



**INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**  
**UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE**

## **The IUGG Electronic Journal**

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### **Special Issue**

*This special issue is dedicated to the 30<sup>th</sup> General Assembly of the International Council for Science (ICSU) and to the Associated Events*

The E-Journal may be forwarded to anyone who will benefit from the information. Comments are welcome and should be sent to the IUGG Secretary General.

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### **1. GeoUnions Business Meeting in Rome**

GeoUnions (GUs) consortium was set up in 2004 as an informal forum of the leaders of the ICSU Scientific Unions dealing with Earth, space and planetary sciences in order to promote geosciences worldwide and to coordinate their activities. The consortium is comprised of the International Astronomical Union (IAU), International Geographical Union (IGU), International Union for Quaternary Research (INQUA), International Society for Photogrammetry and Remote Sensing (ISPRS), International Union of Geodesy and Geophysics (IUGG), International Union of Geological Sciences (IUGS), International Union of Soil Sciences (IUSS), and International Union of Radio Science (URSI).

The GUs business meeting was held in Rome (Italy) on Sunday, 25 September 2011 in the Villa Celimontana (Home of Geography). Thanks to the Italian Geographical Society and IGU for arranging the meeting! Each Union reported on progress since the last business meeting in Paris (April 2010). IGU President R. Abler presented new initiative of the Union on International Year of Global Understanding (IYGU). The IGU seeks GeoUnions and UNESCO's support for the proclamation by the UN General Assembly of the IYGU 2014. This initiative aims to bridge the awareness gap between local acts and global effects. It will do this through research, education and information. IUGG Secretary General A. Ismail-Zadeh reported on the activities related to the

ENHANS project (<http://www.enhans.org>), an IUGG initiative related to promotion of studies of natural hazards and disaster risk analysis, and to bridging natural and social sciences with engineering as well as science with society. Several Scientific Unions of ICSU and other multi-national and intergovernmental organizations supported the ENHANS project enthusiastically. ISPRS President O. Altan described a new ISPRS-UNSPIDER initiative and the Society's involvement in VALID project. The Value of Geo-Information for Disaster and Risk Management (VALID) project intends to study the economic, humanitarian, operational and organizational benefit, which can be realized by applying geoinformation to disaster management. ISPRS invited GUs to join the initiative. GUs discussed a possible cooperation in the global land cover mapping project presented by ISPRS Secretary General J. Chen.



*Participants of the GUs business meeting in Rome . (Left to right): Chen Jun (ISPRS Secretary General), Phil Wilkinson (URSI President), François Lefeuve (URSI Past President), Peter Bobrowsky (IUGS Secretary General), Alberto C. Riccardi (IUGS President), Orhan Altan (ISPRS President), William Cavazza (IUGS Treasurer), Alik ismail-Zadeh (IUGG Secretary General), Ian Corbett (IAU Secretary General), Harsh Gupta (IUGG President). Courtesy of Chen Jun.*

Also GUs discussed the procedure of nomination of candidates to the ICSU Executive Board, the role of Unions in ICSU interdisciplinary scientific committees, and involvements of GeoUnions in the ICSU Regional Scientific Programs. Gordon McBean (a candidate for the position of the ICSU President-Elect) attended the meeting and presented his position statement. GUs analyzed the agenda topics of the Union Member Forum and the ICSU General Assembly and discussed their involvements in the U.N. Conference on Sustainable Development (Rio+20, <http://www.uncsd2012.org/rio20/>).

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## **2. Science Literacy and the Responsibility of Scientists**

The Italian National Research Council (Consiglio Nazionale delle Ricerche, CNR) invited the participants of the 30<sup>th</sup> ICSU General Assembly to the conference chaired by Roberta Johnson, Chair of the ad hoc ICSU Review Panel on Science Education. The meeting took place in Rome on

Monday, 26 September 2011 in the CNR Conference Room. The CNR President Francesco Profumo welcomed the conference's participants and stressed that scientific research was the key to solving all current crises. "Global cooperation is crucial in addressing society's needs. In the wake of the negative economic outlook we are witnessing research and technological transfer can turn into efficient instruments to guide countries towards a solid development giving us the tools to tackle with lucidity the great obstacles we face," he said. Roberta Johnson introduced the aim of the review panel on science education and discussed the major funding of the panel (see the ICSU website for more information <http://www.icsu.org/publications/reports-and-reviews/report-of-the-icsu-ad-hoc-review-panel-on-science-education/report-of-the-icsu-ad-hoc-review-panel-on-science-education?searchterm=science+education> ).

A French astrophysicist Pierre Lena (University of Paris – VII) talked on education in science emphasizing its values and the role of scientific community. An Italian theoretical physicist Enrico Predazzi (University of Turin) discussed the third mission of universities, which should be related to bridging science and society. Needs and responsibilities of scientists and society was a major topic of the talk by an American physicist Loucas Christophorou (University of Tennessee). A German philosopher Jürgen Mittelstraß (University of Konstanz) discussed values and credibility in science. Finally a British chemist Mary Ratcliffe (National Science Learning Centre) talked about science literacy and the responsibility of scientists.

After the conference, the participants were invited for a lunch and attended the guided tours in Villa Farnesina and Palazzo Corsini, the premises of the Accademia Nazionale dei Lincei. In the evening, the President of the Academy Lamberto Maffei met the participants of the conference and gave a lecture on neurobiology. After the lecture the ICSU Committee on Space Research (COSPAR) invited the conference participants to the COSPAR reception.



*In the library of the Accademia Nazionale dei Lincei, Rome, Italy*

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### **3. ICSU General Assembly**

The 30th General Assembly of the International Council for Science (ICSU) kicked off in Rome on Tuesday, 27 September, to address key global challenges. The delegates of the general assembly

represented 30 international scientific unions and more than hundred national academies and research councils from all parts of the world. The general assembly discussed how science could contribute to boosting sustainable development, understanding climate change, mitigating natural and human-induced disasters, and increasing well-being and health in the changing urban environment. Three distinguished scientists were invited to deliver key-note lectures during the General Assembly: Prof. Matthias Kleiner (President of the German Research Foundation – DFG, Germany), Prof. Johan Rockström (Executive Director, Stockholm Environmental Institute, Sweden), and Prof. Werner Arber (a winner of the 1978 Nobel Prize in Medicine, President of the Pontific Academy of Sciences, and former ICSU President).



*Lecture by Werner Arber, a Winner of the 1978 Nobel Prize in Medicine*

The ICSU General Assembly endorsed plans for a new global initiative “*Health and Wellbeing in the Changing Urban Environment: A Systems Analysis Approach*”. Over half of the world’s population lives in urban areas and this proportion is increasing rapidly, generating new challenges for maintaining and improving human health and wellbeing. Simple models for population health often have limited applicability in complex urban settings, where decision-making and policies have to simultaneously take account of many different issues. The ICSU Science Plan lays out a new conceptual framework for considering the multi-factorial nature of both the determinants and the manifestations of health and wellbeing in urban populations. The application of systems analysis – quantitative modeling of relationships among interrelated systems – provides a mechanism for exploring this complexity and providing solutions to real-world problems. “The success of this initiative will depend on the extent to which scientists from different disciplines are able to work together to address urban problems in a way that is useful to decision-makers” says Landis MacKellar, an economist from the International Institute of Applied Systems Analysis (Laxenburg, Austria), who chaired the ICSU Planning Group. “It is an ambitious plan but the scale of urban health challenges is enormous and growing, so we have to be optimistic that the science and policy communities can come together around this to work out practical solutions.” More information on the science plan can be downloaded from the ICSU webpage:

<http://www.icsu.org/general-assembly/press-room/background-information-for-journalists/Final%20Health%20Report%202020.07.pdf>

ICSU, within a global alliance of partners, established a major ten-year initiative, which aims to effectively deliver solution-oriented research on global environmental change for sustainability.



This new international collaboration effort, the *Earth System Sustainability Initiative*, will provide global coordination for science to respond to the most pressing societal and environmental challenges. With its integrated approach based on the active involvement of a broad range of stakeholders, the initiative will provide support for actions towards sustainability. Its launch will be June 2012, at the United Nations “Rio+20” Conference on Sustainable Development, when policy- and decision-makers from across the world will explore new pathways to sustainable development. “For the first time on a global scale we can talk about effectively co-designed research on global environmental change, with researchers, donors and users working hand-in-hand to define goals and priorities upfront”, says Prof. Yuan Lee, winner of the 1986 Nobel Prize in Chemistry and ICSU President. Lee emphasizes that “this new broad partnership will ensure a step-change in international research coordination” and adds that “ICSU and its Members, representing the global scientific community, are fully committed and ready to promote this new effort that will further strengthen international science for the benefit of society.” For more information on the Earth System Sustainability Initiative: <http://www.icsu.org/what-we-do/projects-activities/earth-system-sustainability-initiative>.

Source: ICSU Press Releases

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#### **4. DFG and ICSU for global sustainability initiatives**

At the opening of the 30th General Assembly of ICSU in Rome, Professor Matthias Kleiner, President of the Deutsche Forschungsgemeinschaft (DFG), the German Research Foundation, announced two projects that DFG would sponsor and organize jointly with ICSU. Prof. Kleiner took as the theme of emphasized the urgent need for trans- and interdisciplinary research to meet the many challenges of global environmental change. He announced the financial sponsorship of an international workshop on ‘Integrated Global Change Research: co-designing knowledge across scientific fields, national borders and user groups’, to be organized in Berlin in early 2012 by the German National Committee on Global Change Research, together with ICSU, the International Social Science Council (ISSC) and the Earth System Science Partnership (ESSP). Furthermore, he pledged DFG support for three annual ‘DFG-ICSU-ISSC Young Scientist International Networking Conferences on Integrated Science’, each of which would – over a period of one week – enable young researchers to meet leading scientists in the field of global sustainability research. Kleiner noted: “If a sufficient number of scientists can exchange ideas and think about what needs to be changed in the science system, such networking events may well help to add momentum towards more sustainable development in the future.”

Received from Howard Moore, ICSU

Editorial: DFG supports the IUGG Secretariat in Karlsruhe (Germany) for the last 4 years. During the ICSU General Assembly President H. Gupta and Secretary General A. Ismail-Zadeh met briefly with Prof. Dr. Matthias Kleiner, DFG President, and expressed the Union appreciation for a generous support of the activity of IUGG, one of the ICSU Scientific Unions.

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## **5. Polar Research Urgencies and the ICSU Grand Challenges**

A meeting to consider the polar research priorities as part of the ICSU Grand Challenges for Global Sustainability was held at the University of Siena, Italy, 27-28 September, immediately prior to the 30th ICSU General Assembly. This meeting was sponsored by the International Association of Cryospheric Sciences of IUGG (IACS), and the other ICSU bodies with a focus on polar science - the Scientific Committee on Antarctic Research (SCAR) and the International Arctic Science Committee (IASC).

This well attended meeting considered polar research priorities and their societal relevance, and the cooperative and organizational legacy resulting from the ICSU and WMO sponsored International Polar Year 2007-2008 (IPY). It endorsed the continuation of relevant polar activities as a contribution towards the ICSU Grand Challenges. The international collaboration in polar research, exemplified by the IPY, uniquely positions the polar community to be a leader in responding to the ICSU Grand Challenges for Global Sustainability. However the meeting also identified lessons to be learnt from the IPY that are relevant to future large-scale international collaboration, and essential in order to address the ICSU Grand Challenges.

A statement outlining the meeting conclusions was delivered to the 30th General Assembly of ICSU ([http://www.mna.it/english/News/ICSU\\_symposium/Statement%20Polar%20Research%20ICSU.pdf](http://www.mna.it/english/News/ICSU_symposium/Statement%20Polar%20Research%20ICSU.pdf))

Received from Ian Allison, IACS President

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## **6. IRDR and Assessment of Disaster Risk**

At the ICSU General Assembly in Maputo (Mozambique) a new interdisciplinary program on Integrated Research on Disaster Risk (IRDR) was established. The program is co-sponsored by the International Social Science Council (ISSC) and the United Nations International Strategy for Disaster Reduction (UNISDR). IRDR undertakes coordinated, international, multi-disciplinary research leading to more effective global societal responses to the risks associated with natural and human-induced environmental hazards. The program's research goals are classified into three main research objectives: Characterization of hazards, vulnerability, and risk; understanding decision-making in complex and changing risk contexts; and reducing risk and curbing losses through knowledge-based actions. Jane Rovin, Executive Director of the IRDR International Program Office, presented the recent achievements of the Program.

One of the IRDR initiatives is to establish a project on assessment of integrated research on disaster risk (AIRDR), which will undertake the first systematic and critical global assessment of research on disaster risk. The goals of AIRDR are to provide a baseline of the current state of the science in integrated research on disaster risk to measure effectiveness of multiple programs, use it to identify and support longer-term science agenda for the research community and funding entities, and to provide scientific evidentiary basis in support of policy and practice.

During discussion of the IRDR activity, IUGG President Harsh Gupta thanked the IRDR Scientific Committee for the tremendous work they did during the short period of time. He highlighted a vital importance of assessment of disaster risks on global, regional and local levels by involving national governments. IRDR and other existing relevant institutions can and should start a negotiation on setting up a process of assessing and synthesizing the policy-relevant scientific results on disaster risks. The assessment would contribute to enhance the knowledge of disaster risk at global,

regional, and local levels and the awareness of the people living with risk. The assessment should be undertaken by a high-level body of experts on disaster risk reduction to be established by governments.



*During the Union Forum at the General Assembly of ICSU, FAO, Rome, Italy:  
IUGG President Harsh Gupta (right) and Secretary General Alik Ismail-Zadeh (left)*

“Today all governments recognize the importance of climate change and potential global warming of our planet. Thanks to the Intergovernmental Panel for Climate Change (IPCC). Unless the issue of disaster risk assessment is raised to a governmental level, society will be facing humanitarian catastrophes due to natural hazards and increasing vulnerability. We need an IPCC-type organization dealing with disaster risk assessment,” said IUGG Secretary General Alik Ismail-Zadeh. IUGG proposed a resolution on Science on Disaster Risk, which was supported by IRDR and several Scientific Union and National Members of ICSU. The proposed resolution was presented at the ICSU General Assembly. After discussion of the resolution, it was agreed that the resolution should be submitted to the new Executive Board of ICSU for a final approval before voting by ICSU members.

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## **7. Nobel Prize winning scientist is new President of ICSU**

Professor Yuan Tseh Lee, a Nobel Prize-winning chemist from China: Taipei, became the new President of the International Council for Science (ICSU) at the conclusion of the 30th ICSU General Assembly. A world leader in the field of chemical dynamics, Lee had been elected by representatives from ICSU’s 114 National Members and 29 International Scientific Unions at the previous General Assembly in Maputo, Mozambique in October 2008. He takes over from Prof. Catherine Bréchnignac, Permanent Secretary of the French Académie des Sciences. In his inaugural address to the delegates and guests of the ICSU General Assembly, Prof. Lee underscored the challenges facing society and science in the coming decades.



“If we are to avoid catastrophe and ensure humanity’s continuation on this planet, the keyword for the next few decades will be transformation,” he said. “That is, we must begin to transform our global society into a truly sustainable civilization.” For Lee, part of that transformation must be scientific and technological. While science and technology have boosted economic growth, facilitated industrial production, and improved almost every aspect of life, Lee admits they have also led unwittingly to an array of health and environmental problems. He urges a radical and urgent rethink on how science is planned and carried out in the future. Lee also called for greater resources to be devoted to science. “In the past”, said Lee “many excellent ideas were abandoned because there was no funding. This is really heartbreaking. If there is a worthy idea, we must do all we can to find the resources.” He adds “Just imagine what we could do if just 1% of the estimated US\$1 trillion spent by governments on defence every year could be devoted to global sustainability research. After all, the greatest threats to security today no longer come from across borders, but are caused by humanity on humanity itself. ” He is keen to see ICSU more proactive in finding the means to further new initiatives. In the face of today’s challenges, the new President of ICSU is clearly determined that the world of science should work together, and do so quickly. “Our primary theme for the coming years must be ‘Action – and solutions – now!’” he stresses.

Source: ICSU Press Releases

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## 8. Canadian meteorologist elected as next President of ICSU



Professor Gordon McBean, an internationally recognized meteorologist and climatologist, has been elected as the future President of the International Council for Science (ICSU). An established member of the ICSU community, McBean was elected by representatives from ICSU’s 120 National Members and 30 International Scientific Unions gathered at the 30th ICSU General Assembly in Rome, Italy, on 27–30 September 2011. He is set to succeed the current ICSU President, Yuan Tseh Lee, in October 2014, and will be the first Canadian to take up this office. Gordon McBean was nominated by IUGG and the International Geographical Union (IGU). McBean was an IUGG Bureau Member from 1987 to 1995.

Gordon McBean was born and educated in Canada, and obtained a PhD in physics from the University of British Columbia (UBC), Vancouver. After an academic and research career that included serving as Professor of Atmospheric and Oceanographic Sciences at UBC, he was appointed Assistant Deputy Minister in Environment Canada, and was, from 1994 to 2000, responsible for climate, weather and air quality sciences and services in the federal government. He currently holds chairs in the Departments of Geography and Political Science at the University of Western Ontario, London, Canada, and is Director of Policy Studies at the Institute for Catastrophic Loss Reduction there. His research interests are in atmospheric and climate sciences, ranging in scope from natural phenomena, and the hazards they generate, to the policies of governments and responses of people to them.

For many years McBean has been involved in ICSU and ICSU-related affairs, including the World Climate Research Programme (WCRP) and the planning of a new decade-long interdisciplinary research program Integrated Research on Disaster Risk, whose Scientific Committee he chairs until 1 November 2011. He is also President of Global Change START International, an organization



supporting regional networks and capacity enhancement in Africa and Asia, and notably in the context of ICSU's international global change programmes. His service and achievements in the fields of climate change and natural hazards research have been recognized with the Orders of Canada (2008) and Ontario (2010). He is a Fellow of the Royal Society of Canada. As a lead author and review editor for the Intergovernmental Panel on Climate Change (IPCC), he was a member of the team that was awarded the 2007 Nobel Peace Prize.

In a presentation to the ICSU membership last week he undertook to devote his full energy to building ICSU's strengths, and addressing issues of concern that had been identified at the Assembly. "ICSU is a unique and rich mixture of Unions and National Members. Each has its own priorities but only through consultation and dialogue can the Council bring forward common values and wisdom central to the decision-making process. We must work together to make our programs a reality," he said. "I shall work towards ICSU being an ever more effective and responsive organization for all its members, so that there are positive benefits for both science and scientists around the world." he affirmed.

Congratulations to *Gordon McBean!*

Source: ICSU Press Releases

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## 9. New ICSU Executive Board Membership

### Officers:

Vice-President for Scientific Planning and Review: *Malegapuru W. Makgoba*, South Africa (molecular immunology)

Vice-President for External Relations: *Sergio Pastrana*, Cuba (international cooperation in science)

Secretary General: *David Black*, Australia (chemistry)

Treasurer: *Hans Rudolf Ott*, Switzerland (condensed matter physics)

### Ordinary Members of Executive Board:

#### Union Members:

*Orhan Altan*, Turkey (Earth and space sciences)

*Maria Carla Galavotti*, Italy (social sciences)

*Dov Jaron*, USA (biological sciences)

*Kennedy Reed*, USA (physical, chemical and mathematical sciences)

#### National Members:

*John Ball*, UK (mathematics)

*Luiz Davidovich*, Brazil (physics / quantum optics)

*Nicole Moreau*, France (chemistry)

*Guoxiong Wu*, China (meteorology)

Congratulations to all and especially to *Orhan Altan* and *Guoxiong Wu!*



Guoxiong Wu (*left*) is the Immediate Past President of the International Association of Meteorology and Atmospheric Sciences – IAMAS, the IUGG Executive Committee Member, and the IUGG Liaison to WCRP (2007-2011).

Orhan Altan (*right*) is President of ISPRS (2008-2012), a Union member of the GeoUnions consortium.



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**Note: Contributions to IUGG E-Journal are welcome from members of the IUGG family. Please send your contributions to Alik Ismail-Zadeh by e-mail (insert in Subject line: *contribution to E-Journal*). The contributions will be reviewed and may be shortened by the Editor.**