

International Association of Cryospheric Sciences (IACS)

www.cryosphericsciences.org

This report covers the period from January 2011 to February 2012.

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 organisations.

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 standardisation 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. Many of these officers were newly elected in 2011 at the XXV IUGG General Assembly held in Melbourne, Australia. The 2011-15 Bureau consists of President (Ian Allison - Australia), President-Elect (Charles Fierz, Switzerland), Secretary General (Andrew Mackintosh- New Zealand) three Vice-Presidents (Olga Solomina- Russia, Andrés Rivera – Chile, Xiao Cunde - China) and the heads of five disciplinary Divisions (Glaciers and Ice Sheets, Cecilie Rolstad Denby – Norway; Snow and Avalanches, Ethan Greene – USA; Marine and Freshwater Ice, Hiroyuki Enomoto – Japan; Planetary and Other Ices of the Solar System, Ralf Greve – Japan; and Cryosphere, Atmosphere and Climate, Valérie Masson-Delmotte – France).

Retiring members of the IACS Bureau include Past-President Georg Kaser, Secretary-General Manfred Lange, Peter Jansson, Gino Casassa, Kumiko Goto-Azuma, Claude Duguay and Julian Dowdeswell.

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 Glacier Mass Balance Terminology and Methods and the WG on Flow Law for Polycrystalline Ice. 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

During 2011 a new “Glossary of Glacier Mass Balance and Related Terms”, produced by the WG on Glacier Mass Balance Terminology and Methods, was published by the International Hydrological Programme of UNESCO. This, the first comprehensive update of glacier mass balance terms for more than 40 years, provides a systematic, concise and unambiguous mass balance terminology.

The XXV IUGG General Assembly provided a special opportunity to meet and carry out business, and IACS held four meetings (Plenary Administrative Meeting, where new officers were elected, IACS Bureau Meetings 6.1, 6.2, and 7).

IACS also sponsored a Union Lecture, and other symposia during the General Assembly. The Union Lecture was given by David Vaughan (British Antarctic Survey) on “The Hidden History of Ice Sheets: The Secret to Predicting Sea-level Rise”. This lecture (the Radok Memorial Lecture) was named in honour of a past President of the International Commission on Snow and Ice (the forerunner of IACS) who died during the last IUGG Quadrennium. In addition, IACS-sponsored symposia at the IUGG General Assembly included J-C01 Arctic System Modelling, J-C02 Snow and Avalanches in the Southern Hemisphere, J-C03 Snow – Atmosphere Interactions in Mountains, J-C04 Ice Shelves and Glacier Tongues – Ice on the Edge, C-01 Remote Sensing of the Cryosphere - linking and validating measurements from satellite, air, and ground, C-02 Ice Cores and Climate, C-04 Morphology of Snow and Ice on the Ground and in the Atmosphere, and C-05 Glacier and Ice Cap Fluctuations.

IACS proposed a Resolution regarding both the Glossary of Glacier Mass Balance and Related Terms and the International Classification of Seasonal Snow on the Ground to the IUGG Council at the General Assembly [urging] ‘all snow and ice scientists, practitioners, and scientists from related disciplines to adopt these new schemes as standards.’ This resolution was adopted by Council and is available on the IUGG website (in English) at <http://iugg.org/resolutions> and (in French) at <http://iugg.org/resolutions/fr>.

H. Gerald (Gerry) Jones was appointed an “Honorary Member of IACS” at the IUGG General Assembly, in recognition of outstanding service, particularly his unselfish and untiring commitment to establishing IACS as the 8th IUGG Association.

A two day symposium, co-sponsored by IACS, the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Committee (IASC), was held in Siena, Italy in September 2011 to consider the legacy of the International Polar Year 2007-2008 and any unaddressed aspects of polar science within the context of the International Council for Science (ICSU) Grand Challenges. A statement from this meeting was presented to the ICSU

General Assembly in Rome the following week. At the Siena symposium, a Memorandum of Understanding (MoU) between the Association of Polar Early Career Scientists (APECS) and IACS was signed. The MoU identifies a joint commitment to the professional development of early career polar and other cryospheric researchers and the need for a continuum of leadership in polar research and cryospheric sciences as important mutual aims of all Parties.

In May 2011 an IACS representative (G. Kaser) was invited to present an overview on "Ice Changes in Antarctica, the Himalayas and Other Mountain Glacier Regions" to policy-oriented negotiators at a workshop on research held in conjunction with the United Nations Framework Convention on Climate Change (UNFCCC) climate negotiations meeting in Bonn, Germany.

IACS was represented at the IASC Council meeting, held in conjunction with Arctic Science Summit Week, in Seoul, Korea in March. In November 2011, IACS representatives took part in the implementation meeting of the World Meteorological Organisation (WMO) initiative Global Cryosphere Watch (GCW). GCW is envisaged as an international mechanism for supporting key cryospheric in-situ and remote sensing observations, from research and operations, and for implementing the recommendations of the Integrated Global Observing Strategy Partnership (IGOS-P) - Cryosphere theme. Among the many topics on the agenda were the definition and implementation of observation "super" sites, a data portal for cryospheric data from and for both the operational and scientific cryospheric community, and a common terminology.

FUTURE ACTIVITIES

The next Bureau meeting will be held following the "International Conference on Cryosphere: Changes, Impacts and Adaptation" in Sanya, China between November 13-14, 2012.

During 2012 IACS will provide representation at several meetings. This includes a Climate and Cryosphere (CliC) Scientific Steering Group meeting in Innsbruck in March, IASC and SCAR delegate meetings in April and July respectively, and at a GTN-G Executive Board Meeting during the European Geophysical Union (EGU) meeting in Vienna (22-27 April 2012). The President of IACS will provide representation for ICSU within a Steering Group of scientists from organisations with polar interests who will undertake initial concept planning for a possible new long-term polar science initiative.

A "Memorandum of understanding between Organizations acting in the field of Cryospheric Sciences", including IACS, has been negotiated to better co-ordinate the mutual activities, and in particular the organization and planning of symposia, conferences and workshops so as to avoid conflict of those activities. At the present time (February 2012), this MoU is in the final stages of being implemented.

Planning is now well advanced for the Joint International Association of Meteorology and Atmospheric Sciences (IAMAS)/IACS Assembly in Davos,

Switzerland in 2013 (DACA-13, the Davos Atmosphere and Cryosphere Assembly 2013 <http://www.daca-13.org/welcome.html>). The theme of the conference is *Air, Ice & Process Interactions*, and it will comprise a number of self-contained symposia on focused atmospheric and cryospheric topics as well as numerous joint atmosphere-cryosphere symposia/sessions. A Swiss National Organizing Committee was already established in 2010, and they have now had several meetings, in order to organise all aspects of the conference, including the scientific programme, financials, and the venue. The Assembly will be held between 8-13 July, 2013 at the Davos Congress Centre. A request for symposia was sent out to the community after IUGG Melbourne, and we currently have around 40 proposed sessions.