACTIVITIES

The following includes a description of the meetings sponsored by IACS in 2012, as well as a list of IACS representation at international scientific meetings:

IPICS Open Science Conference

IACS co-sponsored the open science conference of the International Partnerships in Ice Core Sciences (IPICS), held in Giens, France, from 1-5 October 2012. The local organizing committee was led by Jerome Chappellaz (Le Laboratoire de Glaciologie et Géophysique de l'Environnement, Grenoble, France). The meeting attracted 230 scientists from 23 nations, including participants from other fields who wished to learn about recent advances in ice core science. This was the first major meeting dedicated to ice cores since the International Symposium on Ice Cores and Climate held in Kangerlussuaq, Greenland in 2001. The programme followed the main scientific objectives of IPICS (<http://www.pages-igbp.org/ipics>). It covered the questions of climate variability at different time scales (from million years to the last 2,000 years), biogeochemical cycles, dating, as well as ice dynamics. New frontiers and new methodologies were also the focal point of specific sessions. Over the five days of the conference, all 230 attendees gathered for single plenary sessions, combined with long poster sessions designed for efficient networking.

Ice-volcano interaction conference in Anchorage, Alaska USA

IACS co-sponsored the 'Third International Conference on Volcano-Ice Interactions on Earth and Other Planets', held at the U.S. Geological Survey office in Anchorage, Alaska, USA between 18-22 June 2012, organized by the Joint IAVCEI/IACS Commission on Volcano-Ice Interactions. The purpose of the conference was to bring together scientists with a common interest in volcano-ice interactions and to highlight recent studies and eruptions at snow- and ice-clad volcanoes. IACS was pleased to sponsor two students (Lidmila Kuksina from Kamchatka, Russia and Matteo Roverato from Mexico), who would otherwise have not been able to attend.

International Conference on Cryosphere: Changes, Impacts and Adaptation

IACS co-sponsored this international conference held between 10-12 November 2012 in Sanya, China. The conference examined the state-of-the-art of cryospheric research and provided a forum to discuss ongoing research efforts, as well as providing an opportunity to widen communication among interested researchers and to highlight important research results, especially across central Asia. The 2012 IACS bureau meeting was held immediately after this event.



The International Conference on Cryosphere: Changes, Impacts and Adaptation, was held in the beautiful tropical location of Sanya, China, November 2012. The conference was sponsored by IACS and six IACS bureau members attended. An IACS bureau meeting was held over two days immediately after this conference.

IUGG/IACS support for workshops and summer schools in glaciology

From 9-11 July 2012, the World Glacier Monitoring Service (WGMS) organized a workshop on measurement and uncertainty assessment of glacier mass balance. The workshop was sponsored in part by an IUGG small grant awarded on behalf of IACS. The meeting was held at the Stockholm

University, Tarfala Research Station, in northern Sweden, and brought together 17 representatives of the leading research groups currently working on these issues. The major aims of the workshop were to discuss methods and to identify and quantify related uncertainties of mass balance measurements from the ground, air and space, as well as to provide best practices for the homogenization, validation and re-calibration of (long-term) observational series (re-analysis of glaciological and geodetic mass balance series). Cecilie Rolstad-Denby attended as an IACS representative in her role as the chair of the GTN-G advisory board.

University of Fairbanks Glaciology Summer School, McCarthy, Alaska, USA

A training workshop in glaciology was held in McCarthy, south central Alaska, from 10-20 June 2012. The summer school was sponsored (in part) by a small grant from IUGG awarded on behalf of IACS. The workshop aimed to equip early stage PhD students with tools to address the expanding challenges in quantifying and modeling rapid changes in glaciers and ice sheets occurring in response to a warming climate. 27 graduate students representing 26 universities from eleven countries spent ten days in the small village of McCarthy, situated in the heart of the Wrangell mountains and adjacent to a number of easily accessible glaciers. The workshop provided a comprehensive overview of the physics of glaciers and current research frontiers in glaciology.

Meeting of IACS Standing Group ‘Global Terrestrial Network for Glaciers’ (GTN-G) Executive Board

GTN-G is the framework for the internationally coordinated monitoring of glaciers and ice caps in support of the United Nations Framework Convention on Climate Change (UNFCCC). The network, authorized under the Global Climate/Terrestrial Observing System (GCOS, GTOS), is jointly run by the World Glacier Monitoring Service (WGMS), the U.S. National Snow and Ice Data Center (NSIDC), and the Global Land Ice Measurements from Space initiative (GLIMS). The Steering Group of GTN-G has been made a Standing Group (ongoing tenure) of IACS. The GTN-G executive board met on 24 April during the 2012 EGU General Assembly in Vienna, Austria. The meeting consisted of Cecilie Rolstad-Denby (IACS, Chair of the Advisory Board), Michael Zemp (WGMS, chair of the Executive Board Meeting in Vienna), Martin Hoelzle (WGMS), Frank Paul (WGMS, GLIMS), Tobias Bolch (GLIMS), Bruce Raup (GLIMS/NSIDC), and Richard Armstrong (NSIDC). In this meeting, Cecilie Rolstad-Denby took over from Julian Dowdeswell as the Chair of the GTN-G advisory board.

Representation at international scientific meetings

During 2012, IACS provided representation in several meetings. This included a CliC Scientific Steering Group meeting in Innsbruck, Austria in March, IASC and SCAR delegate meetings in April and July respectively, a GTN-G Executive Board Meeting during the EGU General Assembly in Vienna, Austria (22-27 April 2012, more information provided above), and in November 2012 in Vienna, Austria, and the first implementation meeting of CryoNet, a future network of Cryospheric measurement sites within the framework of the World Meteorological Organization initiative Global Cryosphere Watch. Finally, IACS signed jointly with ten other organizations a Memorandum of Understanding to better co-ordinate their outreach efforts. A first meeting took place during the AGU Fall Meeting in December 2012. Ian Allison, IACS President, provided representation for ICSU within a Steering Group of scientists from organizations with polar interests who will undertake initial concept planning for a possible new long-term polar science initiative.

SCAR Medal for International Scientific Coordination to IACS President Ian Allison

Dr. Ian Allison was awarded the Scientific Committee on Antarctic Research (SCAR) International Coordination Medal at the SCAR meeting in Portland, Oregon, USA in 2012. Ian’s significant international achievements bring distinction and esteem to the IACS office. More information, including a citation about Ian and his response, is available at <http://www.scar.org/awards/>

FUTURE ACTIVITIES

Change in leadership

Dr. Charles Fierz will become IACS President at the forthcoming Davos Atmosphere and Cryosphere Assembly (DACA-13), and Ian Allison will become Immediate Past President.

DACA-13, a major IACS event

The joint IAMAS/IACS Assembly ‘DACA-13’ (the Davos Atmosphere and Cryosphere Assembly 2013) <http://www.daca-13.org/welcome.html> will be held in Davos, Switzerland from 8-12 July 2013. The theme of the conference is *Air, Ice and Process Interactions*, and it will comprise 20 self-contained symposia, most of them containing several topical sessions, focused atmospheric and cryospheric topics, and numerous joint atmosphere-cryosphere symposia/sessions. The planning phase for this Assembly is essentially complete, and we are currently finalizing the detailed scientific programme. The abstract deadline closed on 4 February 2013 and more than 1,000 submissions were received. In addition to the symposia, central elements of the conference will include keynote presentations by four world-leading experts: Ronald B. Smith (Yale), Valérie Masson-Delmotte (LSCE Paris), Thomas Stocker (University of Bern) and Georg Kaser (University of Innsbruck), and extended poster sessions. Furthermore, a range of scientific excursions and trips will be offered to allow participants to enjoy the surrounding alpine environment.

IACS sponsorship of forthcoming meetings

IACS will co-sponsor the following scientific meetings in 2013:

- The IACS WG ‘From quantitative stratigraphy to microstructure-based modeling of snow’ will hold its first meeting entitled ‘Snow grain size workshop; measurement and applications’ between 2-5 April 2013 in Grenoble, France.
- The IGA symposium on ‘Reconciling observations and models of elastic and viscoelastic deformation due to ice mass change’ to be held from 30 May-2 June 2013 in Ilulissat, Greenland.
- The meeting ‘Physics, Chemistry and Mechanics of Snow’ will be held from 22-28 September 2013 in Yuzhno-Sakhalinsk, Sakhalin Island, Russia.
- The World Glacier Monitoring Service will hold a summer school on ‘Mass Balance Measurements and Analysis’ from 2-7 September 2013, in Zermatt, Switzerland.

Submitted by
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