



03 March 2009

ANNUAL REPORT: INTERNATIONAL ASSOCIATION OF CRYOSPHERIC SCIENCES (IACS)

This report covers the period of July of 2008 to February 2009.

GENERAL ACTIVITIES OF THE BUREAU

Members of the IACS Bureau comprise:

- Georg Kaser (President: P Kaser)
- Ian Allison (President-elect)
- Kumiko Goto- Azuma (Vice President)
- Gino Casassa (Vice President)
- Peter Jansson (Vice President)
- Manfred Lange (Secretary General)
- Julian Dowdeswell (Division Head; Glaciers and Ice Sheets)
- Charles Fierz (Division Head; Snow and Avalanches)
- Claude Duguay (Division Head; Marine and Freshwater Ice)
- Ralf Greve (Division Head; Planetary and Other Ices of the Solar System)
- Valérie Masson Delmotte (Division Head; Cryosphere, Atmosphere and Climate)

While there has been no Bureau meeting during the reporting period, members of the Bureau have been in regular e-mail contact with each other.

Topics discussed ranged from various issues internal to IACS to the more general issue of publications of books and other products derived from IACS Working Groups. Another important topic was the interaction with other organizations and fora with aims close to those of IACS.



The International Association of Cryospheric Sciences (IACS) aims to promote the study of the Cryosphere in all of its aspects. IACS is an Association under the International Union of Geodesy and Geophysics (IUGG). More information can be found under <http://www.cryosphericsscience.org/>

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ACTIVITIES OF IACS DURING THE REPORTING PERIOD

During the relatively short reporting period, IACS has taken up a number of activities. These comprise:

Proceedings of the IACS contributions to the IUGG General Assembly, Perugia, Italy, 2007

A number of papers (26 total) presented during the IUGG General Assembly in Perugia, Italy on July 2-14, 2007 have been published by the International Glaciological Society's *Annals of Glaciology*, Volume 48 in 2008. The volume was edited by the Chief Editor for the *Journal of Glaciology*, Dr. J. Jacka, Australia. More details can be found at:

<http://www.ingentaconnect.com/content/igsoc/agl/2008/00000048/00000001>

Workshop on Mass Balance Modelling – Proceedings published

The workshop on Mass Balance Modelling took place in Skeikampen, Norway on March 26 to 28, 2008 and was devoted to advancing numerical methodologies aimed at quantifying mass balance processes of Cryospheric entities. The workshop was jointly organized by NVE, Norway, the International Glaciological Society (IGS) in Cambridge, UK, and the World Glacier Monitoring Service (WGMS) in Zurich, CH. Convenors were: Liss Andreasen, Peter Jansson and Jon-Ove Hagen.

More than 80 scientists from Europe, the USA, Canada, Chile, Russia, New Zealand, Japan, and India participated. The workshop was co-sponsored and supported by IACS through contributions from IUGG and UNESCO. During the workshop, the IACS Working Group on *Mass Balance Terminology*, that was earlier approved at the Perugia IACS Bureau Meeting, has started its activities.

While this has been reported earlier, we are happy to report that the proceedings of this workshop have been printed as Volume 50 of the *Annals of Glaciology*, which are published by the International Glaciological Society, Cambridge, UK.

Book on Snow and Climate published

The book *Snow and Climate* has recently been completed by the editors Richard L. Armstrong and Eric Brun and has been published at Cambridge University Press (see

<http://www.cambridge.org/uk/catalogue/catalogue.asp?isbn=9780521854542>

for more details). This is the result of a former Working Group within IACS' predecessors ICSI/UCCS.

IACS Snow Classification

Led by Dr. Charles Fierz, a Working Group on Snow Classification has finalized the work on a comprehensive classification of snow in all its natural appearances. This is an update on an earlier version of the Snow Classification that was also put together by the IACS predecessor ICSI under the

chairmanship of Sam Colbeck. The new Classification will be published by the UNESCO/IHP but also as an electronic IACS publication.

Standing Group on Mass Balance Terminology

Under the leadership of Prof. Graham Cogley, a new Working Group on Mass Balance Terminology is making impressive progress (for more details, see http://www.cryosphericsscience.org/wg_mb.html). One of the major products derived from this Group will be a *Glossary of Mass-balance Terms*, which is rapidly taking shape. Last July, there were about 250 entries with about 30 new ones expected before a complete draft of the whole Glossary would be available. The average number of words per entry is 60 (many very short, a few quite long). Thus it is expected that the Glossary will amount to about 17,000 words, plus another 10,000 words of introductory bringing the total to 25-30,000 words with a moderate number of explanatory diagrams and maybe photos. We are currently exploring the most suitable avenues for publishing this glossary, but intend to have it available electronically on the IACS web-site.

Official Ending of the Expédition Glaciologique Internationale au Groenland

With a letter by IACS President Prof. Georg Kaser to the members of the *Expédition Glaciologique Internationale au Groenland* (EGIK) declared EGIK to be officially ended. EGIK was started in the early 1950s as a pioneering initiative under the auspices of IACS' predecessor ICSI. The intent was to regain momentum in polar research after World War II. In the course of the 1950s and 1960s and under the leadership of Dr. Paul-Emile Victor, a number of expeditions to the Greenland Ice Sheet were carried out and provided the foundation for later investigations.

Letter of Agreement between IACS and the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Council (IASC)

After numerous discussions during meetings between representatives of the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Council (IASC) and IACS, a Letter of Agreement between IASC, SCAR and IACS was signed on July 8, 2008 (http://www.cryosphericsscience.org/docs/SCAR_IASC_IACS_MOU_final.pdf). The Letter outlines procedures to be followed by IASC, SCAR and IACS that are intended to "...combine their efforts in cryospheric activities (to be decided by mutual agreement) so as to raise the level of impact of all three organizations in terms of making scientific advances and of advising policy makers, as well as to avoid duplication...".

IUGG Executive Committee meeting, Karlsruhe, Germany on 5 and 6 August 2008

Both, the President and the Secretary General of IACS participated actively in the IUGG Executive Committee meeting in Karlsruhe. During the meeting respective reports on IACS and its activities were presented and discussed.

IUGG Representative to the Scientific Committee on Antarctic Research (SCAR)

IACS President elect, Dr. Ian Alison has been nominated to become IUGG's representative to the Scientific Committee on Antarctic Research (SCAR) and has been appointed during the last SCAR Delegate Meeting in Moscow, Russia, July 14-16, 2008.

Scientific Steering Group (SSG) of the Climate and the Cryosphere Program (CliC)

The President of IACS, Prof. G. Kaser was invited to participate in the meeting of the SSG of CliC in Geneva, 8. - 11.12.2008 and to present IACS to its delegates. CliC (http://wcrp.wmo.int/AP_CLIC.html) is a major research project of the World Climate Research program (WCRP) aimed to "...understand and represent the role of the cryosphere in Earth's climate system and to assess and quantify the impacts that climate variability and change have on components of the cryosphere and its overall stability, and the consequences of these impacts for the climate system..." and thus close to IACS' goals and objectives.

UNESCO led mission to Nepal

IACS President Prof. Georg Kaser has participated in an UNESCO led mission to Nepal. This was in the framework of starting to organize a glacier mass balance training course in Nepal in the framework of HKH-FRIEND. IACS offered to coordinate the trainers' group as well as the content and the background material to be used. The latter will be based on the widely known publication: A manual for monitoring the mass balance of mountain glaciers Kaser et al. (eds.), 2003, which was produced in the framework of an earlier course and is available at:

<http://unesdoc.unesco.org/images/0012/001295/129593e.pdf>.

Joint IAMAS-IAPSO-IACS Assembly MOCA09 "Our Warming Planet"

IACS is one of the partners in the Joint Assembly together with IAMAS and IAPSO (http://www.iamas-iapso-iacs-2009-montreal.ca/e/99-home_e.shtml), which will be convened in Montreal, Canada from July 19 to 29, 2009 (IACS Symposia will be limited to July 19 to 24). The topic of the Assembly ("Our Warming Planet", see www.iamas-iapso-iacs-2009-montreal.ca) has attracted a large number of contributors (to date appr. 2000 abstracts have been submitted).

As somewhat of an innovative element of the Assembly, most of the symposia to be held in Montreal will be organized jointly between the three Associations. Presently, there are 18 joint symposia on topics from embracing "Tropical

Cyclones" to "Icecores in Paleoclimate" (http://www.iamas-iapso-iacs-2009-montreal.ca/e/02-symposia_joint_e.shtml).

In addition, IACS will organize five symposia that are specially geared towards the Cryospheric community (http://www.iamas-iapso-iacs-2009-montreal.ca/e/02-symposia_iacs_e.shtml).

Planning and preparing for the Joint Assembly continues to comprise one of the major activities of IACS during the reporting period. The IACS President participated in a meeting of the Scientific Program Committee of MOCA09 in Montreal at the end of February 2009.

National Representatives to IACS

With the help of IUGG SG Alik Ismail-Zadeh and of Katina Rogers the IACS Bureau has started to build the network of National Representatives to IACS.

Joint IAVCEI-IACS Commission/Standing Group

The joint IAVCEI Commission / IACS Standing Group on "Volcano Ice Interactions" has been approved and CVII has successfully started to operate: <http://volcanoes.dickinson.edu/VIWG/>.

IUGG GeoRISK

Prof. Martin Funk, ETH Zurich, was appointed as the IACS representative in GeoRisk

IUGG Commission for Data and Interpretation UCDI

Mark Persons, NSIDC, Boulder, has been nominated as the IACS representative in the proposed IUGG Union Commission for Data and Interpretation.

"Cryospheric Managers"

HD Charles Fierz has attended regular telephone conferences among "Cryospheric Managers" in order to coordinate activities among the leading organisations (IACS, CliC, IGS, EGU, AGU) dealing with cryospheric issues.