



International Union of Geodesy and Geophysics (IUGG)  
*Union Géodésique et Géophysique Internationale (UGGI)*

## ANNUAL REPORT FOR 2007



# Annual Report for 2007 of the INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (IUGG)

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## **INTRODUCTION AND GENERAL INFORMATION**

Established in 1919, the International Union of Geodesy and Geophysics (IUGG) is the international organization dedicated to advancing, promoting, and communicating knowledge of the Earth system, its space environment, and the dynamical processes causing change.

Through its constituent Associations, Commissions, and services, IUGG convenes international assemblies and workshops, undertakes research, assembles observations, gains insights, coordinates activities, liaises with other scientific bodies, plays an advocacy role, contributes to education, and works to expand capabilities and participation worldwide.

Data, information, and knowledge gained are made openly available for the benefit of society – to provide the information necessary for the discovery and responsible use of natural resources, sustainable management of the environment, reducing the impact of natural hazards, and to satisfy our need to understand the Earth's natural environment and the consequences of human activities.

IUGG Associations and Union Commissions encourage scientific investigation of Earth science and especially interdisciplinary aspects. Each Association establishes working groups and commissions that can be accessed by using the links on our website.

The web site, available in English and French, can be found at <http://www.IUGG.org>.

### **MEMBERSHIP**

By their very nature, geodetic and geophysical studies require a high degree of international co-operation. IUGG is critically dependent on the scientific and financial support of its member Adhering Bodies. The list of present and past IUGG Adhering Bodies is published annually in the IUGG Yearbook, which is posted on the web site and is available from the Secretariat. Each Adhering Body establishes a National Committee for IUGG, and names Correspondents to each Association (as appropriate). During 2006, the Union had 67 Member Adhering Bodies. Several members were in observer status because they were in arrears of dues payment. Nine Adhering Bodies were in Associate Member status. Associate Members do not pay dues and may not participate in Council meetings, vote, or hold office. However, beginning with the General Assembly in 2007, Associate Members may attend the Council meetings as listeners. New member country applications are being actively encouraged.

### **STRUCTURE**

Responsibility for directing the Union's affairs is vested in the IUGG Council by the Statutes and Bylaws. The IUGG Council consists of the Council Delegates, who are designated by the Adhering Body of their respective countries as their representatives for each Council meeting. The Council is convened at each quadrennial General Assembly. A Bureau, an Executive Committee and a Finance Committee administer IUGG affairs between Council meetings. The Executive Committee has the particular responsibility of overseeing the scientific programs of the Union. There is no permanent Secretariat; the National Committee of the Secretary General is expected to provide administrative support for Union affairs. The officers of IUGG are listed on the IUGG web site.

The Union brings together seven semi-autonomous Associations, each responsible for a specific range of topics or themes within the overall scope of the Union's activities and each with a sub-structure. The Associations convene their own assemblies and sponsor scientific symposia, often in partnership with one another. Within its own discipline each Association is responsible for determining its own

program of investigations and for supporting the activities of its own component parts. All Earth scientists, worldwide, are eligible to participate in IUGG and Association assemblies, workshops, and symposia, although only scientists from member countries with dues paid may serve as officers.

### **Associations**

The eight International Associations are listed below, and short reports on their 2007 activities are included here. Additional information about each Association is given on their web sites, which can be accessed from the IUGG web site.

- International Association of Cryospheric Sciences (IACS) (since July 2007)
- International Association of Geodesy (IAG)
- International Association of Geomagnetism and Aeronomy (IAGA)
- International Association of Hydrological Sciences (IAHS)
- International Association of Meteorology and Atmospheric Sciences (IAMAS)
- International Association for the Physical Sciences of the Oceans (IAPSO)
- International Association of Seismology and Physics of the Earth's Interior (IASPEI)
- International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)

### **Union Commissions**

Owing to the interactive nature of the subject fields addressed by the Union's Associations, a number of Union Commissions have been established that promote the study of particular interdisciplinary problems. In 2007, the following bodies were active:

- Commission on Geophysical Risk and Sustainability (GeoRisk)
- Commission on Mathematical Geophysics (CMG)
- Committee on the Study of Earth's Deep Interior (SEDI)
- Commission on Cryospheric Sciences (UCCS) (before July 2007)

### **Inter-Unions Commission**

The International Lithosphere Program, guided by the Scientific Committee on the Lithosphere (SCL), was established in 1980 as the Inter-union Commission on the Lithosphere (ICL) by the International Council for Science (ICSU), at the request of the International Union of Geological Sciences (IUGS) and the International Union of Geodesy and Geophysics (IUGG). The name was formally changed to the Scientific Committee on the Lithosphere in 1999. According to Decision 8.4 from the 2005 ICSU General Assembly, ICSU decided "to withdraw ICSU sponsorship from SCL/ILP and to recommend that responsibility would then shift to IUGG and IUGS." Since that time, IUGG and IUGS have reaffirmed the ILP mission and have collaborated to re-define ILP as an inter-Union body. New Terms of Reference have been approved by both Unions. The ILP report is presented in the IUGG Annual Report.

## **GENERAL ASSEMBLIES OF THE UNION**

General Assemblies have been held since 1922 and, since 1963, at 4-year intervals. These assemblies provide an extraordinary opportunity for Earth scientists from around the world to gather and share expertise, research data, and results. Past IUGG General Assemblies are listed in the IUGG Yearbook and on the web site. The most recent General Assembly was held in Perugia, Italy, 2-13 July 2007. The next General Assembly will be held in Melbourne, Australia, 27 June – 8 July 2011.

## **OTHER SCIENTIFIC MEETINGS**

Each Association organizes its own scientific assembly in the 4-year interval between Union General Assemblies in order to report scientific progress and conduct Association business. Associations sometimes meet jointly with the purpose of promoting interdisciplinary science. Topical and regional symposia and workshops are organized on other occasions by the Associations to provide opportunity

for geodesists and geophysicists worldwide to discuss their respective methodologies, results and hypotheses and to plan collaborative research projects. The symposia, often held in less-visited, geophysically interesting locales, are intended to be attractive to the younger scientists from the developing countries of the world.

## **PUBLICATIONS**

The IUGG publishes an annual Yearbook that lists the organizational structure and officers of each body within the Union. The Yearbook is printed and mailed to all Member Adhering Bodies and relevant persons and organizations, and is posted on the IUGG web site. The Union also distributes a short electronic newsletter (the IUGG E-Journal) monthly to Adhering Bodies and National Committees. Each Association manages their own publications.

# IUGG ACTIVITIES

## XXIV GENERAL ASSEMBLY OF IUGG

Over 4300 participants from 92 countries attended the XXIVth General Assembly (GA) of the IUGG in Perugia (Italy) in July 2007. The theme for this GA was “Earth: Our Changing Planet”. The scientific program covered the whole range of geophysics and geodesy and included several Union lectures delivered by distinguished scientists and over 210 symposia. IUGG celebrated the 50<sup>th</sup> Anniversary of the International Geophysical Year by organizing special scientific and outreach events in Perugia. A new International Association of Cryospheric Sciences was formed and accepted into the IUGG family. The IUGG GA adopted several important resolutions, among them, on the need for studies of aerosol pollution effects on precipitation, on the urgency of addressing climate change, and on the reduction of risk from natural hazards. The following members of the IUGG Bureau and the Financial Committee were elected at the General Assembly

### **IUGG Bureau members for 2007-2011**

President: Dr. Tom Beer (Australia)

Vice President: Dr. Harsh Gupta (India)

Secretary General: Dr. Alik Ismail-Zadeh (Germany)

Treasurer: Dr. Aksel Hansen (Denmark)

Members: Dr. Yun-Tai Chen (China), Dr. David Jackson (USA), Dr. Ali Tealeb (Egypt)

### **IUGG Finance Committee members for 2007-2011**

Chair: Dr. Juan Vilas (Argentina).

Members: Dr. David Collins (U.K.), Dr. Jan Krynski (Poland), Dr. Kiyoshi Suyehiro (Japan)

## NEW OFFICE OF THE IUGG SECRETARIAT

For 1999 to 2007 the office of the IUGG Secretary General was hosted by the University of Colorado at Boulder within CIRES – the Cooperative Institute for Research in Environmental Sciences. The IUGG Secretariat moved to Karlsruhe in 2007 and is now hosted by the Geophysical Institute of Karlsruhe University, Germany.

## MEMBERSHIP

Armenia became a regular member of IUGG. Nigeria and Colombia return to regular membership in IUGG. The IUGG Secretariat communicated with Malaysia and Ethiopia with regard to their inquiry about membership, with Colombia (successful) and Venezuela regarding their membership situation, with Greece regarding re-adhering to IUGG, and with the United Arab Emirates regarding adhering to IUGG.

## PUBLICATIONS

- In January, the 2007 Yearbook was published that lists the organizational structure and officers of each body within the Union (<http://www.iugg.org/publications/yearbooks/yearbook2007.pdf>).
- In December, the 2008 Yearbook was published electronically (<http://www.iugg.org/publications/yearbooks/yearbook2007.pdf>).
- The IUGG website, in English and French, was fully updated.
- E-Journals, short informal newsletter was published monthly keeping IUGG Member National Committees informed about the activities of the IUGG Associations, and actions of the IUGG Secretariat (<http://www.iugg.org/publications/ejournals/>).

## NATIONAL REPORTS

National Reports from the following countries are now posted on the IUGG web page (<http://www.IUGG.org/members/nationalreports>): Argentina, France, Germany, Japan, Russia, South Africa, Spain, and Turkey. In addition, France prepared its National Report on a CD, which has been distributed to all IUGG bodies and members. Excellent printed reports were prepared by Germany,

India, and Slovak Republic. IUGG appreciates the time and energy required to assemble these reports that showcase the IUGG-related research being done within the respective countries, and provide points of contact for collaboration. Please view these reports and either print out copies as needed or request a printed copy directly from the individual National Committees.

## **IUGG GRANTS**

### **Support for Workshops and Symposia**

Each year, IUGG co-sponsors symposia and meetings appropriate to our disciplines of study. US\$20,000 is allocated annually to assist meetings, and especially to support the attendance of young scientists and scientists from developing countries (in years of the IUGG General Assembly, the budget for meetings is reduced to US\$5,000 so that more money is available to support attendance at the General Assembly). In 2007, IUGG supported the following meetings:

- A planning meeting for the Electronic Geophysical Year (eGY), 13-14 March, Boulder, Colorado, USA;
- Workshop on Glaciers in Watershed and Global Hydrology, 27-31 August, Obergurgl, Austria;
- Workshop on Natural and Human-induced Disasters in Africa, August, Kampala, Uganda;
- Workshop on EMSEV activities in Indonesia.

### **IUGG Grants Programme**

IUGG has established a new Grants Programme for 2008-2011 to complement its existing programme of funding symposia and workshops. US\$150,000 is allocated to this Programme. Key priority areas are defined for the Grants Programme in line with IUGG overall scientific strategies: (a) Creation of New Knowledge in Geodesy and Geophysics; (b) Dissemination of Data and Information on Geophysics and Geodesy; (c) Geo-science for Sustainable Development; (d) Geo-science and Policy Interface; and (e) Geo-science in Africa.

## **IUGG LIAISON REPORTS**

On behalf of IUGG, Dr. David Kerridge attended the first Board Meeting of the International Year of Planet Earth held on 9 - 10 January 2007 in London, UK. The meeting began with the informal opening of the IYPE triennium (2007-2009) and closed with a joint balloon launch on the occasion of the opening of the International Year and the Commemoration of the 200th anniversary of the Geological Society of London. The December 2006 editions of the IYPE Prospectus and Business Plan are available on the website <http://www.esfs.org/downloads/>.

On behalf of IUGG, Dr. Alik Ismail-Zadeh attended the Opening Ceremony of the International Year of Planet Earth held in the University of Tokyo, Japan, on January 22, 2007. A one-day symposium highlighted the importance of IYPE, discussed the activity of Japanese scientific and industrial institutions toward the Year, and desired outcomes of this activity.

At the invitation of IUGS and on behalf of IUGG, Alik Ismail-Zadeh attended the 57th Executive Committee Meeting of the International Union of Geological Sciences (IUGS) held in Nara, Japan, January 16-20, 2007. Discussions included activities of the International Year of Planet Earth, activities stemming from the consortium of 8 ICSU GeoUnions, as well as scientific topics of interdisciplinary interest.

On behalf of IUGG, Dr. Arthur Askew attended the 14th session of WMO's Commission for Instruments and Methods of Observation held in Geneva, Switzerland, from 7-14 December 2006. Of particular interest to IUGG are efforts to test instruments and compile internationally comparable data sets, including a new proposal to inter-compare sea level and tsunami monitoring instruments.

On behalf of IUGG, Dr. Michael MacCracken and Dr. Lawrence Mysak attended the SCOR Executive Committee (EC) meeting in Bergen, Norway, 25-28 August 2007. The most important

results of the SCOR EC meeting are as follows. The EC reviewed the status of SCOR's various WGs, which provide SCOR's leading contribution to advancing the science. The SCOR EC and national members reviewed the large-scale ocean projects that SCOR cosponsors. Significant attention was devoted to the issue of enhancing SCOR's capacity-building activities. SCOR's relations with various intergovernmental organizations were also considered, in particular with the Intergovernmental Oceanographic Commission. Reports were presented by the three international associations that have liaisons to SCOR: IABO, IAMAS, and IAPSO.

On behalf of IUGG, Dr. Sri Widiyantoro attended the ISCU Regional Office for Asia and the Pacific (ROAP) Regional Consultation on Science Plans in Chiang Mai, Thailand, 21-22 November 2007. The priority areas of the work of ROAP in the medium-term (3 to 6 years) are as follows: (i) Natural and human induced environmental hazards and disasters; (ii) Ecosystem approach to water and food systems; and (iii) Sustainable energy. A comprehensive draft of science plans related to hazards and disasters in Asia and the Pacific especially related to earthquakes, floods and landslides was prepared.

### **THE INTERNATIONAL COUNCIL FOR SCIENCE (ICSU)**

The International Council for Science, formerly known as the International Council of Scientific Unions (ICSU), was created on 11 July 1931. IUGG was one of the original Unions of ICSU and has continued to participate in its programmes.

ICSU Young Scientists Conference. The International Council for Science (ICSU) organized a conference for young scientists to discuss and address some of today's important scientific challenges in a multidisciplinary and international environment. The conference entitled "Global Scientific Challenges: Perspectives from Young Scientists" was held in Lindau in Germany from 4th to 6th April 2007. IUGG nominated a number of young scientists; three were selected for participation. They are Dr. Kate Heal (IAHS; University of Edinburgh, U.K.), Dr. Laura Sanchez (IAG; Colombia, now studying in Germany), and Dr. Thomas Müllg (UCCS; University of Innsbruck, Austria).

ICSU Unions meeting. Representatives from the 29 scientific Unions that are members of ICSU were hosted by the Italian Consiglio Nazionale delle Ricerche (CNR) at a meeting in Rome on April 23 – 24. The theme of the meeting was "ICSU and its Unions working together to deliver the ICSU Strategy." ICSU President G. Mehta addressed the gathering, and the four sessions were chaired by the four Executive Board (EB) members from the Unions, including Uri Shamir, EB member from a cluster of Unions that includes many of the GeoUnions. The current status of implementation of the ICSU 2006-2012 Strategic Plan was reviewed by Khotso Mokhele, ICSU Vice President and Chair of the Committee for Science Programming and Review. Agenda items included ICSU as well as Union activities on the topics of human health; natural and man-made hazards; and information and data. Directors from each of the ICSU Regional Offices made presentations. The first Regional Office for Africa, located in Pretoria, South Africa, is in full operation and has established 4 science themes. The Regional Office for Asia and the Pacific, established in 2006 in Kuala Lumpur, has begun operations with hazards as their main scientific focus. The Regional Office in Latin America and the Caribbean has just been inaugurated in Rio de Janeiro, Brazil. Efforts are underway to locate a fourth Regional Office in the Arab World. Planning is in progress for the 2008 ICSU General Assembly to be held in Maputo, Mozambique, 20 – 24 October. An outreach program to bring science to communities will precede the conference, and volunteers are needed to participate in events being planned throughout Mozambique.

ICSU Planning Group on Natural and Human-induced Environmental Hazards and Disasters established to plan and make proposals on a possible major new, interdisciplinary initiative to be launched by ICSU in partnership with other likeminded international organizations, released its report. On 29 October ICSU organized a Consultation Forum to discuss the report and to get comments of the organizations with a direct interest in natural hazards. Extensive comments by the IUGG GeoRisk Commission and International Association of Cryospheric Sciences were forwarded



to ICSU. Tom Beer (President), Harsh Gupta (Vice-President), Keith Alverson (IAMAS), Kenji Satake (IASPEI-IAPSO-IAVCEI Tsunami Commission), and Stephen Sparks (IAVCEI) took part in the Consultation Forum. The Planning Group for the new ICSU initiative Natural and Human-induced Environmental Hazards and Disasters presented its latest report to the Committee on Scientific Planning and Review (CSPR) in September. The planning and consultation process has been extended, in recognition of the need for the widest interaction and debate among potential partners and sponsors. It will include more consultation within and beyond the ICSU family. A one-day Consultation Forum in Paris was held on 29 October that was attended by representatives from IUGG and IAMAS. The draft report will be sent to Members for a second round of consultations in early 2008. The Planning Group will submit its final report to CSPR in April 2008.

Science for Health and Well-Being (SHWB). Human health is a relatively new priority area for ICSU as outlined in the Strategic Plan, 2006-2011. A large number of Scientific Unions began working together in 2002 to promote an initiative on Science for Health and Well-being. At the same time, a separate programme on Global Environmental Change and Health was being developed by the Earth System Science Partnership. In 2006, the ICSU Committee on Scientific Planning and Review established an ad hoc Scoping Group to liaise with and advise on these various activities and help define ICSU's future strategy in this area. The Scoping exercise identified the need for a more holistic/systems approach to health issues in the urban environment as being an area in which ICSU and its members might make a unique contribution. In 2007, a Planning Group was established with the aim of developing a new interdisciplinary programme focusing on "A systems analysis approach to health and well-being in the changing urban environment". Dr. Claire Horwell, Director of the International Volcanic Health Hazard Network, was the IUGG representative to the Planning Group.

The International Science Panel on Renewable Energies (ISPRES) is a joint development of the International Council of Science (ICSU), the International Council of Academies of Engineering and Technological Sciences (CAETS), and the Renewable Energy Policy Network. Two IUGG scientists have been selected for this Panel, serving from 2006-2008. They are Andrew Blakers, of the Australian National University in Canberra, and Arni Snorrason, of the Iceland Hydrological Service in Reykjavik. The ISPRES will provide strategic guidance for renewable energy Research & Development efforts worldwide. The Panel's focus will extend from basic scientific research to issues of technology development, demonstration, and deployment.

The Federation of Astronomical and Geophysical Data Analysis Services (FAGS) has been an Interdisciplinary Body (IB) of ICSU since 1956. IUGG funding for FAGS has been US\$12,000 per year for several years. This funding is most commonly used for outreach to scientists in developing countries and is fully utilized with no overhead being extracted from the receiving services. At the 2005 ICSU General Assembly, a recommendation to eliminate FAGS as an ICSU IB was not accepted and it was decided "To extend ICSU's sponsorship of FAGS for a period of 3 years, during which the FAGS panel will continue to fulfill its role of coordination among the Services, while ICSU examines integration of this function within its activities in data and information". The FAGS web site: <http://www.icsu-fags.org>

CODATA. IUGG was readmitted as a member of the ICSU Committee on Data for Science and Technology (CODATA). Prof. Krishan Lal, CODATA President, welcomed IUGG into the CODATA family. The 21<sup>st</sup> CODATA International Conference and General Assembly will be held in Kyiv, Ukraine from 5 to 10 October 2008. Dr. C. Barton, IAGA President Past, was appointed as the representative of the Union to CODATA.

## **GEOUNIONS CONSORTIUM**

The GeoUnions is a "cluster" of Unions within the ICSU family that focus on the geosciences. Present membership consists of the following eight Unions: IAU (International Astronomical Union), IGU (Geography), INQUA (Quaternary Research), ISPRS (Photogrammetry and Remote Sensing), IUGS (Geological Sciences), IUGG (Geodesy and Geophysics), IUSS (Soil Sciences), and URSI (Radio

Science). In order to take advantage of overlapping scientific expertise, a joint Science Program was agreed on the topics of Cities and Megacities, Desertification, Groundwater, Hazards, Health, and Polar science. The GeoUnions also support the IUGG initiatives on Geosciences in Africa and the electronic Geophysical Year (eGY). There is considerable overlap between the 10 science topics of the International Year of Planet Earth (IYPE) and the GeoUnions science programs. In addition, ICSU has strategic priorities in Natural and Human-Induced Environmental Hazards, and Science for Health and Well-being. It is hoped that each programme will be enhanced by cross-collaboration and communication.

A meeting of an informal consortium of 8 Unions belonging to the International Council of Science (ICSU) was hosted by the International Geographical Union (IGU) at Villa Celimontana in Rome on April 21 – 22. The attendees affirmed the benefits of collaboration and drafted Terms of Reference to solidify the basis for the consortium. Those IUGG officers who attended the meeting included IUGG President Uri Shamir, Secretary General JoAnn Joselyn, and Bureau member Harsh Gupta.

### **THE ELECTRONIC GEOPHYSICAL YEAR (EGY)**

The eGY is an ICSU-endorsed programme of the International Union of Geodesy and Geophysics (IUGG). Initiated by the International Association of Geomagnetism and Aeronomy (IAGA), eGY mobilizes the science community to achieve a step increase in making past, present, and future geoscientific data readily, rapidly, conveniently, and openly available. EGY provides the international framework and a target for stimulating and coordinating activities to make this happen. eGY focuses on themes of electronic data location and access, permission and release of data, conversion of data into modern digital form, data preservation, capacity building, particularly in developing countries, and outreach. Promoting the development of a network of virtual observatories is a central feature of eGY.

A successful eGY General Meeting was held in Boulder Colorado on 13-14 March at NCAR's Center Green Facility. Approximately 35 delegates representing the US, Canada, Germany, Europe, Russia, and Australia discussed activities of international bodies and programs (ICSU, IUGG, IUGS, IHY, IPY, IYPE, CODATA, WDCs, NASA, GEOSS, GEM/CEDAR, SEG, WGISS, and several virtual observatories) that relate to eGY. An action plan for the next 18 months was developed, with special attention given to plans for the eGY Kick Off activities to be held during the IUGG General Assembly on Saturday July 7th in Perugia Italy. We also had a wide-ranging discussion on the legacy of eGY and possible follow on activities. Both the idea of an IUGG Union Commission on Earth and Space Science Informatics and the formation of an eGY-interopability CODATA Working Group were enthusiastically embraced. A meeting report and action plan will appear on [www.egy.org](http://www.egy.org). The eGY began on July 1, 2007, fifty years after the beginning of the IGY. Opening ceremonies was held in Perugia, Italy, in conjunction with the IUGG General Assembly.

### **THE INTERNATIONAL HELIOPHYSICAL YEAR (IHY)**

The IHY held their Opening Ceremony on 19 February 2007 in conjunction with the United Nations Science and Technical Subcommittee meeting in Vienna, Austria. A special presentation on IHY plans and activities was made during the Subcommittee session, along with statements of support from participating IHY nations. Following the subcommittee meeting, U.N. delegates and IHY participants from around the world came together at the Opening Ceremony to formally announce the commencement of the International Heliophysical Year. Dr. Guhathakurta described IHY as "a broad international effort to develop the scientific understanding necessary to effectively address all aspects of the connected Sun-Solar system ... that will provide a powerful tool for engaging the public and students in the science all over the world." There are currently 75 nations with IHY Organizing Committees, and there are activities and representation in nearly all of the 192 United Nations Member States. IHY will run for two years, 2007-2009. <http://ihy2007.org/>

## **ACTIVITIES OF THE UNION ASSOCIATIONS**

The following reports, edited from more lengthy reports prepared by the Secretaries General of the Associations, illustrate the impressive range of activities within each Association as well as their dedication to supporting science within developing countries.



## **International Association of Cryospheric Sciences (IACS)**

[www.cryosphericciences.org](http://www.cryosphericciences.org)

This report covers a period of transition from the Union Commission of Cryospheric Sciences (UCCS) to the International Association of Cryospheric Sciences (IACS), which took place during the IUGG General Assembly in Perugia, Italy in July of 2007 (see below).

### **IUGG General Assembly 2007**

Preparing, planning and carrying out a total of 15 symposia has been a major activity during the first half of 2007. Topics of the symposia comprised quite general issues such as “Changes in the Cryosphere” or “Observations of the Cryosphere from Space” as well as fairly specialized ones such as “Extraterrestrial Ice” or “Life in icy environments: interactions between the biology and chemistry of ice”. The symposia were prepared in cooperation with other IUGG Associations (IAG, IAHS, IAMAS, IAPSO, IAVCEI) and organizations outside IUGG (IGS, CliC, GEWEX, IASC, INQUA, SCAR).

The symposia were well attended and gave ample opportunity for discussions between colleagues from various countries and institutions. The proceedings of the UCCS-sponsored symposia are being published in a special issue of the *Annals of Glaciology* by the International Glaciological Society. After careful reviewing and revisions, a total of 26 papers have been accepted and are in press. The first paper in the volume is “From Commission to Association: The transition of the International Commission on Snow and Ice (ICSI) to the International Association of Cryospheric Sciences (IACS)” by H. Gerald Jones, the last ICSI President.

### **Bureau meetings of UCCS and IACS in conjunction with the IUGG General Assembly**

The occasion of IUGG’s General Assembly and the fact that many of the old and new Bureau members of UCCS and IACS were present in Perugia was utilized to convene the last meeting of the UCCS Bureau and the first meeting of the IACS on July 8 and 14, 2007, respectively.

Members of the new 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)

Of which Ian Allison, Gino Casassa, Claude Duguay, Ralf Greve and Valérie Masson Delmotte are new members. Members of the UCCS Bureau not included in the IACS Bureau include: Jon-Ove Hagen and Koni Steffen.

## Transition from UCCS to IACS

On July 4, 2007, at the 10th IUGG General Assembly in Perugia, Italy, the IUGG Council decided to launch the International Association of Cryospheric Sciences, IACS as the 8th IUGG Association. Thereby IACS joins long established IUGG Associations such as those for Hydrological Sciences (IAHS), Meteorology and Atmospheric Sciences (IAMAS) and Physical Sciences of the Oceans (IAPSO). The decision by the IUGG Council was mainly reached in recognition of the fact that the study of the Cryosphere has to be seen on equal footing to investigations of other components of the Earth system. With the initiation of IACS, its predecessors, the International Commission for Snow and Ice (ICSI) and the Union Commission on Cryospheric Sciences (UCCS) are superseded.

The new association strives to

- to promote studies of all aspects of- and physical processes related to Earth's Cryosphere and that of other bodies of the Solar System;
- to encourage research on these subjects by the scientific community through national and international institutions and programmes and by individual countries as well as through collaboration and international co-ordination;
- to provide an international platform for discussions and publications of results arising from research activities as mentioned above;
- to promote education and public outreach on Cryospheric processes and Cryospheric research;
- to facilitate the collection of data on Cryospheric systems through standardized measurements and to promote the analysis, publication and archiving of such data.

IACS comprises five Divisions that address:

- Snow and Avalanches
- Glaciers and Ice-sheets
- Marine and Freshwater Ice
- Cryosphere, Atmosphere and Climate
- Planetary and other Ices of the Solar System

## Activities of IACS during 2007

During its relatively short existence, IACS has already taken up a number of activities. These comprise:

- Organization of a ***Workshop on Glaciers in Watershed and Global Hydrology***

This workshop, which was jointly organized by ICSI-H (International Commission on Snow and Ice – Hydrology) took place in Obergurgl, Austria from August 27 to 31, 2007. Convenors of the workshop were Regine Hock, Thomas Johannesson, Gwen Flowers and Georg Kaser. The workshop considered the role of glaciers as sources of water both on a regional and global scale under conditions of climate change. Proceedings of the workshop are going to be published in *Hydrological Processes*.

- Organization of a ***Workshop on Mass Balance Modelling***

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

- ***Joint IAMAS-IAPSO-IACS Assembly “Our Warming Planet”***

IACS is one of the partners in the Joint Assembly together with IAMAS and IAPSO, which will be convened in Montreal, Canada in July, 2009. The topic of the Assembly (“Our Warming Planet”, see [www.iamas-iapso-iacs-2009-montreal.ca](http://www.iamas-iapso-iacs-2009-montreal.ca)) is expected to attract a large number of delegates to Montreal.

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 plans for 21 joint symposia, spanning themes from “Polar regional weather and climate modelling” over “The contribution of Greenland and Antarctica to fresh water input to the ocean and sea level change” to “Ice cores in paleo-climate.”

In addition, IACS will organize five symposia that are specially geared towards the Cryospheric community.

***Cooperations:***

- With the help of IUGG SG Alik Ismail-Zadeh the IACS Bureau has started to build the network of National Representatives to IACS.
- It is planned install an Inter-Association Commission/Division on “Ice and Volcanoes” with IAGA.
- The joint working group with the International Permafrost Association (IPA) on “Glacier and Permafrost related Hazards” in is still active.
- A Memorandum of Understanding is in preparation with SCAR and the International Arctic Science Council IASC.
- Prof. Martin Funk, ETH Zurich, was appointed as the IACS representative in GeoRisk
- Mark Persons, NSIDC, Boulder, has agreed to act as the IACS representative in the proposed IUGG Union Commission for Data and Interpretation
- HD Charles Fierz has twice attended a telephone conference among “Cryospheric Managers” in order to coordinate activities among the leading organisations (IACS, CliC, IGS, EGU, AGU) dealing with cryospheric topics.

***Other issues:***

IACS VP has set up a new web-site for IACS at <http://www.cryosphericosciences.org/>

A new logo was developed and is now in use. The idea was

- (i) to symbolize all aspects of Cryosphere – what can do better than a snow flake?;
- (ii) to indicate the dynamics of the science and the team- the flake is not flat but suggests 3D, it is not regular;
- (iii) to be open in all directions – the flake sails free without circle or square around.

Manfred Lange, IACS Secretary General



## **International Association of Geodesy (IAG)**

<http://www.iag-aig.org>

### **IAG Council**

The IAG Council elected the new IAG officers in May/June 2007:  
(see complete structure at:  
[http://iag.dgfi.badw.de/fileadmin/IAG-docs/IAG-Structure\\_2007-2011\\_compact.pdf](http://iag.dgfi.badw.de/fileadmin/IAG-docs/IAG-Structure_2007-2011_compact.pdf)).

### **IAG Executive Committee**

#### **IAG Bureau**

President: *Michael G. Sideris* (Canada)  
Vice President: *Chris Rizos* (Australia)  
Secretary General: *Hermann Drewes* (Germany)

#### **IAG Immediate Past President**

President 2003-2007: *Gerhard Beutler* (Switzerland)

#### **IAG Commissions**

Commission 1 "Reference Frames." President: *Zuheir Altamimi* (France)  
Commission 2 "Gravity Field." President: *Yoichi Fukuda* (Japan)  
Commission 3 "Earth Rotation and Geodynamics." President: *Michael Bevis* (USA)  
Commission 4 "Positioning and Applications." President: *Sandra Verhagen* (Netherlands)

**Global Geodetic Observing System.** GGOS Chair: *Markus Rothacher* (Germany)

**Communication and Outreach Branch.** COB President: *József Ádám* (Hungary)

#### **Representatives of the Services**

Representatives: *Steve Kenyon* (USA), *Ruth Neilan* (USA), *Harald Schuh* (Austria)

**Members at Large:** *Kosuke Heki* (Japan), *Richard Wonnacott* (S. Africa)

#### **Non-voting Members**

Inter-Commission Committee on Theory. President: *Nico Sneeuw* (Germany)  
IAG Ass. Secr.: *Helmut Hornik* (Germany)  
IAG Past Presidents: *Helmut Moritz* (Austria), *Ivan I. Mueller* (USA), *Wolfgang Torge* (Germany),  
*Klaus-Peter Schwarz* (Canada), *Fernando Sansó* (Italy)  
IAG Past Secretaries General: *Michel Louis* (France), *Claude Boucher* (France), *Christian C. Tscherning* (Denmark)

During the IUGG General Assembly in Perugia the Council met twice: July 2, 2007 and July 9, 2007 (minutes: [http://iag.dgfi.badw.de/fileadmin/archives/IAG-Council1-minutes\\_rev2.pdf](http://iag.dgfi.badw.de/fileadmin/archives/IAG-Council1-minutes_rev2.pdf)). New Statutes and Bylaws which had been prepared by a review committee during the years 2005 – 2007 were

adopted on July 9, 2007. The Council selected Buenos Aires, Argentina, as venue for the next IAG Scientific Meeting in 2009.

### **IAG Executive Committee (EC)**

The IAG EC had six meetings in 2007, four of the old EC for the period 2003-2007 and two of the new EC for the period 2007-2011:

- Vienna, Austria, April 16, 2007;
- Perugia, Italy, July 2, 2007 (old EC);
- Perugia, Italy, July 4, 2007 (old EC);
- Perugia, Italy, July 6, 2007 (old EC);
- Perugia, Italy, July 10, 2007 (new EC);
- San Francisco, USA, December 8, 2007.

The meetings in Perugia were held in connection with the IUGG General Assembly. All the meeting summaries are published in the IAG homepage (<http://www.iag-aig.org>) and in the IAG Office homepage (<http://iag.dgfi.badw.de>).

### **IAG Central Bureau / IAG Office**

According to the new IAG Bylaws the Central Bureau was renamed the IAG Office. It changed from Copenhagen, Denmark, to Munich, Germany on July 14, 2007, as a result of the election of the new Secretary General. The complete files including budget, homepage and databases were transferred in October 2007. The Central Bureau prepared the Council and EC meetings, and participated in the IUGG EC meetings up to the IUGG General Assembly. The Office prepared the meetings of the new EC and the Geodesist's Handbook 2008 with the complete description of the new IAG structure (reports, terms of reference, documents). It will be published as a special issue of the Journal of Geodesy in 2008.

### **Communication and Outreach Branch (COB)**

The COB continued its main tasks of maintaining the IAG homepage and publishing the monthly newsletter. It prepared, printed and distributed a new IAG leaflet and membership application form, drafted an IAG brochure, and participated in the preparation of the Geodesist's Handbook 2008.

### **Commissions and Inter-Commission Committee**

The four IAG Commissions and the Inter-Commission Committee on Theory published their final reports 2003 – 2007 ([http://www.iag-aig.org/index.php?tpl=text&id\\_c=18&id\\_t=308](http://www.iag-aig.org/index.php?tpl=text&id_c=18&id_t=308) and <http://iag.dgfi.badw.de>). The new structures and descriptions for the period 2007 – 2011 were prepared by the new commission officers.

### **Services**

Most of the fourteen IAG Services published their final reports for the period 2003 – 2007 ([http://www.iag-aig.org/index.php?tpl=text&id\\_c=18&id\\_t=308](http://www.iag-aig.org/index.php?tpl=text&id_c=18&id_t=308) and <http://iag.dgfi.badw.de>). New structures and descriptions for the period 2007 – 2011 were prepared. The International VLBI Service (IVS) elected a new directing board inclusive the chair which started its work in February 2007. The International Gravimetric Bureau (BGI) installed a new director, and the Time Section of the International Bureau on Weights and Measures (BIPM) changed its name to “Time, Frequency and Gravimetry.” The International Centre for Earth Tides (ICET) moved to the University of French Polynesia in Tahiti under a new director. An International Altimeter Service (IAS) is under development. Several Services held internal Workshops.

### **Global Geodetic Observing System (GGOS)**

The GGOS Steering Committee met five times in 2007 (<http://cheryl.nbmj.unr.edu/ggos/sc/meetings/>):

- 8<sup>th</sup> meeting, Oxnard, USA, February 19-21, 2007;
- 9<sup>th</sup> meeting, Vienna, Austria, April 17, 2007;
- 10<sup>th</sup> meeting, Perugia, Italy, July 8, 2007;



- 11<sup>th</sup> meeting, Frascati, Italy, November 4, 2007;
- 12<sup>th</sup> meeting, San Francisco, USA, December 12, 2007.

A GGOS retreat was held in Oxnard, California, February 19-21, 2007. According to the new IAG Bylaws, the status of GGOS changed from an IAG Project to a component (like Commissions and Services). The structure of GGOS was therefore slightly changed in Perugia, July 2007. A GEO/GGOS Workshop was held in connection with the ESA 2007 International Geohazards Week in Frascati, Italy, 5-9 November 2007 (see report at [http://geodesy.unr.edu/ggos/ggosws\\_2007](http://geodesy.unr.edu/ggos/ggosws_2007)). The chair and the two vice chairs of GGOS represented IAG at the Fourth Ministerial Summit on Earth Observation, Cape Town, South Africa, November 30, 2007.

### **Coordination with other organisations**

The close connection of IAG with the Joint Board of Geospatial Information Societies (JBGIS, <http://www.fig.net/jbgis/>) was continued by e-mails and internet contacts.

The establishment of an African Reference Frame (AFREF, <http://geoinfo.uneca.org/afref/>) is a major topic of activities of several IAG components (Commission 1, International GNSS Service, GGOS) together with other organizations in developing countries. Members of these groups participated in a two-week training course on the establishment of continuously operating reference stations and GNSS data processing held in Nairobi Kenya, July 30 – August 10, 2007 (<http://geoinfo.uneca.org/afref/NewsLetter/NewsLetterSep07.pdf>).

The participation of IAG in the inter-governmental Group on Earth Observation (GEO) is performed in the frame of GGOS. IAG is represented in the GEO Plenary and five GEO Committees and Working Groups (see <http://cheryl.nbmjg.unr.edu/ggos/geo/>).

### **Meetings**

Important meetings of IAG components in 2007 besides the IUGG General Assembly were:

- Unified Analysis Workshop, Monterey, CA, USA, December 5-7, 2007;
- Joint Internat. GRACE Science Team Meeting, Potsdam, Germany, Oct. 15-17, 2007;
- Workshop on Conventions, Sèvres, France, September 17-19, 2007.

### **IAG medals, prizes and awards**

The following medals and prizes have been awarded in 2007:

- Levallois Medal to C.C. Tscherning, Denmark;
- Bomford Prize to M. Furuya, Japan;
- Young Author Award to Steffen Schön, Germany.

Hermann Drewes, IAG Secretary General



## **International Association of Geomagnetism and Aeronomy (IAGA)**

[www.iugg.org/IAGA/](http://www.iugg.org/IAGA/)

The year 2007 was dominated by the XXIVth IUGG General Assembly in Perugia and by efforts associated with the starting up of the Electronic Geophysical Year initiative (eGY). Important decisions were taken by the IAGA Conference of Delegates and by the IAGA Executive Committee in Perugia.

**The XXIVth IUGG General Assembly:** IAGA held its General Assembly during the first week of IUGG 2007 in Perugia, i.e. between July 2 and July 7 in accordance with the decision to reduce the length of the IAGA assemblies from two weeks to one that was taken by the Conference of Delegates in Toulouse. The IAGA-led scientific programme consisted of 56 symposia, of which 3 were Union symposia, 12 joint symposia with other Associations, and 41 were IAGA-only symposia. The number of papers presented at the IAGA symposia was 1327 (1367 were submitted). The number of IAGA registrants in Perugia was 669.

**New leadership of IAGA:** The Conference of Delegates elected a new Executive Committee for the quadrennium 2007-2011 and new leaders for the Divisions and Commissions and their Working Groups were appointed by the Executive Committee and confirmed by the Conference of Delegates.

**Changes of the composition of the Executive Committee:** A proposal to change the composition of the Executive Committee to provide more opportunities for IAGA scientists to serve on the Committee had been proposed by the Australian Delegation and an amendment had been presented by the Executive Committee. The Conference of Delegates decided to eliminate one of the Vice Presidents and the past President position, thereby opening up for two new members of the Committee, and to shorten the duration of service of persons in the top positions. The necessary modifications of the Statutes and By-laws that this decision gave rise to were also decided.

**IGY+50 and eGY:** The 50-year anniversary of IGY was celebrated by IUGG and IAGA in Perugia. IAGA is one of the main sponsors of eGY. A lot of effort has gone into preparations for this project. The official launch of eGY took place in Perugia. The IAGA-led programme for Perugia included four half-day sessions dealing with the IGY+50, eGY, and IHY. A public event on the eGY took place on Saturday 7<sup>th</sup> July 2007. A new IUGG Union Commission for Data and Information is being planned for continuing and developing the eGY after 2008.

IAGA medals and awards presented in Perugia: Dr. Frank Lowes **was unanimously elected Honorary Member of IAGA by the Conference of Delegates.**

**The IAGA Medal in Recognition of Valued Service to the IAGA Community over Many Years** was awarded by the IAGA Executive Committee to **Toyohisa Kamei** of the World Data Center for Geomagnetism in Kyoto for his invaluable service to the community since 1979 on the production of

the AE and Dst geomagnetic indices. As he had died before the Assembly, the Medal was received on his behalf by his sister, Mrs Kazuku Tsunokawa, and her husband.

**Young Scientists Presentation Awards**, consisting of support to participate in the IAGA Assembly in the form of an economy class air ticket, waiving of registration fee, and a USD 200 contribution to hotel and subsistence costs, were presented to

**Anna Kanukhina** of the Russian State Hydrometeorological University in St Petersburg,

**Annika Seppälä** of the Finnish Meteorological Institute in Helsinki,

**Tracy Moffat-Griffin** of the British Antarctic Survey in Cambridge, and

**Zuzana Kratinova** of the Geophysical Institute in Prague.

**IAGA-sponsored topical meetings in 2007:** IAGA sponsored 3 topical meetings in the Assembly year of 2007 at a total cost of USD 3 500.

**IAGA News 44**, containing information about the IUGG 2007 in Perugia and reports on decisions by the Conference of Delegates and the Executive Committee, was distributed in December of 2007. It can be found at the IAGA web site ([www.iugg.org/IAGA](http://www.iugg.org/IAGA)).

Bengt Hultqvist, IAGA Secretary General



## **International Association of Hydrological Sciences (IAHS)**

<http://iahs.info>

The main event of 2007 has obviously been the Perugia Scientific Assembly, where IAHS organized 17 Symposia and Workshops and co-convened 25 other meetings. The two Plenary meetings that we held in the second week of the Assembly were well attended. Reports on past activities were presented. Des Walling (UK) has been awarded the International Hydrology Prize while Christophe Cudennec (France) and Houda Boudhraa (Tunisia) received the 2007 Tison Award. Elections were also held for officers of the Association and its Commissions. The detailed result is to be found on the Association web site: [www.iahs.info](http://www.iahs.info). We will risk singling out four of the newly-elected members of the Bureau for special mention: Gordon Young (Canada) President-Elect, Dan Rosbjerg (Denmark) Vice-president responsible for Planning of Assemblies, Rajendra Prasad (India) Vice-President responsible for Projects and Contacts with Individual Members, Juan Carlos Bertoni (Argentina) Vice-President for relations with developing Countries. There were also two meetings of the IAHS Bureau: one of the old Bureau and one of the new. Among the many other items of business, the Bureau formally terminated the Working Groups on Hydrology 2020 and GEWEX, with thanks to their members. It then considered at some length proposals for new working groups and, after careful debate, agreed to establish Working Groups on Education, on Hydro-meteorological Projects, on Statistics in Hydrology and on Precipitations.

In addition to Perugia, many scientific events have been organized, sponsored or supported by IAHS and its Commissions and Working Groups in 2007. Among them we would like to quote the followings : **International Bedload Surrogates Monitoring Workshop** (Minneapolis, Minnesota, USA, 11-13 April 2007), **7th World General Assembly of the International Network of Basin Organizations** (Debrecen, Hungary, 7-9 June 2007), **Workshop Glaciers in watershed and global hydrology** (Obergurgl, Austria, 27-31 August 2007), **Third International Conference on Climate and Water** (Helsinki, Finland, 3-6 September 2007), **2nd International Conference of GIS/RS in Hydrology, Water Resources and Environment (ICGRHWE'07)** and **2nd International Symposium on Flood Forecasting and Management with GIS and Remote Sensing (FM2S'07)** (Guangzhou and Three Gorges, China, 7-13 September 2007), **ModelCARE 2007 : Calibration and Reliability in Groundwater Modelling, Credibility of Modelling** (Copenhagen, Denmark, 9-13 September 2007), **International Symposium "New directions in Urban Water Management"** (Paris UNESCO, France, 12-14 September 2007), **Ninth International Conference on Precipitation with the special theme "Space time precipitation dynamics, space-time scales, scaling and nonlinear variability"** (Paris, France, 12-14 November 2007), **GQ 2007 : Securing Groundwater Quality in Urban and Industrial Environments** (Freemantle, Western Australia, 2-7 December 2007)

In 2007 *IAHS Press* published six issues of the *Hydrological Sciences Journal*. Two issues of the *IAHS Newsletter* have also been published and widely disseminated free of charge, both as hardcopies and on the Web.

IAHS Press published 10 *Red Books*:

- **PUB Kick-Off Meeting**, Edited by D. Schertzer, P. Hubert, S. Koide & K. Takeuchi, IAHS Publ. 309 available in Open Access on the IAHS web site
- **Water in Celtic Countries: Quantity, Quality and Climate variability**, Edited by J. P. Lobo Ferreira & José M. P. Viera, IAHS Publication 310
- **Methodology in Hydrology**, Edited by Liliang Ren, Qiongfang Li, Danrong Zhang & Jun Xia, IAHS Publ. no 311
- **A New Focus on Groundwater–Seawater Interactions**, Edited by Ward Sanford, Christian Langevin, Maurizio Polemio & Pavel Povinec, IAHS Publ. 312
- **Quantification and Reduction of Predictive Uncertainty for Sustainable Water Resources Management**, Edited by Eva Boegh, Harald Kunstmann, Thorsten Wagener, Alan Hall, Luis Bastidas, Stewart Franks, Hoshin Gupta, Dan Rosbjerg & John Schaake, IAHS Publ. 313
- **Water Quality and Sediment Behaviour of the Future : Predictions for the 21st Century**, Edited by Bruce W. Webb & Dirk De Boer, IAHS Publ. 314
- **Changes in Water Resources Systems : Methodologies to Maintain Water Security and Ensure Integrated Management**, Edited by Nick van de Giesen, Xia Jun, Dan Rosbjerg & Yoshihiro Fukushima, IAHS Publ. 315
- **Remote sensing for environmental monitoring and change detection**, Edited by Manfred Owe & Christopher Neale, IAHS Publ. 316
- **Reducing the Vulnerability of Societies to Water Related Risks at the Basin Scale**, Edited by Andreas Schumann & Markus Pahlow, IAHS Publ. 317
- **Glacier Mass Balance Changes and Meltwater Discharge**, Edited by P. Ginot & J.E. Sicart, IAHS Publ. 318

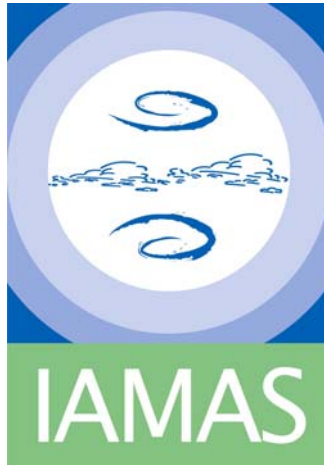
A second volume has also been published in the “Benchmark Papers in Hydrology” Series:

- **Evaporation**. Selection, Introduction and Commentary by John Gash & Jim Shuttleworth, Benchmark Papers in Hydrology n°2.

The *IAHS TFDC* (Task Force for Developing Countries) continued its action and distributed free of charge all IAHS publications (Hydrological Science Journal and the Red Books) to more than 60 selected Universities and Research Institutions of Africa, Asia, South-America and Eastern Europe.

The close cooperation of IAHS with UNESCO,WMO, the World Water Council and the U-Water Group has been continued. We have attended the IHP Bureau meeting. We also participated to the activities of the UNESCO-WMO International Flood Initiative. IAHS has already also been very active in the preparation of the next IAHS Scientific Assembly to be held jointly with the IAH (International Association of Hydrogeologists) congress in September 2009 at Hyderabad (Andhra Pradesh, India) and of the scientific part of the 5<sup>th</sup> World Water Forum to be held in Istanbul (March 2009).

Pierre Hubert, IAHS Secretary General



## **International Association of Meteorology & Atmospheric Sciences (IAMAS)**

<http://www.IAMAS.org>

The key activities in 2007 constituted the planning and the conduct of the various IAMAS-contributions to the IUGG General Assembly in Perugia, 2-13 July, 2007. These mainly consisted of 29 IAMAS-led Joint Symposia, along with 20 IAMAS-only symposia covering a very wide range of atmospheric science topics. Elections during the Assembly brought a number of new faces to the IAMAS Bureau; the most noticeable change being the end of the 'Roland-List-era'. Over a full dozen of years (1995-2007) as Secretary General of IAMAS, Professor List left a lasting mark of leadership within the Association and beyond. During the closing ceremony in Perugia Roland List was presented with a marvellous globe where coloured stones mark the different countries – several characteristics of this present give valid tribute for List's dedication towards IAMAS: in steady rotation, hard as stone, a true global player!

In the following sections a number of IAMAS activities during 2007 are briefly touched upon while more detailed accounts can be found at the specified web-sites (mostly entries of the IAMAS site).

### **A few highlights from the Perugia assembly, 2-13 July 2007:**

Besides the symposia mentioned above, IAMAS organized two Union Symposia with Richard Peltier (Toronto, Canada) and Guy Brasseur (Boulder, USA) being responsible for the programme. Two special evening events featured atmospheric topics of general geophysical interest; one with three talks on the previously published and widely recognized IPCC report on "Climate change 2007" and another with the presentation of a 470 pp. WMO-assessment-report about "The Effects of Aerosol Pollution on Precipitation."

The tradition of lunchtime lectures of topical interest was continued with "Mona Lisa Code Lectures" into some mysteries of the atmosphere. They covered four special topics: (i) "The particle zoo around 0°C" by Ron Stewart (Canada); (ii) "The Aerosols of the World" by Ulrike Lohmann (Switzerland), (iii) "The Global Precipitation Climatology" by Tobias Fuchs (Germany), and (iv) "WCRP: Better observe, understand and predict climate" by Anne Henderson-Sellers (WMO).

Some 600 of the 4000 Perugia participants identified themselves as linked with IAMAS, over 150 of them were students. More than 250 grants of variable size were given to participants from so-called developing countries. Some 1100 oral presentations were given within the IAMAS-led symposia together with over 500 short oral & poster presentations.

*(For more details see entries under <http://www.iamas.org/Perugia.html> )*

**New Bureau for 2007-2011:**

In accord with the IAMAS-Statutes the president Michael MacCracken (USA) stepped down from his position after a 4-year-term and the secretary general Roland List (Canada) after his 12-year-term (re-elected once). Former vice-president Guoxiong Wu (China) was elected as president, the deputy secretary general (DSP) John Turner (UK) continues in his capacity, Hans Volkert (Germany) was elected as secretary general. Two vice-presidents from the Americas, Maria A. Faus Silva Dias (Brazil) and Anne Thompson (USA), give the new IAMAS Bureau a truly global appearance and a good gender balance. Several German institutions (DFG, DLR, DMG) meanwhile signalled that they are willing to provide partial financial support for activities related with the IAMAS secretariat.

*(For more details about IAMAS officers see entries under <http://www.iamas.org/Officers.html>)*

**Newsletters issues 5 and 6:**

DSP John Turner and his colleague Gareth Marshall continued to maintain the IAMAS web-site and they edited and distributed two issues of the IAMAS-newsletter, one before and one after the assembly in Perugia. In an attractive layout these contain short contributions, e.g. personal opinions of past and current Bureau members regarding the function of IAMAS, reports about selected commissions of the association, a congratulation to the IPCC for the receipt of half a Nobel Peace Prize, tributes to IAMAS by past presidents, as well as faces put to some names.

*(For more details see entries under <http://www.iamas.org/Newsletters.html> )*

**IAMAS resolutions within IUGG:**

Two resolutions were finally adopted by IUGG in Perugia. One was initiated by the past president Michael MacCracken and deals with "The urgency of addressing climate change". The other was put forward by past secretary general Roland List and concerns the "Intensified study of aerosol pollution effects on precipitation". It is accompanied by a thorough assessment report, which was distributed on CD to the national representatives and will appear in print as WMO document in 2008.

*(For more details see '2007 IUGG resolutions' under <http://www.iamas.org/Perugia.html> )*

**Presidential perspective on Asian monsoon:**

As the first Asian president in the IAMAS history, the new president Guoxiong Wu feels that additional scientific perspectives from this region can be beneficial for IAMAS as a truly global player. Asian scientists are becoming more and more aware of the need concerning coordination among neighbouring countries. An example of high scientific and societal importance is the endeavour to understand and predict the Asian monsoon more effectively. Initiated by the scientists from China, United States, Japan, Indian and other Asian countries, the 'Asian Monsoon Years (AMY 2007-2012)' programme was launched in 2007. The AMY is also a cross-cutting initiative as part of the International Monsoon Study (IMS), a coordinated observation and modelling effort under the leadership of WCRP. As one of the programme initiators and SSC members, Guoxiong Wu is confident that with the support and joint efforts from the IAMAS community the understanding of Asian monsoon variability and predictability will improve, not the least for societal benefits.

*(For more details see*

*[http://www.wmo.ch/pages/prog/wcrp/documents/ASIAN\\_MONSOON\\_YEARS.pdf](http://www.wmo.ch/pages/prog/wcrp/documents/ASIAN_MONSOON_YEARS.pdf) )*

**History of International Radiation Commission within IAMAS:**

Hans-Jürgen Bolle, past president of IAMAS (1983-1987) and honorary member of its International Radiation Commission, compiled a detailed report on "International Radiation Commissions: 135 years of research 1873-2008." It is based on detailed notes and minutes of meetings formerly collected by Fritz Möller and Julius London and much extended by material from the author's archive including photographs of many radiation researches from the 1950ies to the present time. On some 140 pages it also contains a shorter, similar account by Fritz Möller, which appeared as typescript in 1980. The compilation chronicles in a well balanced fashion the gradual development of atmospheric radiation research from individual calibration experiments (mostly for solar radiation) to global networks using a fleet of instruments on various airborne and satellite platforms. Long-lasting, personal cooperation in an often informal, yet dedicated attitude becomes transparent. It is planned to distribute a printed version to the participants of the International Radiation Symposium (IRS)

scheduled for 3-8 August 2008 (<http://www.irs2008.org.br/>). Possibly other commissions become motivated to assemble similar reviews of their development over time.

**Preparation for IAMAS-IAPSO-IACS Assembly 2009 (MOCA-09) in Montreal:**

Preparations for the next large conference, jointly organized with the partner associations for the oceans (IAPSO) and for ice (newly founded IACS) and scheduled for 20-29 July 2009 in Montreal (Canada), is under way. The National Research Council of Canada acts as hosting organization, Jacques Derome (McGill university) as experienced and inspiring scientific programme coordinator.

A common visit of the secretaries general of the three associations to the venue in conjunction with a regular meeting of the local organization committee helped to set solid foundations for the traditional patchwork of joint-association symposia as well as for single- association sessions. The total number of symposia is expected to exceed 50.

*(For more details see <http://iamas-iapso-iacs-2009-montreal.ca> )*

\* \* \* \* \*

As in the past, during 2007 the bulk of scientific work of IAMAS was carried out within its 10 International Commissions. Besides the IUGG assembly they contributed to and organized workshop and seminars. Additional such events are scheduled for 2008, notably the 15<sup>th</sup> International Conference on Clouds and Precipitation (ICCP; Cancun, Mexico; July 7-11 2008; <http://convention-center.net/iccp2008/>) and IRS-2008 (see above).

Hans Volkert, IAMAS Secretary General





## **International Association for the Physical Sciences of the Oceans (IAPSO)**

[iaps0.iugg.org](http://iaps0.iugg.org)

The principal activity during the year was the participation in the General IUGG Assembly in Perugia, Italy, July 2-17. There were over 4000 participants from the different associations represented in IUGG at the Assembly in Perugia. Almost 300 were registered as IAPSO participants. Some 40 of these (mainly from developing countries) got travel grants.

During the Assembly there were 12 IAPSO symposia to which 343 abstracts were submitted. IAPSO lead 3 joint symposia, which attracted 141 abstracts. IAPSO also cosponsored 21 symposia to which 776 abstracts were submitted.

An IAPSO highlight during the assembly was the Prince Albert I lecture "From Swallow floats to autonomous observing networks" given by Prof. Russ Davis, Scripps Institution of Oceanography, who was awarded the Prince Albert I Medal in connection with the lecture.

IAPSO also awards a second medal, the Eugene Lafond Medal, to a developing world scientist who presents a notable paper at an IAPSO symposium. Following a review of the nominations for this award after the Perugia meeting, the IAPSO EC decided to present this medal to Dr. Catia Motta Domingues from Brazil, for her talk entitled "Towards more accurate estimates of the thermosteric sea level rise" in the IAG/IAPSO symposium "Global sea-level change: Altimetry, GNSS and tide gauge measurements".

A new IAPSO Executive Committee was elected by the national IAPSO delegates at the General Business Meeting (GMB) in Perugia. They also decided to sanction some changes of the IAPSO Statutes and By-Laws.

At the GBM also a detailed report on the Permanent Service for Mean Sea Level (PSMSL) was presented by Philip Woodworth (on behalf of himself and Lesley Rickards). This report is available on the Proudman Laboratory website. During the past year the PSMSL made important contributions to the Fourth Assessment Report (4AR) of IPCC 2007, and also to the WCRP workshop on Understanding Sea-Level Rise and Variability, held at UNESCO in Paris in June 2007.

A brief report was given by Trevor McDougall (from Hobart, Australia) on IAPSO/SCOR WG 121 on Ocean Mixing, which has been chaired by Robin Muench (USA). Trevor McDougall also made a presentation on the work of SCOR/IAPSO WG 127 on the Thermodynamics and Equation of State of Seawater.

The first meeting of SCOR/IAPSO WG 129 (DOES -- Deep Ocean Exchanges with the Shelf), co-chaired by John Johnson (UK) and Piers Chapman (USA), was held at the IUGG Assembly in Perugia.

The (Canadian) National Organizing Committee (NOC) for the 2009 Joint Assembly in Montreal came to Perugia and met on July 9 with Executive Members of the three associations (IAMAS, IAPSO, IACS) to discuss important issues that need to be resolved for a successful meeting (e.g., scientific program, accommodation, abstract submission, registration, venue for the conference, etc.).

The IAPSO President and Secretary General, participated in the Annual SCORE meeting in Bergen, Norway, 26-28 August 2007. The state of the working groups was discussed. Some of them are arranged together with IAPSO. New WGs were discussed, for more information see the SCOR website <http://www.scor-int.org/>.

November 22-24 the IAPSO President and SG met with the National Organizing Committee (NOC) for the 2009 Joint Assembly in Montreal together with the SG of IAMAS and the President of IACS. The localities were inspected and found to be well suited for the meeting. Also, the symposia were outlined together with a time schedule for the planning process before the Assembly.

Finally a pamphlet presenting IAPSO was produced in December 2007. This was introduced and spread at the AGU meeting in San Francisco in December and will be sent to the National Correspondents.

The IAPSO website has now been moved to the new Secretary General Johan Rodhe in Sweden (<http://iapso.sweweb.net/>).

Johan Rodhe, IAPSO Secretary General



**International Association of Seismology & Physics of the Earth's Interior  
(IASPEI)**

[www.iaspei.org](http://www.iaspei.org)

**ASSEMBLIES**

**IASPEI 2007 General Assembly at Perugia (Italy)**

Around 500 estimated IASPEI related scientist have attended the 2007 Perugia General Assembly. IASPEI arranged 12 IASPEI related symposia and workshops, 17 Inter-association symposia and workshops - out of which 8 were IASPEI led - and 2 Union symposia (High-performance computations in geosciences and Early warning of natural hazards).

**SYMPOSIA AND SCIENTIFIC MEETINGS**

**10th International Workshop on Modeling of Mantle Convection and Lithospheric Dynamics, September 2-7, 2007, Carry-le-Rouet, France.**

Building on the example of the previous instances of this international workshop, including that held in Erice (Sicily, 2005), Hrubá Skála (Czech Republic 2003) and Aussois (France, 2001), the meeting consisted in five sessions and an afternoon of touristic visit of the nearby city of Arles. The number of participants was 91, coming from 13 countries. Each session featured a set of invited keynotes and poster presentations with a lot of time for informal discussions and interactions. A good balance was obtained between theoretical and technical presentation, numerical and analog models. A specific technical session was held with presentation and demonstration of numerical tools in a tutorial form. The workshop website was built to allow each participant to upload material, such as pdf files of their poster or keynote presentation. It will be maintained to keep this material available at <http://geologie.ens-lyon.fr/Carry2007> .

**International Trainings Course on Array Seismology, Arezzo (Italy), June 30 – July 3, 2007**

An “International Trainings Course in Array-Seismology” was created as part of the XXIV<sup>o</sup> IUGG General Assembly held in Perugia (Italy) and requested by the IASPEI Commission on “Education and Outreach”. The Trainings course was held in Arezzo from June 30 - July 3, 2007, a few days before the beginning of the IASPEI-sessions in Perugia.

The event was organized by the Italian research institute “Istituto Nazionale di Geofisica e Vulcanologia” together with the Norwegian Research Institute NORSAR (Kjeller, Norway), and German institutes, Institute of Geophysics (University of Hamburg), Institute for Geosciences (University of Potsdam), and the Seismological Central Observatory (Federal Institute for Geosciences and Natural Resources, Gräfenberg). Six research scientists from the above mentioned research institutes gave lectures on theory and applications (which comprised practical exercises), including the following topics:

- Introduction to Array Seismology (plane wave concept, shift and sum in time domain, semblance, vespagram, slowness power spectrum);

- Fundamentals of data processing (narrowband filtering and aliasing effect, beam forming, plane wave parameter estimation, f-k analysis);
- Concept and practical aspects of array design (array transfer function, resolution capabilities);
- Introduction to, and practice with the “Seismic Handler” Software;
- Exercises on data analysis of local, regional and teleseismic events;
- Direct imaging of spatio-temporal source processes;
- Review of microtremor/ambient vibration array analysis.

The trainings course was attended by 17 young seismologists coming from USA (2), Sweden (1), India (1), Taiwan (1), Italy (9) and Germany (3). As closing ceremony a press conference was organized with the participation of Peter Suhadolc (IASPEI secretary), Donella Mattesini (deputy mayor of the city of Arezzo) and Enzo Boschi (President of INGV).

The array trainings-course was sponsored by IASPEI, INGV and the City of Arezzo, Arezzo, 10 July 2007, Thomas Braun (course chairman)

**IRIS Seismological Workshop ‘Managing Waveform Data and Related Metadata for Seismic Networks’ October 21-26, 2007, Kuala Lumpur, Malaysia**

The past twenty years have seen a revolutionary growth in the way we monitor seismic hazard: analog seismographs were replaced by digital instruments that are sensitive over a wide frequency band; the digitization made it possible to group instruments in local, often telemetered networks with centralized archiving of digital waveform data. Earth does not know about national borders, and seismologists have spearheaded efforts to share their data. The growth of the Internet has made it possible, in principle, to link data centers all over the world. In fact, for some networks, such linkages have already been established, and a mature system of data management has grown in such large data centers as ORFEUS (Europe), JAMSTEC (Japan) and IRIS/DMC (US). This workshop was a major attempt to disseminate the experience and expertise in seismological data management. It was directed at managers and operators of seismic networks. This was the third workshop of this kind organized by the IRIS DMC in the past three years. The focus of this workshop was on organizations from the Southeast Asia region. The workshop had 46 participants from 18 different countries, 9 lecturers and 11 people involved in different aspects of the preparation and organization of the workshop (see attachment 1 – Workshop Roster). Workshop Organizer: Mrs. Marjolijn Francissen, IRIS-DMC, Seattle, USA. Local Organization: Mrs. Irene Eu Neo Swee, Malaysian Meteorological Department, Petaling Jaya, Malaysia.

**International Scientific Conference to mark the 50th Anniversary of the Founding of the Geophysical Observatory of Addis Abeba University, November 1- 4, 2007, Addis Abeba, Ethiopia**

The Conference was organized by the Geophysical Observatory, Addis Abeba University. Celebrations have been held to mark the 50<sup>th</sup> anniversary of the founding of the Geophysical Observatory of Addis Abeba University on November 2, 1957. The observatory’s 50th year, 2007, is also the 50th anniversary of the International Geophysical Year (IGY) and has furthermore been declared the International Heliophysical Year. It was also a happy coincidence for the Observatory, as an Ethiopian national institution, that 2007 marks the beginning of the Third Ethiopian Millennium, which presents the institution with the opportunity for a retrospective view of its past history, a review of its present status and a preview of its hopeful prospects for institutional development into the future. Salient features of the history of the Geophysical Observatory may be viewed at the website: <http://www.aau.edu.et/faculties/sc/goaau/50thhome.html>

The international scientific conference and field trip were aimed at providing fora for the exchange of

knowledge, experience, techniques and information in the scientific areas of endeavor in which the Observatory and its international, regional and domestic associates, collaborators and friends engage. The conference had the following title and orientation “THE GEODYNAMICS OF AFAR AND THE ETHIOPIAN RIFTS: Geophysics, Geohazard Challenges and Resources”. The conference was held in the new Graduate Programs Building of the Faculty of Science. The Technical Program of the conference consisted of key-note lectures as well as oral and poster presentations. Eight oral presentations were delivered during each session.

#### **IDEA (INTERNATIONAL DIGITAL EARTHQUAKE ARCHIVES) ACCOUNTS**

(Project of the Committee for Preservation of WWSSN and Historical Seismograms: “Seismo-Archives: Seismogram Archives of Significant Earthquakes of the World”, under construction at the IRIS DMC)

##### *Collecting and Scanning Seismograms in Support of the USGS/CMG Tsunami Hazard Potential in the Caribbean Project (August, 2006 to December, 2007)*

Under the USGS Purchase Order 06WRSA0430 (7/30/2007), the IASPEI SeismoArchives Project (under the supervision by Willie Lee) carried out the following tasks:

- (1) Collected and scanned analog seismograms of selected Caribbean earthquakes mostly for the period from 1905 to 1985, and
- (2) Collected and prepared arrival time data for relocating earthquakes in the Caribbean region from 1900 to 2005, including the necessary software for data processing and analysis.

The work was divided into four parts. In the first part, selected seismograms on microfilm were scanned. In the second part, selected seismograms on paper were collected from several important seismographic observatories, and then either the copies or the originals were scanned. The work involved selecting Caribbean earthquakes and selecting critical stations that were required to provide a good azimuthal coverage of the Caribbean region. In the third part, arrival time data for earthquakes in the Caribbean region from 1900 to 2005 were collected from sources around the world and entered into computer database. In the fourth part, the necessary software for checking arrival times and relocating earthquakes using a direct search method of Lee and Dodge was written and results of some trial runs were obtained.

The scanned seismograms will be archived at the IRIS DMC under the SeismoArchives Project (<http://www.iris.edu/seismo/>) by volunteers (Willie Lee being the principal one).

Peter Suhadolc, IASPEI Secretary General and Treasurer



**International Association of Volcanology and  
Chemistry of the Earth's Interior (IAVCEI)**

<http://www.IAVCEI.org>

In 2007 the number of IAVCEI paid individual members was 700, 45 of them being Life Members. The IAVCEI web page has been changed and updated. The volcano listserv administered by Arizona State University remains the official IAVCEI listserv. It has >2700 people listed, which far exceeds the IAVCEI membership. Two issues of the newsletter "IAVCEI News" were mailed to members in 2007.

Several highly successful meetings were held in 2007. The Cities on Volcanoes 5 meeting was held in November in Shimabara, Japan with 600 participants from 31 different countries. IAVCEI also co-sponsored several workshops including the International Conference "Commemorating the 25th Anniversary of the 1982, Eruption of El Chichón Volcano, Chiapas, Mexico", in March 2007, with 170 participants representing 15 countries, and the IAVCEI Workshop on Surtseyan Volcanism, Western US, October 2007, with 40 attendees. No medals or awards were given in 2006.

The next IAVCEI General Assembly has been scheduled for August 2008 and will be held in Reykjavik, Iceland. The second circular was printed and distributed in November 2007. One meeting of the IAVCEI Executive Committee was held in 2007, in November in Shimabara, Japan coinciding with the Cities on Volcanoes 5 meeting.

The election of the IAVCEI officers for the term July 2007 to July 2011 was held in May 2007 by mail vote of IAVCEI individual members and national correspondents.

The new officers of IAVCEI for 2007-2011 were officially presented during the IAVCEI General Assembly held on July 13<sup>th</sup>, 2007, coinciding with the IUGG GA in Perugia, Italy.

The new officers are:

President: Setsuya Nakada (Japan)

Vice-Presidents: Anita Grunder (USA), Hugo Moreno (Chile)

Secretary-General: Joan Martí (Spain)

Members of Executive Committee:

Piero Dellino (Italy)

Juan Manuel Espíndola (México)

James White (New Zealand)

Marta Calvache (Colombia)

Past President Oded Navon (Israel)

Editor Bull Volc John Stix (Canada)

Joan Martí, IAVCEI Secretary General

## **ACTIVITIES OF THE UNION COMMISSIONS AND INTER-ASSOCIATIONS WORKING GROUPS**

The following reports illustrate the impressive range of activities within each Union Commission as well as their dedication to supporting science within developing countries. Each Union Commission has a web site where much more information can be found.

## **IUGG Committee on Mathematical Geophysics (CMG)**

<http://www.fys.uio.no/cm2008/>

The Committee on Mathematical Geophysics is a Union Commission. Its aims to encourage exchange of ideas and information in all areas of geophysics, with emphasis on the application of mathematics, statistics and computer science to geophysical problems, and to promote the development and application of mathematical methods and appropriate theoretical techniques for the solution of problems across the complete spectrum of geophysical disciplines. The Committee is sponsored by all IUGG Associations.

The earliest incarnation of the present CMG Committee was as the Working Group on Geophysical Theory and Computers (WGGTC), which was founded by Vladimir Keilis-Borok. The first meeting of the WGGTC was held in Moscow and Leningrad in 1964 and the last in Moscow in 1971 with intervening meetings held once yearly. Subsequent to 1971 the group was re-structured as the present Committee on Mathematical Geophysics, which has met on a semi-annual basis since that time, beginning with a meeting in Banff (Canada) in 1972.

The schedule since 1986 has included the following sequence of major CMG sponsored conferences: Oosterbeek (The Netherlands, 1986), Blanes (Spain, 1988), Jerusalem (Israel, 1990), Taxco (Mexico, 1992), Villefranche (France, 1994), Santa Fe (USA, 1996), Cambridge (UK, 1998), Villefranche sur Mer (France, 2000), Torino (Italy, 2002), New York (USA, 2004), Sea of Galilee (Israel, 2006). The next

Conference on Mathematical Geophysics will be held 15-20 June 2008 in Svalbard, Norway.

The following are current officers of the Union Commission on Mathematical Geophysics:

Chair: Daniel Rothman (USA)

Secretary General: Claudia Pasquero (USA)

Vice-Chair: Einat Aharonov (ISRAEL)

Vice-Chair: Ray Pierrehumbert (USA)

Vice-Chair: Eli Tziperman (USA)

The principal activity of the CMG is to sponsor a biennial conference on theoretical geophysics. Most of the activity during 2007 was devoted to the organization of the conference and co-sponsor a Union Symposium at the IUGG General Assembly held in Perugia, Italy. A business meeting was also held during the Assembly.

At the XXIV IUGG General Assembly in Perugia, Italy, the Committee on Mathematical Geophysics co-sponsored a Union Symposium on "Modeling and simulations of geophysical flows: present and future", convened by Augusto Neri (INGV, Pisa, Italy), Einat Aharonov (Weizmann Institute of Science, Israel), George Bergantz (University of Washington, USA), and Oleg Melnik (Moscow State University, Russia). The scope of the Symposium was understanding the dynamics of geophysical systems. Such a goal is particularly difficult for geophysical flows since they occur on a wide range of temporal and spatial scales and, mostly, because they are often characterized by a multiphase nature of the mean and by a multidimensional and unsteady dynamics. In recent years, a major step forward in the exploration of these natural transport systems has been possible by the development and use of physical and mathematical models able to quantitatively describe, in a deterministic or probabilistic way, their behaviours. Complex non-linear relationships between system variables, occurrence of non- or counter-intuitive effects, ability to forecast specific system behaviours, are just a few examples of results that can be obtained by using these models. Such a progress has been made possible by the huge increase of computational power as well as by the availability of laboratory experiments able to provide constitutive equations of the fluids involved. Flows of volcanic origin, debris flows, landslides, atmospheric, surface and underwater flows as well as flows associated to the



transfer of fluids in the crust and inner Earth are some of the systems commonly investigated by mathematical models. The program of the session included the following oral contributions:

- Einat Aharonov, Weizmann Institute, Israel
- Barmin Alexey, Moscow State Univ., Russia
- Piero Dellino, Univ. of Bari, Italy
- Yosef Dufek, U. California, Berkeley, USA
- Deniz Ertas, ExxonMobil, Santa Barbara, USA,
- Taras Gerya, ETH, Zurich Switzerland
- Michael Herzog, LPSY, Lausanne, Switzerland
- Michael Manga, U. California, Berkeley, USA
- Todesco Micol, INGV, Bologna, Italy
- Paolo Papale, INGV, Pisa, Italy
- Claudia Pasquero, University of California, Irvine, USA
- Jeremy Phillips, Univ. of Bristol, UK
- Antonello Provenzale, ISAC, Torino, Italy
- Daniel Rothman, MIT, Cambridge, MA, USA
- Andy Woods, BPI, Cambridge, UK

During the XXIV IUGG General Assembly, the Committee also had a business meeting with participation of CMG officers (Dan Rothman, MIT, Cambridge, USA; Einat Aharonov, Weizmann Institute, Israel), representatives from the Associations (Augusto Neri, INGV, Pisa, Italy; Dick Peltier, Univ. of Toronto, Canada; Paola Malanotte-Rizzoli, MIT, Cambridge, USA; Daniel Schertzer, Univ. Pierre et Marie Curie, Paris, France), and the IUGG Secretary General, Alik Ismail-Zadeh (Univ. Karlsruhe, Germany and Russian Academy of Science, Moscow, Russia). Most of the discussion concerned the scientific organization of 2008 CMG conference. There have also been discussions on involvement of new CMG officers to replace resigning vice-chair Antonello Provenzale (CNR, Torino, Italy). New officers will probably be elected at the Conference in Norway.

The 27th International Conference on Mathematical Geophysics will be held in June 15–20, 2008 in Longyearbyen, Norway, on the Svalbard Island. The conference theme is “Flow, Fracture, and Waves” and the website is <http://www.fys.uio.no/cm2008/>. The local organizing committee is chaired by Eirik Flekkoy, University of Oslo. The conference is intended for all researchers using quantitative methods to study evolving Earth systems. Studies that integrate field observations, laboratory experiments, and theoretical models are especially welcome. Particular focus will be given to new quantitative methods that offer the possibility of significant progress in our understanding of Earth processes. Problems of interest include (but are not limited to) fracture, ranging from ice sheets to earthquakes; geophysical fluid dynamics, ranging from internal and surficial flows to oceanic and atmospheric dynamics; and quantitative aspects of the earth's biological, chemical, and climatic evolution.

Confirmed invited speakers include:

- Jay Fineberg, Hebrew University of Jerusalem, Israel
- Norbert Schorghofer, University of Hawaii, Honolulu, USA
- William Young, University of California, San Diego, USA
- Yehoda Ben-Zion, University of Southern California, Los Angeles, USA
- Mogens Høeg Jensen, Niels Bohr Institute, Copenhagen, Danmark
- Hans Jürgen Herrmann, ETH, Zurich, Switzerland
- Daniel Bonn, Ecole Normale Supérieure, Paris, France
- Raymond E. Goldstein, DAMPT, Cambridge, UK
- Bruce Shaw, Lamont Doherty Earth Observatory, Palisades, NY, USA
- Ferenc Kun, University of Stuttgart, Germany
- Renaud Toussaint, Ecole et Observatoire des Science de la Terre, Strasbourg, France
- Karen Mair, PGP, University of Oslo, Norway

- Joachim Mathiesen, PGP, University of Oslo, Norway
- Ray Pierrehumbert, University of Chicago, USA

Information on registration, abstract submission, and requests for partial financial support can be found on the conference web page, or requested to the conference secretary Hilde Lynnebaken at the University of Oslo, [hilde.lynnbaken@fys.uio.no](mailto:hilde.lynnbaken@fys.uio.no) .

Claudia Pasquero, Secretary General, CMG

## IUGG Commission on Geophysical Risk and Sustainability (GeoRisk)

<http://www.iugg-georisk.org/>

The IUGG Commission on Geophysical Risk and Sustainability (IUGG GeoRisk Commission) established by the IUGG Bureau in August 2000 is dedicated (i) to promoting scientific studies applied to the reduction of risk from natural hazards in an increasingly urbanized world and sustainability and (ii) to reducing death and destruction from natural and technological hazards by providing hazards data and information to emergency managers, policy-makers, scientists and the general public in the most timely and effective manner as possible. This includes the integration of knowledge concerning environmental, social and economic processes. The fundamental scope of this Commission is to facilitate communications – between scientists via meetings, workshops and publications, as well as between scientists and decision makers, between scientists and the public, and between scientists and schools. The GeoRisk Commissioners are:

Name	Duty	Representative
Kuni Takeuch (Japan)	President	IAHS
Gerd Tetzlaff (Germany)	Secretary-General	IAMAS
Volodya Kossobokov (Russia)	Vice-President	CMG/IASPEI
Ramesh Singh (India)	Vice-President	IASPEI
Paula Dunbar (USA)	Treasurer	Tsunami Commission
Alik Ismail-Zadeh (Germany)	Past President, IUGG Secretary General	CMG/IASPEI
Tom Beer (Australia)	Commissioner, IUGG President	IAMAS
Hermann Drewes (Germany)	Commissioner	IAG
Harsh Gupta (India)	Commissioner, IUGG Vice-President	IASPEI
Slava Gusiakov (Russia)	Commissioner	Tsunami Commission
David Jackson (USA)	Commissioner IUGG Bureau Member	IASPEI
Jayawardena A. (China)	Commissioner	IAHS
Evgeny Kontar (USA)	Commissioner	IAPSO
Susan McLean (USA)	Commissioner	IAPSO
Uri Shamir (Israel)	Commissioner, IUGG Past President	IAHS
Steve McNutt (USA)	Commissioner	IAVCEI

The Executives of the GeoRisk Commission were elected by e-mail ballot in June 2007 and took office at the Perugia GeoRisk Business meeting in July 2007.

### GeoRisk Commission Business Meetings

IUGG GeoRisk Commission Business Meeting was held in Perugia (Italy) on Friday, 6 July, 2007, 12:00 to 13:45. Reports of President (A. Ismail-Zadeh), Secretary General (G. Tetzlaff), Vice President (K. Takeuchi), Vice President (R. Singh), and Treasurer (P. Dunbar) were delivered and accepted.

The following topics of the Commission activities were considered and discussed:

- ICSU Program on Natural Hazards (T. Beer)
- International Consortium on Landslides (A. Ismail-Zadeh)
- IGOS-Geohazards Team (A. Ismail-Zadeh)
- IUGG Symposium: High-Performance Computations in Geosciences (A. Ismail-Zadeh)
- IUGG Symposium: Early Warning (R. Singh)

- IUGG-AOGS Session on Strategy of Reducing Predictive Uncertainty of Geophysical Hazards, 30 July – 4 August 2007, Bangkok, Thailand (K. Takeuchi)
- Workshop on geohazards in Africa, Kampala, Uganda, August 2007 (A. Ismail-Zadeh)
- Third International Geohazards Workshop, 6-9 November 2007, Frascati, Rome, Italy (A. Ismail-Zadeh)
- Symposium “Planet Earth” at the EuroScience Open Forum (ESOF) in Barcelona, July 18-22, 2008 (V. Kossobokov)
- International Year of the Planet Earth : activities planned (2007-2009; T. Beer)
- Contact to UN SPIDER (A. Ismail-Zadeh)
- Contact to WMO, ISDR and World Bank on DRR (A. Ismail-Zadeh)
- Proposed AGU session on Land-Ocean-Atmospheric Process Associated with Natural and Man-Made Hazards (R. Singh, E. Kontar).

Results of the election of new GeoRisk Commission office were announced (G. Tetzlaff) and accepted. The Commission prepared a resolution “Reduction of Risk from Natural Hazards” to be recommended to the IUGG Council for approval as the IUGG Resolution.

The Georisk Commission felt a growing volume of challenges emerging for its scientific work. The financial frame for such an undertaking is rather narrowly set. Therefore, the Commission addressed the IUGG Bureau to increase its annual allocation. The application was supported unanimously on the Commissioners. The Commission sent a request to the IUGG Secretariat to increase the allocation grant to the GeoRisk Commission.

### **Scientific Meetings Organized and Co-sponsored by the GeoRisk Commission**

#### **SYMPOSIUM “EARTHQUAKE PREDICTION: WHAT CAN BE DONE WITH THE BEST SCIENCE AVAILABLE?”**

A union symposium “Earthquake Prediction: What can be done with the best science available?” is organized during the European Geophysical Union General Assembly to be held in Vienna, Austria from 15 to 20 April 2007. A principal convener of the symposium is V. Kossobokov. The symposium is organized together with UNESCO and IUGG. The symposium is motivated by the critical importance of advances in earthquake prediction research both for frontier fundamental science and for reduction of earthquake-induced disasters, which threat is already unacceptable and keeps growing rapidly. The symposium will review existing paradigms related to earthquakes and explore practical realistic approaches to the earthquake prediction problem. Statements on unpredictability of earthquakes will be challenged. The key-note presentations will introduce (i) the recent advances in understanding predictability of earthquakes, including related structures, driving forces, and observable fields; (ii) scenarios of response to predictions; (iii) avenues of further progress in the field arising from yet untapped data, modeling, and theories; and (iv) implications for general concepts of non-linear dynamics, including predictability of extreme events other than earthquakes. More than 30 papers are accepted to discuss all aspects of earthquake prediction during the symposium.

#### **FIRST UN/ISDR GLOBAL PLATFORM OF DISASTER RISK REDUCTION**

The meeting was held in Geneva, Switzerland from 5<sup>th</sup>-to 7<sup>th</sup> June 2007. The conference addressed a broad spectrum in disaster reduction activities. Several georisk commissioners participated and improved contacts, namely to the ICSU Planning Group on Natural and Human-induced Environmental Hazards and Disasters.

#### **UNION SYMPOSIA AT THE IUGG PERUGIA GENERAL ASSEMBLY**

The IUGG GeoRisk Commission will organize two Union Symposia at the IUGG General Assembly in Perugia, Italy, 2-13 July 2007.

#### US007: High-Performance Computations in Geosciences

The symposium organized by A. Ismail-Zadeh and Z. Wu addressed developments in computational science and technology, which significantly accelerated the progress in data assimilation, modeling, and forecast/prediction oriented simulations associated with various branches of Earth sciences such as atmospheric, oceanic, space, and Solid Earth sciences. This development has a strong impact to the studies of geohazards and risks such as cyclones, earthquakes, landslides, storms, tsunamis, and volcanic eruptions and shows significant potentials to be applied to serve the sustainable development of society. To reflect up-to-date developments in this direction, to identify the new frontiers and important scientific/technique problems in this developing field, and to foster new opportunities for inter-disciplinary cooperation, this session aims to focus on (but not limited to) the following topics: 1) Computer simulation in geosciences, its physical significance, and observational constraints; 2) Web-based grid computation and parallel computation applied to geosciences; 3) Data assimilation, data analysis, and data mining in geosciences; visualization in geosciences and analysis of high-dimensional data; 4) Forecast/prediction of hazards and risks based on high performance computation and its engineering application; limitation on the predictability of hazards and risks, and related engineering countermeasures; 5) Physics of complex systems and its computational implementation; 6) Development and sharing of software for the simulation and visualization in geosciences: from traditional individual-based approach to modern network based approach. The following invited speakers delivered their talks:

- M. Ghil (Ecole Normale Supérieure, Paris, FRANCE)
- G. Glatzmaier (U. California, Santa Cruz, USA)
- A. Ismail-Zadeh (U. Karlsruhe, GERMANY)
- G. Panza (U. Trieste, ITALY)
- T. Sato (The Earth Simulator Center, Yokohama, JAPAN)
- Y. Shi (Chinese Academy of Sciences, Beijing, CHINA)
- P. Tackley (ETH, Zurich, SWITZERLAND)
- V. Titov (National Center for Tsunami Research, Seattle, USA)
- J. Tromp (California Institute of Technology, USA)

#### US012: Early Warning of Natural Hazards

The Symposium organized by R. Singh was dedicated to early warning of natural hazards. Satellite remote sensing has proved to be a very important tool in mapping of the damages related to natural hazards in recent years. Numerous sensors onboard satellites have capability of providing information about land, ocean and atmosphere. Natural hazards (Earthquakes, Volcanoes, Tsunami, Landslides, Floods, Cyclones/hurricanes, Subsidence, Harmful algal blooms, Erosion, Cloud bursts, Snow avalanches, Oil spills, Dust storms, Coastal erosion, Droughts, Desertifications) occur on land or ocean; atmosphere provides linkage, it is now strongly believed that these natural hazards provide strong coupling between land-ocean-atmosphere-ionosphere. The session will discuss applications of Remote Sensing in mapping, monitoring and early warning of various Natural Hazards. The following invited speakers delivered their talks:

- T. Beer (CSIRO, AUSTRALIA)
- B. Cechet (Risk Research Group, Geoscience AUSTRALIA)
- V. Dietrich (ETH Zurich, SWITZERLAND)
- C. Filizzola (IMAA, CNR, ITALY)
- M. Kafatos (George Mason Univ., USA)
- Y. Kagan (UCLA, USA)
- F. Kogan (NOAA, USA)
- G. McBean (University of Western Ontario, CANADA)
- S. Nickwicz (WMO)
- C. Price (Tel Aviv University, ISRAEL)
- A. Singh (UNEP)
- R. Singh (Indian Institute of Technology, Kanpur, INDIA)
- X.Y. Zhang (Chinese Academy of Meteorological Sciences, CHINA)
- J. Zschau (GeoForschungsZentrum, GERMANY)

## AOGS 2007 IWG10 GEORISK SESSION

The IUGG-AOGS joint session “Strategy of Reducing Predictive Uncertainty of Geophysical Hazards” organized by GeoRisk Commission during the 4<sup>th</sup> annual convention of AOGS (Asia Oceania Geophysical Society) was held on 1 August, 2007 at Queen Sirikit International Convention Center in Bangkok, Thailand.

The session was convened by Kuniyoshi Takeuchi and Harsh Gupta and attended by about 30 people. At this session three talks were presented and some constructive discussions followed. The program was as follows:

- Kuniyoshi Takeuchi: “Introduction of the session” and “Uncertainty Reduction Efforts in Hydrological Predictions”
- Harsh Gupta: “When Will the Next Great Earthquake Occur in the Himalayan Region?”
- Yasuto Tachikawa: “Hydrologic Predictions in Ungauged Basins for Flood Disaster Reduction”

In the presentation, it was shown that predictions in hydrology and earthquakes are very different in its time and space specificity. The common importance was the observation as a sink of uncertainty. The question then posed was “Is there any other we can learn and improve each other?” One view could be that although most disaster takes a form of multi-hazards and the integrated approach for disaster management is important, but as long as the prediction procedure of hydro-met and earthquake hazards is concerned, there seems no room for mutual benefit. But it was pointed out that interdisciplinary discussion is necessary and will be beneficial although it may take time. Peter Fox, NCAR mentioned about an experience in the field of long term meteorological forecast that a small interdisciplinary group eventually benefited for the improvement such as by coupling solar activities in to meteorological dynamics. A suggestion was made that we have to have a specific short term (such as 2-3 years) task force to improve/solve a concrete objective. Let us think of such task force formation.

## INTERNATIONAL WORKSHOP ON NATURAL AND HUMAN INDUCED HAZARDS AND DISASTERS IN AFRICA

The workshop was held in Kampala, Uganda, 21-22 July 2007, co-sponsored by IUGG GeoRisk Commission and attended by Gerd Tetzlaff. The program preparation was coordinated by ICSU ROA (Regional Office for Africa). The workshop was held in the rooms of the Kabila Country Club in Kampala. About 40 of the 55 participants came from African countries, about 10 from the USA. The presentations of the sessions were meant to prepare the ground for the working groups. The working groups tried to shape research ideas as a basis for future research programmes. This partly proved to be a comprehensive task, because the whole of the African continent had to be considered. The information basis thus was rather heterogeneous on the regional local priorities to be set. The results were put down in short reports which were then discussed in the plenary session. Two research proposals were discussed: geological hazards and hydro-meteorological hazards. At the end of the discussion the exact goal and focus of either of the two research proposals was not fully developed. The ICSU coordinators suggested as a procedure to circulate the summarised results for feedback from the workshop participants.

## THIRD INTERNATIONAL GEOHAZARDS WORKSHOP, 6-9 NOVEMBER 2007, FRASCATI, ROME, ITALY

The 3rd International Geohazards Workshop was held on 6-9 November in Frascati, Rome, Italy. It aimed at strengthening an international strategy to make these concepts real, for the benefit of populations exposed to geohazards, namely earthquakes, volcanoes, landslides, and tsunamis. Objectives of the workshop were to (i) simulate dedicated coordinating actions to improve the existing observing systems, monitoring capabilities, access to data, and exchange of knowledge with the countries exposed to geohazards; (ii) set up an international coordination mechanism, within the

GEO process, to streamline cooperation and synergies between international projects, initiatives, and programs; and (iii) provide a forum for exchange and encourage cooperation between Geohazards Earth Observation data users and producers. IUGG GeoRisk Commission was invited to contribute to the meeting. The Commission proposed two speakers for the workshop: P. Dunbar and C. Weaver (“US states and territories national tsunami hazard assessment: Historic record and sources for waves”) and R. Singh et al. (“Multi Sensor Geophysical Parameters for the Early Warning of Earthquakes”).

### **Presidential Message to GeoRisk Commissioners**

I succeeded the Presidency of the Commission from Alik Ismail-Zadeh at the Commission Bureau Meeting on 6 July 2007 in Perugia. I feel very responsible as the geohazards are becoming disastrous with increasing human population and activities and people badly need geoscience guide. I would like to do my best but the fulfilment of the duty is possible only with your kind cooperation. This commission was established in 2001 by Tom Beer who is now the President of IUGG. His very active successor Alik Ismail-Zadeh is now the Secretary General of IUGG. Our Commissioner Harsh Gupta is now the Vice President of IUGG, and Uri Shamir is the Past President of IUGG. We would like to congratulate their new responsibility and ask their continuous supports. This does not only mean our former presidents are brilliant and capable, but also means GeoRisk subject is very important and obviously the top priority of IUGG. We have a very strong team of supporters, yet it also means that we are always paid attention and our responsibility is very high.

I see the following two the most important agenda of the Commission in the year:

- ICSU Planning Group on Natural and Human-Induced Environmental Hazards and Disasters (Chair: Gordon McBean) is now in the final stage of issuing their report, proposing an establishment of a major ICSU research program on Hazards and Disasters. Our Commission would like to strongly take part in the planning process as well as the plan implementation. I was invited to their public hearing to be held in Paris on 29 September.
- The UN IYPE 2008 (activities planned 2007-08) has a major component in Disasters. We would like to take part in and contribute for the IYPE. In the forthcoming IYPE meeting in Oslo, August 2009, we like to seek for some presence.

For the GeoRisk Commission’s internal enrichment, I would like to propose the following:

- As we discussed and agreed on this matter in the Bureau, let us distribute our individual activities relating to the GeoRisk. This will help our communication increased. I like to make this as the basis of our Commission Report, which we have to submit to the IUGG Bureau time to time.
- I consider our Web-site is a great heritage from the previous presidents. Please submit a good disaster analysis presentation of yours or any others for our web. I requested Kenji Satake, the Union Lecturer of the 24<sup>th</sup> IUGG Perugia, to kindly provide us his superb ppt presentation on Indian Ocean Tsunami for our web-site. I requested Paula to follow-up.
- It is very nice to have our meeting sometime during my presidency. As Alik Ismail-Zadeh suggested, it would be very nice if it could be at ICHARM (International Center for Water Hazards and Risk Management under the auspices of UNESCO), Tsukuba, Japan, my Center. We have to find funds. Any suggestions?
- I think it is the time for us to start thinking about our Commission’s Terms of Reference. As our activities are becoming more influential to our home associations and others, some institutional rule would be necessary to get wider support.

Kuniyoshi Takeuchi, President of GeoRisk Commission  
to all IUGG GeoRisk Commissioners

Gerd Tetzlaff, Secretary General, GeoRisk Commission

## **IUGG Commission on the Study of the Earth's Deep Interior (SEDI)**

<http://www.sedigroup.org>

SEDI is an international scientific organization dedicated to the Study of the Earth's Deep Interior. The ultimate goal of SEDI is an enhanced understanding of the past evolution and current thermal, dynamical and chemical state of the Earth's deep interior and of the effect that the interior has on the structures and processes observed at the surface of the Earth. The 'deep interior' is generally considered to be the core and lower mantle, but interest may extend to the surface, for example, in the study of mantle plumes or dynamics of descending lithospheric slabs. The scientific questions and problems of interest to SEDI include the geomagnetic dynamo and secular variation, paleomagnetism and the evolution of the Earth's deep interior, composition, structure and dynamics of the outer core, dynamo energetics, structure of the inner core, core cooling and the core-mantle boundary region, core-mantle boundary shape, coupling and the rotation of the Earth, lower mantle: structure, convection and plumes, nature and location of deep geochemical reservoirs, etc.

Since 1987, SEDI has been a Union Committee of the International Union of Geodesy and Geophysics (IUGG). As such, it cuts across the traditional discipline-oriented bounds of the Associations of the IUGG [such as the International Association of Geodesy (IAG), the International Association of Geomagnetism and Aeronomy (IAGA), the International Association of Seismology and Physics of the Earth's Interior (IASPEI), and the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)] which normally study the Earth from a particular point of view. The intent of SEDI is to amalgamate all sources of data and all points of view to generate the most coherent and consistent picture of the workings of the Earth's deep interior.

During 2007 SEDI co-sponsored scientific sessions at the IUGG General Assembly in Perugia, Italy. These included JSS001 – Physics and Chemistry of Earth Materials; JSS011 – Earth Structure and Geodynamics; JSS012 – Earth Structure and Geodynamics: dynamics of deep mantle slabs; JAS001 – Planetary Cores: physics, chemistry, and dynamics; and JS11 - Planetary Dynamios: theory, models, observations, and experiments.

At the SEDI business meeting at the IUGG General Assembly, Gauthier Hulot (IPGP, France) was voted to become Chair, Satoru Tanaka (JAMSTEC, Japan) Vice-Chair, and Michael Bergman (Simon's Rock College, USA) to continue as Secretary-General. The makeup of the advisory board was also discussed, in terms of disciplinary and geographic diversity. There was considerable discussion as to how best to engage the mineral physics and geochemistry communities in SEDI activities. There was also discussion about the 2008 meeting (see next paragraph)

Also during 2007 planning continued for the 11<sup>th</sup> biennial SEDI meeting, which will take place 27-31 July, 2008 in Kunming, Yunnan Province, China. Kunming is known for its pleasant climate, and this will be SEDI's first meeting in China. The local organizing (headed by Sidao Ni, USTC, China) and international program (headed by Gauthier Hulot) committees have been securing facilities, the scientific program, and funding support. SEDI meetings usually attract between 150 and 250 scientists, and it is hoped that by having the meeting in China, graduate students from Asia will be able to attend the meeting. Two goals of these meetings are informal discussion of science, and exposure for graduate students. The scientific program is likely to remain similar to past meetings, as described in the first paragraph.

In addition, SEDI continues to serve the scientific community as a means of distributing information about upcoming meetings, funding opportunities, and academic openings.

Michael Bergman, Secretary General, SEDI



## **Inter-Associations (IAGA/IASPEI/IAVCEI) Working Group of Electromagnetic Studies on Earthquakes and Volcanoes (EMSEV)**

EMSEV - an inter-associations Working Group actively promoting electro-magnetic (EM) studies on earthquakes, tsunamis and volcanoes at international conferences and workshops, in-field campaigns, education in developing countries, etc. EMSEV convened four sessions at 2007 IUGG General Assembly at Perugia (Italy). The association has also maintained a high-level research activity on Taal volcano (Philippines).

During the 10th business meeting held in Perugia during the 2007 IUGG General Assembly, EMSEV members decided:

- To elect, on IUGG request, a new EMSEV bureau in response to the wish of Chairperson Seiya Uyeda to step down. Jacques Zlotnicki (France) was nominated as new Chairperson, and Malcolm Johnston (USA) as Vice Chairperson. It was also decided that Jann-Yeng Liu, Malcolm Johnston, and Yoichi Sasai would act as IAGA, IASPEI and IAVCEI liaison-members, respectively. T. Harinarayana was designated as new representative of WG1.2.
- To elect new EMSEV members: Professor A.K. Gwal (India), Dr T. Harinarayana (India), Dr Friedemann Freund (USA), Dr D.S. Widarto (Indonesia), Professor K. Eftaxias (Greece), Dr N. Sarlis (Greece) and Dr V. Traumatoli (Italy). Forty-two regular EMSEV members and well over 200 corresponding members are now enlisted in EMSEV mailing “<http://www.emsev-iugg.org/emsev/>”.

### **Organizational Activity in 2007**

**Demeter Workshop**, Toulouse, France, June 29, 2007.

- Observations and results on the first two years of mission (M. Parrot)

**EGU**, Vienna, Austria, 15-20 April 2007.

- *Session NH4.02*. Electric, magnetic and electromagnetic phenomena related to earthquakes, convened by P. Biagi, O. Molchanov, M. Hayakawa, F. Vallianatos.
- *Session NH4.03*. Deformation processes and accompanying mechanical and electromagnetic phenomena, for rocks and other materials, from the laboratory to the geophysical scale, convened by K. Eftaxias, T. Chelidze, V. Morgounov, Nomicos, M. Manda.

### **IUGG General Assembly Perugia, Italy; July 2-13, 2007**

- EMSEV organized four integrated sessions at IUGG on “Progress in electromagnetic studies on earthquakes and volcanoes”:
    - Crustal instabilities and earthquake precursors (JSS009) (Main convener P. Biagi)
    - Electromagnetic fields associated with earthquakes and active faulting (JSS008) (Main convener M. Johnston)
    - Seismo-electromagnetic studies using space technology (JSS010) (Main convener R.P. Singh)
    - Volcanic structure and activities (JSS007, JVS002) ( Main convener: S. Spichak)
- More than 143 abstracts were accepted and presented in these four sessions.

**Italy/Japan bilateral Seminar on EM in Seismic and Volcanic Areas**, Chiba, Japan, July 25-27, 2007, organized by K. Hattori.

**Third international school-seminar on electromagnetic sounding of the earth (EMS-07)**, Zvenigorod, Russia. 3-8 September, 2007 organised by V. Spichak.

**50 years of the International Geophysical Year and the International Electronic Year**, Suzdal, Russia, 16-19 September 2007, organized by A. Gvishiani (Geophysical Centre, Acad. Sci.).

- Session on Russian-French research on Geophysics, Volcanology and Seismic Danger; EM applications

**The 8th China International Geo-Electromagnetic Workshop**, 11-14 October 2007, Yangtze University, Jingzhou, Hubei, China.

**International Workshop on Seismo-Electromagnetic Phenomena: Recent Progress**

- (Japan/Indonesia Project), Bandung, Indonesia, 6-7 November 2007, organized by D. Widarto and K. Hattori.
- EMSEV gave some support to this workshop and the XI EMSEV local meeting was held there. Several Indonesian organizations (LIPI, LAPAN, BMG) have asked EMSEV to contribute to the development of several EM techniques for Natural Hazard assessment.

**AGU Fall meeting in San Francisco**, 10-14 December, 2007.

*Session S21*. Theory and Applications of Electromagnetic and Thermal Anomalies During Earthquakes, convened by D. Ouzounov, K. Hattori, M. Parrot, S. Pulinet, P. Taylor.

**Inter-Association Initiative activities:**

**-Volcano Taal investigation (Philippines):**

Under PHIVOLCS (Philippine Institute of Volcanology and Seismology)-EMSEV agreement, a Japan-French team has contributed to understand the slow unrest of Taal volcano. The activities include implementation of EM monitoring systems, and education of PHIVOLCS teams on electromagnetic methods etc. One paper has been published (Harada et al., 2006) and another one is in press (Zlotnicki et al., 2008). Financial support from the Associations is used to facilitate PHIVOLCS teams to field campaigns. The foreign teams provide equipment and other materials.

**Campaign 1 [January 29 to February 13, 2007]**

This campaign replaced the one previously scheduled for November 2006 that was postponed due to a typhoon. Work was focused on:

- A resurvey of magnetic benchmarks and installation of new ones near recent magnetic field changes first observed during 2005-2006,
- A resurvey of several SP-GTE-CO<sub>2</sub> profiles made in 2005. The sampling distance was reduced to 12.5 m compared to 25 m in 2005, in order to completely describe the anomalies and to identify their evolution with time,
- The preliminary mapping of CO<sub>2</sub> fluxes and ground temperature gradient in the main geothermal areas,
- Maintenance of the first SP-GTE station, located across the northern 1992-94 active fissures,
- New resistivity soundings on the volcano. First, a south-north cross section on the northern flank is scheduled. Other soundings will be done during the next campaign.

**Campaign 2 [April 17 to April 28, 2007]**

The objectives were:

- To install a second SP-GTE continuous station (called MCL) in the geothermal field located to the NE of the Main Crater,
- To built a telemetry system for the two SP-GTE stations with real time data transmission to Buco observatory,
- To do added maintenance of the first SP-GTE station (called DAK), located across the northern 1992-94 active fissures,
- To resurvey magnetic benchmarks (see Y. Sasai report),
- To resurvey the SP (self-potential) - GTE (ground temperature) - CO<sub>2</sub> (soil degassing) profile along the northern trail, from the crater rim to down slope. The sampling distance was reduced to about 12.5 m in order to detail the anomalies,
- To extend resistivity soundings inside the Main Crater along the eastern border of MCL.

**Campaign 3 [November 27-December 8, 2007]**

The sporadic seismic crises and the time and spatial changes of the surface activity led PHIVOLCS and EMSEV to increase their studies. These included:

- Resurvey of several SP-GTE-CO2 and magnetic surveys were completed,
- Telemetry system up to the local BUCO observatory was improved and a daily routine was set,
- Two continuous proton magnetometers with local data recordings were implemented at the SPGTE stations,
- A three component magnetometer was installed in the crater and connected to the MCL SPGTE station,
- Preliminary GPS benchmarks were set inside and outside the crater, and a first real time differential campaign was done,

**International Workshop on Seismo-Electromagnetic Phenomena, Recent Progress:  
IWSEP 2007, Bandung, Indonesia, November 2007.**

Indonesia consists of more than 17,000 islands and severe natural disasters in this country are frequent. These include destructive earthquakes, tsunamis, and volcanic eruptions. As an example, casualties of the 2004 Sumatra-Andaman Earthquake reached several hundred thousand. Mitigation of these disasters is obviously of essential importance. Identification of electromagnetic phenomena associated with crustal activity and the detection of these phenomena should be included in the methods for monitoring seismic and volcanic activities. To develop the methodology and to improve scientific knowledge for the seismo-electromagnetics, measurements with sensitive sensors, sophisticated signal processing, and theoretical consideration should be performed. Even if this activity is well supported by LIPI, LAPAN, and BMG, further implementations of EM methods and the use of installed stations/equipment are crucial for improving the effectiveness of current global investigations. Therefore, the international cooperation must be encouraged and EMSEV could largely contribute to this demand when it will be formalized. Three lines of organization can be set up:

- (1) Acquiring high quality observations on the ground and from satellites for identification of phenomena related to crustal activity
- (2) Broad-scale geophysical data integration
- (3) Human resource development

**Concluding Remarks**

During the past years EMSEV has contributed greatly to improvement of the quality of observations and interpretations of pre-, co- and post-event EM phenomena related to earthquakes and volcanic eruptions. Multi-parametric EM observations, integrated in a multi-disciplinary approach (seismic, geodetic, geochemical, hydrology, thermal...), are now more commonly carried out. This leads to better determination of boundary conditions that control potential physical mechanisms generating EM signals and to a more accurate description of the physics of the processes. Temporal changes in EM signals and their spatial distribution are now tracked by combined ground based and satellite observations (such as *DEMETER* micro-satellite). And several other satellite imagery techniques (e.g. InSar, GPS, thermal, etc) may provide independent support for these observations.

On volcanoes, several examples unquestionably show that magnetic and electric signals may appear a long time before an eruptive event (Oshima, Miyake-jima, Merapi) and be associated with weak and sporadic activity (Etna, Taal). In such cases, stress changes, magma transport and fluids are key issues for generating EM signals.

On active faults, several observations show that pre- and co-seismic signals might appear in different frequency domains, from DC to VLF (Japan, Greece, Russia, Taiwan, India, China, and Mexico). Such signals are transient anomalies that may be recorded up to a few months before a large earthquake. Detailed analyses lead to suspicions that some of these transient signals are noise, while some others, detected by several independent stations, argue in favor of pre-seismic signals. At present, a part of the EM community considers that such signals take place through the so-called Lithosphere-Atmosphere-Ionosphere (LAI) coupling. EM investigations related to earthquakes and volcanic eruptions require many specific and complementary long duration experiments. During the

last decade, much progress has been made in the detection and examination of EM signals that further highlights the necessity to develop new investigations and international cooperation.

Jacques Zlotnicki, Chair, EMSEV

## Activities of the Inter-Unions Commission

### International Lithosphere Program (ILP)

<http://sclilp.gfz-potsdam.de>

The ILP Bureau meeting was held on 8 July 2007 during the IUGG XXIV General Assembly in Perugia. One decision was a restructuring of the Bureau (see below). The group of the Executive Members is now responsible for the activity of ILP and the new term of the Bureau was decided for 2007 – 2010.

#### BUREAU MEMBERSHIP

Executive Members:

<b>President:</b>	S. Cloetingh	Netherlands	
<b>Secretary General: (until mid 2008)</b>	J. F. W. Negendank	Germany	
with Executive Secretary:	A. Rudloff	Germany	
Chairperson – Committee of National Representatives:	S. Gregersen	Denmark	
Representatives of IUGG & IUGS:	E. R. Engdahl	USA	IUGG
	K. C. Sain	India	IUGG
	J.-P. Cadet	France	IUGS
	Y. Tatsumi	Japan	IUGS
	A. Green	Switzerland	IUGS & IUGG
<b>Associate Members:</b>	J.-P. Burg	Switzerland	
	D. G. Gee	Sweden	
	A. Morozov	Russia	
	F. Roure	France	
	M. Zoback	USA	
	R. Missotten	UNESCO	
<b>Lifetime Members:</b>	P. Hart	USA	
	M. von Knorring	Sweden	
	P. Ziegler	Switzerland	
	H. Gupta	India	

ILP is very active and there are various meetings and conferences of the Task Forces and Regional Coordinating Committees. In 2007 two new activities were established: TOPO-CENTRAL ASIA as well as DynaQlim.

The President and the Secretary General participated in several international meeting and visited universities to stimulate young active scientists to contribute to ILP. ILP documented its activity with a poster and flyer at the official opening of the International Year of Planet Earth (IYPE) at the UNESCO headquarters in Paris February 12 - 14, 2008 and will be present with several sessions at 33rd IGC in Oslo in August 2008. Poster, flyer and other details can be seen at the homepage: <http://www.scl-ilp.org/>.

An additional forthcoming meeting is the joint meeting of several Task Forces and Regional Coordinating Committees to be held September 21 – 26, 2008 in Ensenada, Mexico (<http://www.scl-ilp.org/index.php?id=63>).

The results of the ILP Conference "New Frontiers in Integrated Solid Earth Sciences" at GFZ Potsdam in June 2007 will be published in 2008 in a Springer book as a contribution to IYPE.

The following list documents in a short version the active groups and their leading scientists:

- ***"Lithosphere-Asthenosphere Interactions"*** (A. Tommasi, France)  
This project focuses on the interaction between the lithosphere, the outer shell on which we live, and the asthenosphere and/or deep mantle. The dynamic processes of the Earth's interior affect our day-to-day life in a profound way.
- ***"New tectonic causes of volcano failure and possible premonitory signals"***  
(A. Tibaldi, Italy)  
More than 500 million people live in hazardous zones adjacent to active volcanoes all over the world and volcano slope instability represents one of the most extreme hazards.
- ***"Global and regional parameters of paleoseismology; implications for fault scaling and future earthquake hazard"*** (P. M. De Martini, Italy)  
This project aims to support and promote the study of the main paleoseismological parameters at a global and regional scale to develop new ideas on fault scaling relationships and modern earthquake hazard estimates.
- ***"Temporal and Spatial Change of Stress and Strain"*** (O. Heidbach, Germany)  
This project aims to identify, analyse and interpret variations of crustal stress and strain patterns at diverse tectonic settings characterized by return periods for strong earthquakes in the order of 50-1000 years.
- ***"Sedimentary basins"*** (F. Roure, France)  
Sedimentary basins provide mankind's largest reservoir for Earth energy and natural resources. As recorder of tectonics and climate interaction they enable to reconstruct the history of the continents.
- ***"Baby Plumes – origin, characteristics, lithosphere-asthenosphere interaction and surface expression"*** (U. Achauer, France)  
The project focuses on interdisciplinary studies of baby-plumes to steer the debate on the origin and nature of plumes in general and their geodynamic implications.
- ***"Earth Accretionary Systems (in space and time)" (ERAS)***  
(P. Cawood, Australia)  
The initiation and development of accretionary orogens forms the central aim of this integrated, multidisciplinary program.
- ***"Ultra-Deep Continental Crust Subduction" (UDCCS)***  
(L. Dobrzhinetskaya, USA)  
Ultra-high-pressure metamorphic (UHPM) geology is a new discipline that came into being after discoveries of coesite and microdiamond within rocks of continental affinities involved in collisional orogenic belts. UHPM terranes and UHP minerals and rocks present a "special natural laboratory."
- ***"TOPO-EUROPE: 4D Topography Evolution in Europe: Uplift, Subsidence and Sea Level Rise"*** (S. Cloetingh, The Netherlands)

- ***"TOPO-CENTRAL-ASIA: 4D Topographic Evolution in Central Asia: Lithosphere Dynamics and Environmental Changes since Mesozoic"***

(Qingchen Wang, China)

Continental topography is at the interface of processes taking place at depth in the Earth and at Earth's surface. The impact of Solid-Earth processes on surface topography at plate boundaries has been known for several decades, but their influence in intraplate areas, in particular coastal regions, is only just being appreciated.

- ***"DynaQlim: Upper Mantle Dynamics and Quaternary Climate in Cratonic Areas"*** (Markku Poutanen, Finland)

DynaQlim is an interdisciplinary project for studying the relationship between Glacial Isostatic Adjustment (GIA), upper mantle structure, dynamics and Quaternary climate.

- ***"Continental Drilling"*** (M. Zoback (USA))

The International Continental Scientific Drilling Program (ICDP) coordinates continental scientific drilling efforts with research topics of high international priority. Main objectives addressed in ICDP include geodynamics and natural hazards, volcanic systems and thermal regimes, Earth's history and climate, impact structures and mass extinctions as well as deep biosphere and gas hydrates.

Jörg Negendank, Secretary General, ILP

# ADDITIONAL UNION MATTERS

## IUGG OFFICERS ELECTED IN 2007

### IUGG Bureau members for 2007-2011

**President:** Dr. Tom Beer (Australia)

**Vice President:** Dr. Harsh Gupta (India)

**Secretary General:** Dr. Alik Ismail-Zadeh (Germany)

**Treasurer:** Dr. Aksel Hansen (Denmark)

**Members:** Dr. Yun-Tai Chen (China), Dr. David Jackson (USA), Dr. Ali Tealeb (Egypt)

### IUGG Finance Committee members for 2007-2011

**Chair:** Dr. Juan Vilas (Argentina).

**Members:** Dr. David Collins (U.K.), Dr. Jan Krynski (Poland), Dr. Kiyoshi Suyehiro (Japan)

### Association Presidents and Secretaries General for 2007-2011

A major decision of the 2007 Council was the addition of a new Association, the first in 85 years. It was formed from the 2005-2007 Union Commission on Cryospheric Sciences, and the officers are reported below.

#### **International Association of Cryospheric Sciences**

President: Dr. Georg Kaser (Austria)

President-elect: Dr. Ian Allison (Australia)

Secretary General: Dr. Manfred Lange (Germany)

#### **International Association of Geodesy**

President: Dr. Michael Sideris (Canada)

Secretary General: Dr. Hermann Drewes (Germany)

#### **International Association of Geomagnetism and Aeronomy**

President: Eigil Friis-Christensen (Denmark)

Secretary General: Dr. Bengt Hultqvist (Sweden)

#### **International Association of Hydrological Sciences**

President: Dr. Arthur Askew (Switzerland)

President-Elect: Dr. Gordon Young (Canada)

Secretary General: Dr. Pierre Hubert (France)

#### **International Association of Meteorology and Atmospheric Sciences**

President: Dr. Guoxiong Wu (China)

Secretary General: Dr. Hans Volkert (Germany)

#### **International Association for the Physical Sciences of the Oceans**

President: Dr. Lawrence Mysak (Canada)

Secretary General: Dr. Johan Rodhe (Sweden)

#### **International Association of Seismology and Physics of the Earth's Interior**

President: Dr. Zhongliang Wu (China)

Secretary General: Dr. Peter Suhadolc (Italy)



### **International Association of Volcanology and Chemistry of the Earth's Interior**

President: Dr. Setsuya Nakada (Japan)

Secretary General: Dr. Joan Martí (Spain)

### **Union Commission Officers for 2007-2011**

#### **Union Commission on Geophysical Risk and Sustainability (GeoRisk)**

President: Kuniyoshi Takeuchi (Japan)

Secretary General: Gerd Tetzlaff (Germany)

#### **Union Commission on Mathematical Geophysics (CMG)**

President: Dan Rothman (USA)

Secretary General: Claudia Pasquero (USA)

#### **Union Commission on Studies of Earth's Deep Interior (SEDI)**

President: Gauthier Hulot (France)

Secretary General: Michael Bergman (USA)

## **AWARDS AND HONORS**

The 2006 COSPAR Space Science Award was presented to Dr. **A. Nishida** at the COSPAR 36th Scientific Assembly in Beijing, China. COSPAR (Committee on Space Research) recognized Nishida as "one of the most innovative physicists in the world space physics community." Dr. Nishida has served IUGG as Chair of the National Committee for Japan, and as Chair of the Scientific Programme Committee for the 2003 Sapporo General Assembly.

COSPAR presented Dr. **R. Greenwald** with their International Cooperation Medal, which is awarded for significant contributions to the promotion of cooperative, international scientific endeavor. Greenwald is the Chair of IAGA Working Group II-E: Ionospheric Irregularities, Fields and Waves.

Dr. **H. Gupta**, IUGG Vice-President, presented an address to the 94th Science Congress at Annamalai University, Chidambaram, India. His theme, and that of the Congress, was Planet Earth.

Dr. **G. Beig** (Indian Institute of tropical Meteorology, Pune), vice-chair of the IAGA working group II.F, was conferred with the "Shanti Swarup Bhatnagar award-2006" which is considered to be the highest scientific honor of India. The award was bestowed by the honorable Prime Minister of India for Dr. Beig's outstanding contributions on the assessment of mesospheric temperature trends.

Dr. **G. Lakhina** (Indian Institute of Geomagnetism, Mumbai), member of the IAGA Executive Committee, received the K. R. Ramanathan Medal (2005) in December 2006 during the 72nd Annual General Body Meeting of the Indian National Science Academy (INSA). Following Prof. Lakhina's award lecture, the Medal was conferred by the President of INSA.

IAPSO President Dr. **L. Mysak**, Director of the Earth System Modeling Group in the Department of Atmospheric and Oceanic Sciences, McGill University, received a Prix du Quebec, the Marie Victorin Prize in Natural Science in Engineering.

The International Lithosphere Programme will honor Dr. **A. Collins** (Australia) with the Edward A. Flinn award at their Conference "New Frontiers in Integrated Solid Earth Sciences" to be held at GFZ Potsdam 12-13 June 2007. The Edward A. Flinn Award is presented to an outstanding young scientist for contributions in the solid earth sciences covered by the International Lithosphere Program.

Dr. **U. Aswathanarayana**, Honorary Director, Mahadevan International Centre for Water Resources Management, and Chair of the Indian eGY Committee, received AGU's International Research Cooperation Award for 2007.

Dr. **B. Hoskins**, President of IAMAS from 1991-1995, was made a Knight Bachelor in June 2007 by the Queen of England for his services to environmental science.

The International Association of Geodesy presented their Levallois Medal to Dr. **C. Tscherning**, in recognition of his distinguished service to the Association, and, the science of geodesy in general.

IAPSO awarded the "2007 Prince Albert I Gold Medal" to Dr. **R. Davis**, from Scripps Institution of Oceanography in La Jolla, CA, for "outstanding contributions to the enhancement and advancement of the physical and/or chemical sciences of the oceans".

The **Nobel Peace Prize 2007 (1/2)** went to the Intergovernmental Panel on Climate Change (IPCC) for "their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change". IUGG congratulated those geophysicists who contributed to the IPCC process.

## **NEXT IUGG BUREAU AND EXECUTIVE COMMITTEE MEETINGS**

Tom Beer, IUGG President, announced the place and the dates of the next IUGG Bureau and Executive Committee (EC) meetings. Both meetings will be held in Karlsruhe, Germany; the Bureau meeting on 3-4 August 2008 and the EC meeting on 5-6 August 2008.

## Information on IUGG Renseignements concernant l'UGGI

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The collage of the figures on the cover page presents a variety of research subjects of IUGG