

**Annual Report for 2004 of the  
INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS  
(IUGG)**

**INTRODUCTION**

The International Union of Geodesy and Geophysics (IUGG) is a non-governmental, non-profit organization dedicated to advancing scientific knowledge of Earth including its physical components, dynamic behaviors, and environment in space, and to applying the knowledge gained by such studies to the needs of society, such as mineral resources, reduction of the effects of natural hazards and environmental preservation. Established in 1919, IUGG brings together seven semi-autonomous International Associations that address different disciplines of earth science. Through these Associations, IUGG promotes and enables research in the physical, chemical and mathematical studies of the Earth by providing a framework for collaborative research and information exchange. The Union gives particular emphasis to the scientific needs of developing countries, and strives to improve the capacity of all nations of the world to observe and understand the natural physical processes that bear upon their safety and economies.

The web site address is <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 2004, the Union had 65 Member Adhering Bodies counting the gain of one new member (Democratic Republic of Congo). 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. Special Councils may be arranged upon the written request of at least one-third of the Adhering Bodies in good standing, or a majority of the members of the Executive Committee. A Bureau, an Executive Committee and a Finance Committee administer the IUGG 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. Each is managed by a Bureau and/or an Executive Committee elected during their respective assemblies. 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 seven International Associations are listed below, and short reports on their 2004 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 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, Committees, and Working Groups**

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 2004, 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 (CCS)

**GeoRisk:** The Union Commission on Geophysical Risk and Sustainability (GeoRisk) was established by the IUGG Bureau in August 2000 to study the interaction between hazards, their likelihood and their wider social consequences as a result of the vulnerability of societies.

This year, the GeoRisk Commission combined with EuroScience to arrange a symposium at the EuroScience meeting in Stockholm on 26-27 August 2004. Professor G. Papadopoulos delivered the Rammal Award lecture at the GeoRisk organized symposium on Risk Science, Society and Sustainability

Another important event was "Hazards 2004," the combined meeting that constituted the Third Workshop of the IUGG Commission on Geophysical Risk and Sustainability

and the Tenth International Symposium on Natural and Human-Induced Hazards of the Natural Hazards Society. The meeting was held in Hyderabad, India 2-4 December 2004. Topics covered during the conference encompassed the entire spectrum of natural and human-induced hazards, their causes, risks, and management. Examples include earthquakes, volcanic eruptions, landslides and soil erosion; hurricanes, typhoons, cyclones, droughts; tsunamis, storm-surges, floods, sea level rise, marine biological hazard; air and water pollution, technological disasters etc. All aspects of these phenomena from disaster prevention, mitigation and management through public education and preparedness were addressed. More information about the conference is available at <http://www.hazards2004.org/>. Additionally, the webcyclopedia at <http://www.iugg-georisk.org/webcyclopedia/index.html> continued to collate information. The presentations given at the Sapporo Assembly have been incorporated into the webcyclopedia, and authors in the GeoRisk portion of the Hyderabad meeting will also be invited to submit their power point presentations for inclusion in the webcyclopedia.

Finally, during the past year, GeoRisk has been involved with the GeoUnions joint initiative on Hazards, as well as the Hazards theme for the International Year of Planet Earth. GeoRisk also participated in the ICSU initiative on “Near Earth Orbit Objects.”

More information about GeoRisk can be found at <http://www.iugg-georisk.org>.

**CMG:** The Union Commission on Mathematical Geophysics convenes a meeting every two years to bring together earth scientists, physicists, applied mathematicians, and others seeking to develop new ideas for better understanding the processes and properties of Earth. CMG held their 25th scientific meeting at Columbia University in New York during June 16-18, 2004. The title of the conference was “Frontiers in Theoretical Earth Science” and included a broad survey of the current and future state of theoretical Earth sciences ranging from mantle dynamics, earthquake physics, and volcanology to the oceans, atmosphere and evolution of life. In addition to advances in theory, the meeting presented several sessions on advances in scientific computation and data analysis. Complete program and abstracts can be found at the conference website, located at <http://www.ldeo.columbia.edu/~mspieg/CMG2004/>. The meeting provided a rare opportunity for students and early-career scientists to interact with senior scientists in a small in formal setting. Of the 94 participants, about 30% were students, 16% were post-docs and 54% were senior scientists. The organizers were pleased with the large number of junior participants and with the diverse range of topics covered by the conference. The opportunity to learn about fields other than one’s own was a distinct feature of the conference that should be retained in the future. It was, however, suggested that future meetings could try assigning planning duties for large-scale subjects (e.g. earthquake physics) to include “plenary” speakers to introduce subjects broadly to the diverse audience, thereby better setting the stage for more specialized talks that could follow.

Einat Aharonov of the Weizmann Institute in Rehovot, Israel, was appointed as a CMG Vice-President replacing George Molchan. She has offered to host the 2006 meeting in Israel. Augusto Neri of the University of Pisa, Italy, has tentatively offered to host the meeting in Sicily in 2008. All present were very enthusiastic about these plans.

**SEDI:** The Union Commission on the Study of Earth's Deep Interior is sponsored by IAG, IAGA, IASPEI, and IAVCEI. Their 9th International Symposium was held 4-9

July 2004, in Garmisch-Partenkirchen, Germany. Prof. Dr. Ulrich Christensen reported that 164 participants, including 44 students, enjoyed a congenial atmosphere, high-quality scientific presentations and discussions, and good interaction across disciplinary boundaries. At each session, an overview lecture and two invited talks were followed by a long break to view posters that ended in a one-hour plenary discussion. Discussion leaders identified key questions or controversies and selected a few poster presenters to give micro-presentations to the plenum. This strategy proved to be highly effective. Among the sessions that were organized, a large number of contributions addressed Earth's magnetic field and the dynamo process that generates it in the liquid core. Other topics included the composition and temperature of Earth's lower mantle and core, global seismic tomography, and the interiors of our planetary sisters, for which space missions in the last decade have provided new and sometimes unexpected constraints. As a special feature of SEDI symposia, the Doornboos prizes were awarded. These prizes, which commemorate the life and work of Durk Doornboos, were awarded to Arwen Deuss of the University of Cambridge, UK, and Cinzia Farnetani of IGBP, France. The next SEDI symposium will be in 2006, at a location yet to be determined.

**CCS:** At its September 2004 meeting in Boulder, the IUGG Executive Committee formed the Union Commission for the Cryospheric Sciences under the sponsorship of IAHS, IAMAS, IAPSO, and IAVCEI. This new Union Commission is founded on the IAHS International Commission on Snow and Ice (ICSI) and all Bureau members of ICSI that were elected at the IUGG General Assembly in Sapporo, 2003, have agreed to serve as officers of the new CCS. The first, extraordinary, CCS Bureau meeting was held at Quebec City on December 10–11, 2004. It is the intention of the Union Commission to prepare the documents necessary to become the International Association of Cryospheric Sciences (IACS) at the next IUGG General Assembly in Perugia, Italy, in 2007. Therefore, the Bureau meeting mainly concentrated on discussing and preparing an appropriate structure and statutes for IACS. Discussion centered around the relationship between CCS and other Associations, communication with IUGG, and relations with organizations such as the International Permafrost Association (IPA) of the International Geological Union, UNESCO, WMO, the Climate and Cryosphere (CliC) project of the World Climate Research Programme, and IGS. The meeting addressed topics of CCS participation in various assemblies, conferences, and working groups in the coming years. It was agreed that the move from ICSI to IACS requires changes but should be based on the body of experience formed by ICSI's long and successful history.

Presently, CCS has working groups on Andean Glaciology; Snow Model Inter-comparison II; Snow Classification; Modelling Forest Snow Processes; Glacier and Permafrost Related Hazards (jointly hosted with IPA); and River Ice. In 2004, ICSI sponsored a symposium on Andean Glacier Mass Balance in Huaraz, Peru, and a session on glacier related Hazards at the European Geophysical Union Meeting in Nice. Additionally, ICSS/CCS will contribute one session on *Contribution from glaciers and snow cover to runoff from mountains in different climates* and a workshop on *Andean Glaciology* to the IAHS Scientific Assembly in Foz de Iguassu, Brazil, 2005. CCS will contribute three workshops, namely *J1: Modeling Forest Snow Processes*, *J2: Glacier Mass Balance and its Coupling to Regional and Hemispheric Circulation*, and *J3: Mountain Snow and Ice Cover* to the IAMAS Scientific Assembly in Beijing, China,

2005. CCS is also co-sponsoring the Conference on Glacial Sedimentary Processes and Products held at the University of Wales, Aberystwyth, 23–27 August 2005. In 2006, CCS will act as partner with CliC and the International Glaciological Society (IGS) in organizing a joint Symposium to be held in Cambridge.

### **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 next General Assembly will be held in Perugia, Italy, 2-13 July 2007.

### **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 non-urban locales, are intended to be particularly helpful 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 distributes a short electronic newsletter (the IUGG E-Journal) monthly to Adhering Bodies and National Committees. Each Association manages their own publications.

### **ACTIVITIES IN 2004**

#### **Administration**

The IUGG Bureau met 30-31 August 2004 in Boulder, Colorado, USA. Discussions included membership issues, inter-Union and inter-Association matters, possible revisions to the Statutes and By-laws, the proposed creation of Standing Rules, and the budget.

From August 29 through September 2, the IUGG Executive Committee (Bureau members and Association Officers) also met in Boulder, Colorado. Guests of the meeting included Werner Janoschek, the past Secretary General of the International Union of Geological Sciences (IUGS), Priscilla Grew, the President of the US National Committee for IUGG, and David Jackson, representing the IUGG Finance Committee. Actions of the Executive Committee included a change in nomenclature of those bodies formerly known as inter-Associations Committees and Commissions that are now to be known as Union Commissions, adoption of general guidelines for the structure and operations of Union Commissions, establishment of a new Union Commission for Cryospheric

Sciences, formal endorsement of the IAGA initiative for an electronic Geophysical Year (eGY), establishment of a working group to further develop an IUGG mission statement and a roadmap to achieve our objectives, adoption of the Theme for the 2007 General Assembly (Earth: Our Changing Planet); and consideration a new IUGG initiative to promote the Geosciences in Africa. The IUGG budget for the remainder of the term was discussed, and modifications were proposed which will be presented to the Finance Committee.

On September 2-3, several IUGG officers met with delegates of the GeoUnions to discuss matters of common interest. The GeoUnions include IUGG, IUGS, the International Geographical Union (IGU), the International Union of Soil Sciences (IUSS), and recently added, the International Society of Photogrammetry and Remote Sensing (ISPRS).

### **IUGG Grants**

Each year, IUGG co-sponsors symposia and meetings appropriate to our disciplines of study. \$20,000 (USD) is allocated annually to assist meetings, and especially to support the attendance of young scientists and scientists from developing countries. In 2004, IUGG supported meetings in Canada, France, Germany, India, Macedonia, Portugal, South Africa, the UK, and the US.

Similarly, an "Opportunity Fund" designated in 1999 allows the IUGG to support proposals for inter-Association initiatives that particularly benefit developing countries. In 2004 IUGG allocated \$25,000 among several new projects. These included the Electromagnetic Study of Earthquakes and Volcanoes through Training Local Scientists and Transferring Monitoring Techniques to Developing Countries; the Effect of Aerosol Pollution/Biomass Burning on Precipitation; a workshop on Deformation Measurements and Understanding Natural Hazards in Developing Countries; and an initiative to provide the monograph 'State of the Planet: Frontiers and Challenges' to learning institutions in the developing world.

### **ICSU**

IUGG President Dr. Uri Shamir and Secretary General Dr. Jo Ann Joselyn attended a meeting in February 2004 in Paris of the scientific unions that are members of ICSU. Agenda items included discussion of development of an ICSU strategic plan for 2006-2012, ICSU-UNESCO collaboration, and updates on the work in progress on ICSU resolutions passed at their 2002 General Assembly. Presentations were made on the International Polar Year and the International Year of Planet Earth. The date and place of the ICSU 28th General Assembly were announced (Shanghai and Suzhou, China, 16-22 October 2005). For IUGG, the opportunity to meet with and network with other Unions proved very valuable. A separate meeting of the officers of the GeoUnions was held before the ICSU meeting, and a meeting of the consortium of Unions that are working together on an initiative on Science for Health and Well-Being was held after the ICSU meeting. IUGG also met with IUGS separately regarding possible actions by ICSU with regard to the International Lithosphere Programme, and with the International Astronomical Union (IAU) and the Union of Radio Science International (URSI) regarding the Federation of Astronomical and Geophysical Data Analysis Services (FAGS).

IUGG Bureau members have recently been named to advisory committees to the International Council of Science (ICSU). Dr. Harsh Gupta has agreed to serve on the ad hoc Expert Panel on Priority Area Assessment on Capacity Building in Science, and Dr. Uri Shamir, who recently completed service on the CSPR Assessment Panel on Environment and its Relation to Sustainable Development, served on an ad hoc Committee on Membership Issues.

Prof. Charles Merry, Chairman of the South African National Committee for IUGG, represented IUGG at the First ICSU Regional Meeting for Africa in Harare, Zimbabwe on 9-11 October 2004. The meeting discussed how the ICSU Regional Office for Africa, to be located in Pretoria, South Africa, will contribute to the strengthening of African science. Ultimately, ICSU will establish four Regional offices "to promote the development and strengthening of science in the context of regional priorities and bring the science of developing countries closer to ICSU."

### **ICSU Grants**

ICSU Grants were awarded to four IUGG co-sponsored proposals in 2004.

The International Union of Theoretical and Applied Mechanics (IUTAM) was awarded \$100,000 for their proposal "African Institute for Mathematical Sciences (AIMS)". Part of the grant supported a Workshop on "Capacity Building in the Mathematical Sciences" held in Muizenburg, South Africa, 13-16 April 2004.

The International Astronomical Union (IAU) was awarded \$100,000 to pursue a study of Comet/Asteroid Impacts on Human Society. Dr. V. Gusiakov, representing the IUGG GeoRisk and Tsunami Commissions, helped to write the proposal. A workshop was convened, and a report written that addressed the major unresolved questions regarding how comet/asteroid impacts may influence society in the near future.

The International Union of Geological Sciences (IUGS) was awarded \$100,000 for their initiative "Dark Nature - Rapid Natural Change and Human Responses." Dr. Alik T. Ismail-Zadeh, representing the IUGG GeoRisk Commission, participated in writing this initiative. The proposal seeks to examine the human responses to specific rapid natural changes across a range of environments, and to consolidate the knowledge gained for use by scientists, policy-makers, and public at large.

The ICSU Scientific Committee on the Lithosphere (SCL) International Lithosphere Program (ILP) was awarded \$43,976 for their proposal to "Scan a Selected Set of World Wide Standardized Seismograph Network (WWSSN) Film Chips." IUGG/IASPEI co-sponsored this initiative, which converted analogue seismograms for 96 significant earthquakes recorded between 1961 and 1974 so that they can be analyzed by modern techniques.

### **ACTIVITIES OF THE ASSOCIATIONS**

The following 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. Each Association has a web site where much more information can be found.

**Annual Report for 2004**  
**International Association of Geodesy**

(1) Central Bureau activities.

The function of the Central Bureau has changed due to the establishment of a Communication and Outreach Branch (see below), which now publishes a Newsletter, maintains a home-page ( <http://www.iag-aig.org> ) and promotes IAG and geodesy as such.

Since the adoption of new statutes and by-laws, IAG now has both National Members and individual (personal) members. A main function of the Central Bureau is now related to the contact with these personal members.

The Geodesists Handbook 2004, edited by Dr. O.B.Andersen, was published.

(2) The Executive Committee (EC).

The EC had a meeting (<http://www.gfy.ku.dk/~iag/ecag04doc/minutesECNice04.pdf>) in Nice, April 30, 2004, where the main topic was the implementation of the new structure and the GGOS-project.

(3) Communication and Outreach.

The Branch publishes a monthly newsletter and maintains the IAG home-page. Individual members only have access to certain parts of the information using a password.

(4) Coordination with organisations within surveying, cartography and remote sensing.

The IAG president participated in a meeting of the Joint Board of the Mapping Societies in Istanbul, July 2004.

(5) Participation in Group on Earth Observation, GEO.

IAG has participated actively in the establishment of the GEO objectives and the 10-Year Implementation Plan. The chief delegate was Prof. C. Reigber, Germany.

(6) Meetings.

10 Years IGS Workshop and Symposium, March 1-5, 2004, Berne, Switzerland.

Second International GOCE User Workshop, "GOCE, The Geoid and Oceanography", ESA-ESRIN, Frascati (Rome), Italy, 8-9-10 March 2004. (IAG Sponsored).

EUREF - 2004, The EUREF 2004 Symposium of the IAG Subcommittee for Europe, 2-5 June 2004, Bratislava, Slovakia

1st FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering, Nottingham 28 June - 1 July (IAG Sponsored).

15th International Symposium on Earth Tides, 2-6 August 2004, Ottawa, Canada.

Gravity, Geoid and Space Missions – GGSM2004, 30 August – 3 September 2004, Porto, Portugal

12th General Assembly of the WEGENER project, 21-23 September 2004, Tangier, Morocco

(7) Services.

The International Gravity Field Service has included a new centre, International Centre of Global Earth Models (ICGEM).

**C.C. Tscherning**  
**Secretary General of IAG**

## **Annual Report for 2004**

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

**Preparations for the X<sup>th</sup> Scientific Assembly of IAGA**, to be held in Toulouse, France on July 18-28 2005, have occupied a large fraction of the IAGA community in 2004. The International Commission on the Middle Atmosphere (ICMA) of the International Association on Meteorology and Atmospheric Physics (IAMAS) will hold its biennial Assembly in conjunction with the IAGA Scientific Assembly. The joint scientific programme of IAGA and ICMA contains 61 symposia covering all scientific fields of the two organizations. In addition, there will be four Association Lectures on subjects of general interest to the IAGA community and to the general public.

**The IAGA Executive Committee** met in July in Paris, in the weekend at the end of the COSPAR week. Decisions made include the following:

*Procedures of IAGA:* All procedural information related to IAGA activities, including the Statutes and By-laws, will be included in the "IAGA Officers' Manual" prepared by Ibrahim Eltayeb and the manual will be renamed "Procedures of IAGA".

*Temporary head of the Inter-Divisional Commission on History:* The EC member Gurbax Lakhina agreed to act as head of the History commission until an election for the position could be held during the assembly in Toulouse in 2005.

*IAGA Guides:* An IAGA Guide on "Geomagnetic Indices" is expected to be completed in 2005. Several other guides are in an early preparatory phase. The Guide on "Noctilucent Clouds" is out of print. It will not be reprinted but will be put on the web site, as will most new guides.

*Gifts of scientific books and journals:* IAGA is starting a programme to provide gifts of scientific books and journals, unwanted by their owners, to libraries and scientific groups in developing countries. An area of the IAGA web site has been created to provide information about books and journals available for donation and about institutions, groups, and individuals interested in receiving specific types of books and journals. IAGA has set aside US \$5000 per year to cover part of the transport costs.

*IAGA finances:* The economic situation of IAGA is presently good but IAGA will not be in a position to maintain in the long run the level of support for travel grants to participants in assemblies from developing countries that has been provided hitherto. To maintain some support of this kind in the long term, IAGA needs to use all possibilities to increase its income.

### **eGY and IGY + 50**

The preparatory work for the electronic Geophysical Year (eGY) has continued at high intensity during 2004. A planning meeting was held the day before the Executive Committee meeting in Paris and another such meeting took place in conjunction with the IUGG Executive Committee meeting in Boulder in September. The Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado has accepted to act as executive centre and Dr. Bill Peterson has been appointed Secretary General of the project. IUGG has granted US \$15,000 and IAGA has budgeted US \$10,000 for it.

### **IAGA sponsored projects and meetings**

IAGA has sponsored ten meetings in 2004. They are listed in the table below.

<b>IAGA SPONSORED MEETINGS in 2004</b>			
<b>Dates</b>	<b>Title</b>	<b>Location</b>	<b>Applicant</b>
12-15 July 2004	2nd IAGA/ICMA Workshop on Vertical Coupling in the Atmosphere/Ionosphere System	Bath, UK	D. Pancheva
9-17 November 2004	11th IAGA Workshop on Geomagnetic Observatory Instruments etc.	Kakioka, JP	Yumoto
27 June- 3 July 2004	9th Meeting on Paleo, Rock and Environmental Magnetism	Slovakia	E. Petrovsky
18-25 July 2004	35th COSPAR Assembly	Paris	Cospar Secr.
3-6 August 2004	3rd SPARC General Assembly	Victoria, CA	M.L. Chanin
Fall of 2004	Ebro Geomagnetic Observatory, 100 year Celebration Workshop	Ebro, ES	J.M. Torta
Fall of 2004	17th Electromagnetic Induction Workshop	Hyderabad, IN	P. Tarits
14-17 September 2004	Layered Phenomena in the Mesosphere	Cambridge, UK	M. Clilverd
9-14 June 2004	Long-Term Changes and Trends in the Atmosphere	Bulgaria	K. Georgieva
7-9 September 2004	International seminar on geomagnetism	Indonesia	M. Husni

IAGA continued to support the IUGG Inter-Association Initiative “Electromagnetic Study of Earthquakes and Volcanoes” (EMSEV) in 2004.

### **IAGA and ISO**

The discussion on standard magnetosphere models with ISO has continued. In October the IAGA President restated the concerns of the IAGA Executive Committee in a letter to the working group number 4 of ISO and the working group has agreed to continue the dialogue with IAGA.

### **IAGA News**

IAGA News No. 41, containing information about the Toulouse Assembly among other things, was distributed widely in November.

**Bengt Hultqvist**  
**Secretary General of IAGA**

**Annual Report for 2004**  
**International Association of Hydrological Sciences**

*All information about IAHS activities is available at <http://iahs.info>*

The main activity of the year 2004 has certainly been preparation of the VII<sup>th</sup> IAHS Scientific Assembly, which will be held in Foz do Iguacu (Brazil) from 3 to 9 April 2005; this is the first IAHS Assembly in South America. Hundreds of abstracts have been received for presentation in the framework of the seven symposia and eight workshops to be organized. The first version of the IAHS Perugia General Assembly (2007) has also been drafted and will be definitively decided upon in Foz.

An important decision involving IAHS has been taken during the last IUGG EC meeting (Boulder, September 2004): that of enabling the IAHS International Commission of Snow and Ice (ICSI) to become soon a full International Association of Cryospheric Sciences in the framework of IUGG. IAHS supports this long-discussed issue but will have to consider, together with the new IACS, how to deal with the hydrological aspects of Snow and Ice. We also would like to note the involvement of IAHS in an ICSU supported project on Artificial Recharge in South East Asia (Ho Chi Minh City, 15-17 December 2004) and in the WMO Working Group on GEWEX.

### **Conferences and Meetings**

The Prediction of Ungauged Basins (PUB) IAHS initiative developed impetuously in 2004 with many workshops and the creation of regional working groups and scientific links all over the world. Several of these include: **Australian-Japanese PUB WG kick-off Meeting** (Perth, Australia, 2-5 February 2004), **Predicting Ungauged Streamflow in the Mackenzie River Basin, Today's Techniques & Tomorrow's Solutions** (Yellow Knife, Canada, 8-9 March 2004), **Modelling Hydrological Responses in Ungauged Catchments** (Osnabrück, Germany, 14-17 June 2004), **International IAHS-PUB Workshop on Uncertainty Analysis in Environmental Modeling** (Menaggio, Italy, 6-8 July 2004), and **PUB Session on Methodology of Trans-regional Application of Hydrological Models** (Colombo, Sri Lanka, 17-19 November 2004).

In 2004, many scientific events were organized, sponsored or supported by IAHS and its commissions and working groups. Among them we note the following: **HEPEX Kick-Off Meeting** (Reading, UK, 8-10 March 2004), **Conference on water observation and information system for the Balkan countries** (Ohrid, Macedonia, 25-29 May 2004), **4<sup>th</sup> MOPEX Workshop** (Paris, France, 1-3 July 2004), **Recent Glacier Shrinkage in the Andes and Consequences for Water Resources** (Huaraz, Peru, 6-9 July 2004), **BHS International Conference on "Hydrology: Science and Practice for the 21st Century"**, (London, UK, 12-16 July 2004), **GQ2004, Bringing Groundwater Quality Research to the Watershed Scale** (Waterloo, Canada, 18-21 July 2004), **Sediment transfer through the fluvial system** (Moscow, Russia, 2-6 August 2004), **8th International Conference on Precipitation** (Vancouver, Canada, 8-11 August 2004), **XXIIIrd Nordic Hydrological Conference** (Tallinn, Estonia, 8-12 August 2004), **XXIInd Conference of the Danubian Countries on the Hydrological Forecasting and Hydrological Bases of Water Management** (Brno, Czech Republic, 30 August - 2 September 2004), **Finite-Element Models, MODFLOW and More 2004: Solving Groundwater Problems** (Karlovy Vary, Czech Republic, 13-16 September 2004), **7th**

**UNESCO-IAHS Kovacs Colloquium** (Paris, France, 17-18 September 2004), **International Conference on Hydrology of Mountain Environments** (Berchtesgaden, Germany, 27 September-1 October 2004), **Vith All Russian Hydrological Congress** (Sant-Petersburg, Russia, 28 September-1 October 2004), **ERB2004 Euromediterranean Conference** (Turin, Italy, 13-17 October 2004), **Ninth International Symposium on River Sedimentation** (Yichang, China, 18-21 October 2004), **Advances in Integrated Mekong River Management** (Vientiane, Lao, 25-27 October 2004), **IWRM and the Millennium Development Goals: Managing Water for Peace and Prosperity** (Windhoek, Namibia, 2-4 November 2004), **FM2S Flood Forecasting and Management with GIS and Remote Sensing** (Ghangzhou, China, 7-13 November 2004)

### **Publications**

In 2004 the *IAHS Press* published six issues of the *Hydrological Science Journal*. Three issues of the *IAHS Newsletter* have also been published and widely disseminated free of charge, both as hardcopies and on the Web. A new version of the *IAHS Press Catalogue* has been prepared and published. IAHS Press also published 6 “*Red Books*” and one “*Blue Book*”:

**Wastewater Re-use and Groundwater Quality**, *Edited by Joop Steenvoorden & Theodore Endreny*, IAHS Publication 285

**The Basis of Civilization – Water Science ?** *Edited by John C. Rodda & Lucio Ubertini*, IAHS Publ. 286

**Scales in Hydrology and Water Management / Echelles en hydrologie et gestion de l'eau**, *Edited by Ioulia Tchiguirinskaia, Mike Bonell & Pierre Hubert*, IAHS Publ. 287

**Sediment Transfer Through The Fluvial System**, *Edited by Valentin Golosov, Vladimir Belyaev & Des E. Walling*, IAHS Publ. 288.

**GIS and Remote Sensing in Hydrology, Water Resources and Environment**, *Edited by Yangbo Chen, Kaoru Takara, Ian D. Cluckie, & F. Hilaire De Smedt*, IAHS Publ. 289

**Northern Research Basins Water Balance**, *Edited by Douglas L. Kane & Daqing Yang*, IAHS Publ. 290

**Hydrology: A Question of Balance**, *by J.V. Sutcliffe*, IAHS Special Publication 7.

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.

Since 1924 IAHS has published 300 “*Red Books*”. About 80 of them are now out of print and it appears that these books, which have not only an historical value but could also provide present day hydrologists with much interesting data, studies and results, are often difficult to find in the libraries. To make available this literature gathered under the IAHS umbrella, we have begun to digitize these books and to post them on the IAHS web site. Already 51 books, representing more than 16,000 pages are freely available on line.

The close cooperation of *IAHS* with *UNESCO* and *WMO* has been continued. An IAHS/IUGG delegation has attended the UNESCO/IHP Council (Paris, September 2004)

and the WMO Commission of Hydrology (Geneva, November 2004). We organized with UNESCO the Kovacs Colloquium on “*Scales in hydrology and Water Management*”, and participated to the UNESCO-WMO Standing Group on the International Glossary of Hydrology.

**P. Hubert**  
**Secretary General of IAHS**

**Annual Report for 2004**  
**International Association of Meteorology & Atmospheric Sciences**

**1. Assessment of Effect of Pollution on Precipitation**

Congress Cg XIV in 2003 the World Meteorological Organization, WMO, acted on an initiative by the IUGG Representative, the IAMAS SG, and endorsed a program to explore the links between aerosol pollution (including biomass burning) and rain. Thus, a Joint IUGG/WMO International Aerosol-Precipitation Science Assessment Group, IAPSAG, was setup under the leadership of Professor P. Hobbs, USA, with other top specialists in the field. WMO and IUGG (IAMAS) gave Prof. Hobbs authority to arrange the assessment according to his judgement. IAPSAG is now assembling the report over the Internet. To obtain funds for one meeting in the fall of 2005 a grant application for \$42000 was submitted to ICSU by IUGG. The preparations were led by the IAMAS SG, with great moral support by WCRP, the WMO, the IGAC [International Global Atmospheric Chemistry Programme], the Third World Academy of Science [TWAS], and the National IUGG (ICSU) Committees of Canada, China and Switzerland. While FAO and UNEP did not directly support the application, they nevertheless declared their big interest. The application received high marks by ICSU, however, drastic cuts in the ICSU budget did not allow funding. \$7000 has already been committed by IUGG. One round table session on the pollution/precipitation issue was held at the International Cloud Physics Conference, July 2004 in Bologna. Another Session and a roundtable discussion are planned for the IAMAS Assembly in Beijing in 2005. The IAPSAG members present in Bologna had two informal meetings guided by the Vice Chair of IAPSAG, Prof. Z. Levin. Several meetings were held at WMO between Dr. E. Manaenkova and Dr. L. Barrie from AREP and SG IAMAS. Discussed were also the follow-up plans, an Action Plan, that should be ready soon after the Assessment Report for the spring 2006 meeting of the WMO EC. This plan will be produced by IAMAS/IUGG and WMO for the same EC meeting and will describe the actions triggered by the assessment report. This EC meeting will feed into WMO Congress Cg XV in 2007, the body that makes financial commitments. UNEP, UNESCO, FAO and NGOs would have to be brought in at the same time because of the social, economic and political implications of the issues.

**2. The IAMAS Assembly in Beijing, 2-11 August 2005**

The 2nd Circular of the IAMAS 2005 Assembly in Beijing describes 45 symposia covering the whole of the atmospheric sciences and three joint symposia with the new Cryosphere Commission of IUGG. The Circular also contains a full description of the arrangements planned by the Local Organizing Committee with Academician Prof. Wu

Guoxiong from the Chinese Academy of Science as chair and Prof. Zheng Guoguang, Deputy Administrator of the China Meteorological Organization as co-chair. This Circular is also on the Internet, as are the registration and abstract forms. Registration now exceeds 1000 with ~1500 abstracts. The Beijing meeting may become the biggest IAMAS Assembly ever.

The Conveners were instructed to give all contributors time for oral presentation, varying from three minutes up. For better communications all presenters are urged to also use posters. This does not apply to invited papers. The reason is the low regard administrators have for posters.

IAMAS President Dr. Mike MacCracken visited with the LOC in Beijing in October, viewing the conference facility, discussing program development, and assisting in outreach to various co-sponsoring organizations for the symposium

### **3. Future meetings**

Preparations are underway regarding the IUGG/IAMAS Assembly in Perugia, Italy, July 2-13, 2007, and a possible IAMAS/IAPSO Joint Assembly in 2009.

### **4. The Commission Conferences**

The International Radiation Commission held its Radiation Symposium during August 23-28, 2004 in Busan, Korea. 300 scientists from 25 countries participated, ~370 papers were presented.

The International Commission for Clouds and Precipitation organized its conference in Bologna in July, with an attendance of close to 500 and Proceedings published in 3 Volumes!

The quadrennial Ozone Symposium was held on Kos, Greece, in June with ~500 participants.

### **5. Liaison Responsibilities**

IUGG Union Commission for the Cryospheric Sciences (CCS)

At their invitation, the Secretary General attended the first meeting of this Commission that will be applying for IUGG Association status in 2007. The need for freedom at the Commission level was stressed as well as changes that should be made in approach and action

Scientific Committee on Oceanic Research (SCOR)

The IAMAS President participated in the annual meeting of the SCOR Executive Committee held in Venice, and throughout the year offered assistance on their many tasks. Among these, he participated in the planning for the ICSU-sponsored Workshop on Comet/Asteroid Impacts and Human Society held in Tenerife in late November, where he also presented a review paper on the potential effects of such impacts on the atmosphere. SCOR has also appointed him as their liaison to meetings of the Joint Scientific Committee for the WCRP.

### **6. The IAMAS Newsletter**

IAMAS Deputy Secretary General Dr. John Turner took the initiative to prepare the launch in January 2005 of a newsletter that is now posted on the Web. The British Antarctic Service is to be thanked for taking on this responsibility.

#### **7. IAMAS Administrative Aspects**

President and SG attended the IUGG Executive Committee meeting in Boulder, CO, September 1-4, 2004. The President also participated in the annual meeting of the US National Committee for the IUGG in Boulder regarding suggestions that they had offered about IUGG governance (e.g., encouraging competitive elections for all international offices), indicating that most of the associations allowed for this, but found it problematic due to the many distributional requirements for the EC officers.

The IAMAS books for 2004 closed with an annual gain of US \$ 89 500. This compares with losses of \$ 56 000 for 2003. This boom and bust situation is typical for assembly vs. non-assembly years. 2004 was different in another way. Tired of very low interests the Secretary General invested \$210k of the bulk of IAMAS funds in May. They earned \$28000 by the end of the year (the equivalent of the annual IUGG contribution). The accounting with the Sapporo LOC, finalized in 2004, showed that at the Sapporo IUGG/IAMAS Assembly in 2003 \$42k was spent from the IAMAS budget in support of scientists from developing countries. Adding the Japanese and IUGG contributions increases this amount to ~ \$99 000.

#### **7. Thanks**

It is with great pleasure that I acknowledge the help I have always received from IUGG SG Dr. JoAnn Joselyn. I always enjoyed the meetings and telephone conversations with President Mike. To have John Turner taking many of my tasks and duties of my shoulders is really appreciated. The fact that he is doing them so well is a gift from heaven,

**Roland List**  
**Secretary General of IAMAS**

### **Annual Report for 2004** **International Association for the Physical Sciences of the Oceans**

During 2004, IAPSO had two major activities. The first of these was the "IAPSO/SCOR Conference on Ocean Mixing" held in Victoria, British Columbia, Canada on 11 - 14 October 2004. There were more than 120 conferees representing 14 countries. There were 29 oral presentations and 76 poster presentations. A significant number of conclusions and recommendations were made, and various concerns were raised. A full report is posted on the IAPSO Web page for Commissions, Working Groups and Permanent Services (<http://www.olympus.net/IAPSO/comm.html>). There are plans to publish a proceedings volume in a special issue entitled "Ocean Mixing" of "Deep-Sea Research Part 2" by early 2006. A Symposium at the 2007 IUGG General Assembly is proposed, and a future follow-up conference is being considered.

The second major activity was the "International Workshop on Forecasting and Data Assimilation in the Benguela and Comparable Systems" held in Cape Town, South Africa

on 8 - 11 November 2004. There were over 100 invited participants in the Workshop including 35 from overseas and 25 from neighboring African countries. An important objective of the Workshop was the development of a strong base for an effective and affordable forecasting capability for the South East Atlantic within the global network. The summary assessment was that we are now ready to design an operational system for forecasting in the Benguela. One of the output products from the Workshop will be a peer-reviewed book entitled "The Benguela: Predicting a Large Marine Ecosystem" to be published in 2005 by Elsevier.

Other activities included planning for the August 2005 IAG/IAPSO/IABO Joint Assembly in Cairns, Australia. The Indian Ocean Tsunami in December 2004 led to an initiative to add a special session to the Assembly. Information on IAPSO, and on the 2005 Joint Assembly, was distributed at the AGU Ocean Sciences meeting in January and the AGU Fall meeting in December. IAPSO also co-sponsored a symposium at the COSPAR meeting held in 2004.

The Commission on Groundwater-Seawater Interactions (CGSI) continued to be sponsored by IAPSO during 2004. The CGSI held a business meeting and workshop in Monaco, and has sponsored ongoing initiatives in the Philippines and Thailand. Other work is proposed by the CGSI in Brazil, Italy, and Mauritius. Work of other Commissions and Permanent Services continued, including the Permanent Service for Mean Sea Level. There is an ongoing restructuring of the Commission on Sea Level and Tides.

A final document on the future of IAPSO was distributed. A proposed revision to the IAPSO Statutes and By-Laws was distributed to the IAPSO National Correspondents for approval by a mail ballot. The decision on the revision is pending as approval has not yet been received from a majority of the member countries. A major consideration is the proposed separation of the Treasurer and Secretary General duties.

The Secretariat continued maintenance of the IAPSO Web page, general correspondence, and distribution of information. The IAPSO President and Secretary General attended the IUGG Executive Committee meeting in Boulder, Colorado, USA in August 2004.

**Fred Camfield**  
**Secretary General of IAPSO**

### **Annual Report for 2004**

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

2004 was a fruitful year for IASPEI and saw the successful organization of a variety of symposia and international conferences, some geared towards young scientists or scientists in developing countries. Additionally, IASPEI helped support a number of workshops, conferences, and activities in order to allow attendance of scientists from less-developed countries. The meetings covered a broad array of topics that will continue to prove interesting and helpful in the coming years.

### **IASPEI General Assembly (2005)**

Because of a scheduling problem, the date for this IASPEI General Assembly was

moved to October 2005. However, some funds to support participation were allocated to the organizers in 2004.

An IASPEI Training Course will be organized at the University of Chile in the week after the General Assembly. Its aim is to provide participants, mainly postgraduate students and young researchers, especially from Latin America, an opportunity to get updated in seismological topics of current interest. Prominent scientists from all-over the world will act as lecturers. A detailed program of the School will be provided in the Third Circular. IASPEI and the LOC will support the attendance to the School as much as they can.

### **European Seismological Commission Young Seismologist Training Course at the 29<sup>th</sup> ESC General Assembly**

The European Seismological Commission (ESC), with the financial support of IASPEI, has sponsored five training courses for Young Seismologists in order to expose them to data acquisition, processing techniques, empirical evaluation of site effects, earthquake location and their uncertainties, and moment tensor inversion, under the tutorship of many established seismologists throughout Europe and the World. The recent training course in Potsdam followed the now established format. It took place in the four days before the General Assembly with the lecturers Frank Krueger, Klaus Stammler, Torsten Dahm and Xiaohui Yuan focusing on moment tensor inversion, Greens functions, seismic source representation, fault plane solutions, the Seismic Handler program, filtering and time domain inversion.

Thirty students from twenty countries attended the course. Questionnaires were distributed amongst the students inviting them to comment on the overall impression of the course together with the level struck by each individual lecturer. The responses indicated an excellent rating for the course, overall, and the individual lecture questionnaires highly commended the lecturers in both their delivery and level of teaching. Many of the students indicated that they would have benefited from having the lecture notes before the course and this should be noted for the next course in Geneva. CDs were distributed to the students, containing software packages and test data, for them to use on their return.

The primary aim of the Young Seismologist Training Course in Potsdam was to provide some basic requirements on moment tensor inversion, the techniques and programs used to perform manipulation and analysis of the data. Facilities for the course were well organized by the University of Potsdam, Germany.

It was clear that the students had a varied level of experience and background knowledge, a situation that is always difficult to manage; many of the students had not used the moment tensor inversion methods. Despite this, and because of the expertise of the lecturers, significant advances in understanding and technical ability were achieved for all students.

Following receipt of a positive report on the training course, the ESC Bureau commended the lecturers and organizers on behalf of ESC members and endorsed a proposal to hold a sixth training course before the next General Assembly in Geneva, September, 2006.

### **Asian Seismological Commission General Assembly 2004**

Due to the unfortunate premature demise of Prof. S. Balassanian, we still have no detailed reports on this assembly. Since both IASPEI President and myself have attended the General Assembly and talked to lecturers of the Training course, I can state that both the Training course and the General Assembly were very successful and that IASPEI support of the Asian Seismological Commission (ASC) was well invested.

In light of the existing disparity between developed and developing countries in mitigating the effects of strong earthquakes, the primary goals of ASC and the 5th ASC General Assembly were to fill this critical gap in regards to earthquake disaster reduction, and to increase the ability of each country to reduce its earthquake risk. Mobilizing the experiences and achievements of different countries in the field of seismic risk reduction, the ASC promotes: understanding of earthquake disaster reduction as an essential element of government policy and a major priority in regional, national and international development; establishment of partnerships between the scientific community, government and public; exchange and transfer of up-to-date knowledge and technology; and strengthening of international and multidisciplinary cooperation in the field of seismic risk reduction.

The 5th ASC General Assembly was a remarkable international scientific, political, and social event for thorough evaluation of the multi-disciplinary and multi-sector earthquake risk reduction issues and practices in order to understand why there are so many victims and losses after each earthquake in earthquake prone regions. It is not merely a scientific problem in earthquake hazard and risk assessment and reduction, but rather a multi-sector responsibility of scientists, policymakers, leaders of executive and legislative authorities, and society at large. The General Assembly continued the multi-disciplinary, multi-sector and cross-border risk reduction strategy in Asia as the most vulnerable and populated continent of the Earth. We received willingness to participate in and contribute to the Assembly from seismologists, geophysicists, geologists, engineers, architects, psychologists, and leaders of executive and legislative bodies, leading businessmen, and representatives of prominent international organizations from many countries.

**IAG-IASPEI Inter-Association activity:** *IAG-IASPEI Joint Capacity Building Workshop on Deformation Measurements and Understanding Natural Hazards in Developing Countries*

The workshop was organized by IASPEI and IAG with support from IUGG and ICTP. Almost all lectures notes are available as PDF files from the ICTP homepage [www.ictp.it](http://www.ictp.it) under scientific events/calendar. The workshop more than met its stated purposes. There was a good representation of attendees from the Middle East and Africa with ten countries represented. Two more participants came from other developing countries. Half of the participants, not supported financially, came from six developed countries, Italy being most represented.

It was gratifying to see the broad expertise represented by the lecturers in attendance and how well they were prepared. The lectures covered all the right topics at the right level and the ensuing discussions were informative and stimulating. Additionally, the computer exercises organized by a tutor from the Netherlands were well organized and provided the attendees with the proper level of training to continue research using GPS and InSAR data upon returning to their home institutions.

One of the few weak points of the Workshop was that quite a number of supported participants, mainly from Mediterranean and Middle-Eastern countries did not show up due to various reasons, such as visa problems, illness etc. Some did not send any communication for the reason of their non-attendance, and this unfortunately prevented the organizers from selecting further participants from a reserve list. In spite of the few weak points to the workshop, overall it was a remarkable success. We thank all the lecturers for their efforts in teaching and participants for their attendance and good interaction with the lecturers and especially thank those lecturers who filled in at the end of the workshop by organizing talks with participants.

### **Electromagnetic Studies of Earthquakes and Volcanoes (EMSEV)**

The EMSEV meeting, organized by J. Zlotnicki, was co-sponsored by IASPEI. The IUGG EMSEV working group (chairman S. Uyeda) met there also. Minutes of the Third EMSEV Working Group meeting held on September 8, 2004 have been posted on the IASPEI website. The URL of the MEEMSV-2004 meeting was: <http://www.carte-blanche.fr/~meemsv-2004/>.

### **Deep Seismix 2004 Conference**

Just under 100 scientists attended the conference in Quebec and about 20 went on the excursion to the Sudbury impact structure and Abitibi lower crust section. The Proceedings volume will be published by Elsevier in Tectonophysics. The Conference web address was: <http://www.cgu-ugc.ca/meetings/Seismix2004/>

### **GeoMod2004 conference: “From Mountains to Sedimentary Basins: Modeling and Testing Geological Processes”**

This was an international conference aimed at bringing together researchers from universities and industry interested in analogue and numerical models. The topics of meeting were: Orogenesis; Surface Processes; Fracture, Faults and Fluid Flow; Methods and Techniques; Sedimentary Basins. The GeoMod2004 conference was a successful meeting based on very positive feedback from the participants. All participants stayed at the same venue, which allowed for a comfortable atmosphere with many informal discussions. Almost all of the presentations were in the form of posters and every day had ample time for presentations and discussions of the posters. General discussions at the end of each day came back upon topics presented both during talks and at the posters. Throughout the discussions, the possibilities of geological modeling, the opportunities, and its potential shortcomings were emphasized. The website was <http://www.ogs.trieste.it/GeoMod/>

### **ICESA Conference: “The East African Rift System: Development, Evolution and Resources”**

The Ethiopian Geoscience and Mineral Engineering Association (EGMEA) successfully organized an international conference centered on the theme: “The East African Rift System: Development, Evolution and Resources.” The main objective of the conference was to provide a forum for discussion on the current state of scientific knowledge and understanding of the East African Rift System (EARS). The conference

addressed the geodynamic evolution, resource potential and environmental impact of the East African Rift System (EARS).

The conference has been successful in having brought a large number of African participants who presented scientific contributions to the meeting. This has been possible partly through financial support obtained from organizations that co-sponsored the conference. The Conference Organizing Committee greatly acknowledges, with thanks, financial support from ILP, IASPEI and UNESCO, which allowed the participation of a total of 15 geoscientists from Eastern and Central Africa.

### **1st International Workshop on Active Monitoring in the Solid Earth Geophysics (IWAM04)**

Following the establishment of “Task Group for Active Monitoring” under IASPEI, an international workshop titled “1st International Workshop on Active Monitoring in the Solid Earth Geophysics (IWAM04)” was organized by Dr. Mineo Kumazawa. The purpose of this workshop was to promote systematic developments and application of methodology using artificial sources to a variety of targets of our concerns through the international and interdisciplinary cooperation.

#### **Publications:**

International Handbook of Earthquake and Engineering Seismology, Part B

<http://www.academicpress.com/quake>.

IASPEI Manual of Seismological Observatory Practice

[http://www.seismo.com/msop/msop\\_intro.html](http://www.seismo.com/msop/msop_intro.html)

and [http://www.gfz-potsdam.de/pb2/pb21/index\\_e.html](http://www.gfz-potsdam.de/pb2/pb21/index_e.html).

IASPEI Bulk E-Mail System – IASPEI uses this system to broadcast announcements about forthcoming meetings and other information of interest to IASPEI members.

IASPEI Home Page – IASPEI continues development of its Home Page, which contains organizational information, a publications list, meeting announcements and Internet connections and other information of interest to IASPEI scientists. The current address for this web site is: <http://www.iaspei.org/>.

IASPEI Brochure – The IASPEI Secretariat with the assistance of Carl Kisslinger (Editor) has published a 26-page brochure entitled “The International Association of Seismology and Physics of the Earth’s Interior: Cooperation for Better Understanding of the Earth.” Copies can be obtained from the IASPEI Secretariat.

**Peter Suhadolc**  
**Secretary General and Treasurer of IASPEI**

**Annual Report for 2004**  
**International Association of Volcanology and**  
**Chemistry of the Earth's Interior**

IAVCEI ended the year with over 840 paid individual members, the highest number yet. Thirty-three members have chosen to become Life Members, including three members who were awarded Life Membership as Honorary Members in 2003-4. The IAVCEI web page is frequently revised and updated. The web site URL is [www.iavcei.org](http://www.iavcei.org). The volcano listserver administered by Arizona State University remains the official IAVCEI list server. It has over 2500 people listed, which far exceeds the IAVCEI membership. Thus we hope to further boost the membership in IAVCEI. Three issues of the newsletter "IAVCEI News" were mailed to members in 2004.

The highlight of the last year was the hugely successful General Assembly held in Pucon, Chile. Approximately 940 people attended the meeting from November 14-19, 2004. The five-day meeting brought together scientists and multidisciplinary experts from around the globe to discuss many aspects of volcanology with a theme of "Volcanism and its Impact on Society." The meeting was organized by representatives of the Geological Survey of Chile, (Sernageomin) and others, and sponsored by Sociedad Geologica de Chile and Instituto Geografico Militar (Chile) as well as IAVCEI. The meeting consisted of over 1100 abstracts presented in twelve theme sessions. IAVCEI travel grants helped pay expenses for several young scientists or scientists from developing countries.

Three outstanding volcanologists were awarded with new IAVCEI Honorary Memberships. One was awarded at Sapporo 2003: Prof Shigeo Aramaki (Japan); the other two in Pucon: Prof Hans-U. Schmincke (Germany), and Dr Robert Tilling (USA). The Thorarinsson medal was awarded to Wes Hildreth (USA), and two Wager medals to Andy Harris (USA) and Oleg Melnik (Russia). Two new awards were given for the first time in 2004: the Krafft medal to Tom Simkin (USA) and the Young Scientist award to Costanza Bonadonna (Italy).

The next IAVCEI General Assembly has been tentatively scheduled for 2008. Proposals have been received from Iceland and France and are being evaluated. Over the next few years, IAVCEI will also focus its efforts on several smaller meetings, including the IAVCEI sponsored "Cities on Volcanoes IV" conference to be held in Quito, Ecuador in January 2006.

The IAVCEI Executive Committee met in Pucon and conducted three meetings covering many aspects of IAVCEI business.

**Officers of IAVCEI for 2003-2007 are:**

President:	Oded Navon (Israel)
Vice-President:	Jocelyn McPhie (Australia)
Vice-President:	Toshitsugu Fujii (Japan)
Secretary-General:	Steve McNutt (USA)
Members of Executive Committee:	Anita Grunder (USA) Renato Solidum (Philippines)

Past President: Hugo Moreno (Chile)  
Jean-Christophe Komorowski (France)  
Editor Bull Volc: Steve Sparks (UK)  
John Stix (Canada)

The Commission on Explosive Volcanism is continuing to work on compilation of a comprehensive database of all eruptions with volume >10 km<sup>3</sup> for the last 2 million years. Two commissions held workshops in September 2004: The Second International Maar Conference in Hungary, and the MEEMSV IV International workshop in France.

IAVCEI was co-applicant for a 2002 ICSU grant to support training in volcanology for Latin American scientists. The grant is to provide \$12,000 per year for three years. The second year's funds in 2004 were used to support the workshop on the Mexican Volcanic Belt in Mexico in January 2004 (\$6000) and to pay portions of travel expenses for several scientists from Costa Rica to attend the General Assembly in Pucon (\$5500). A portion of the funds were used to offset IAVCEI expenses (\$500).

IAVCEI sold several educational products in 2004. Two videos on: 1) understanding volcanic hazards and 2) reducing volcanic risk were produced professionally under contract with IAVCEI. Over 60 videos were sold in 2004. Also, a volcano calendar for 2005 was produced by IAVCEI members and was printed and marketed by a professional calendar company. Over 5,000 calendars were sold and an additional 800 were distributed by IAVCEI to various scientific, educational, and governmental organizations. IAVCEI received a small royalty payment (1 percent) for the calendars.

A monograph based on all of the Symposia under the Sapporo 2003 Union theme "State of the Planet: Frontiers and Challenges," was published in 2004 (Dr. R.S.J. Sparks (IAVCEI), co-editor). IAVCEI received a grant of \$5000 from IUGG to distribute 137 copies of the book to scientists in developing countries.

IAVCEI recognizes that its activities could be significantly expanded with improved fundraising. Towards this end, President Steve Sparks wrote a series of articles on fundraising for IAVCEI News in 2002, and the issues were discussed in detail at the July 2003 meeting of the Executive Committee. Secretary-General Steve McNutt worked with a lawyer and submitted forms for incorporation as a non-profit corporation in fall 2003; the non-profit status was granted in December. After meeting with a consultant, McNutt also submitted a full application for tax exempt status under section 501(c)3 with the Internal Revenue Service of the US. The application was approved by the IRS in June 2004 and IAVCEI now has tax exempt status. This status is important so that contributions may be received with a tax benefit to contributors. We are targeting 2005 as the year to launch full fund raising activities.

2004 was an exceptionally active and productive year for IAVCEI. We hope to build on the success of the Pucon General Assembly to assure the scientific and financial health and vitality of IAVCEI in the future.

**Steve McNutt**  
**Secretary-General for IAVCEI**

## **ADDITIONAL UNION MATTERS AND FUTURE PLANS**

2004 brought with it the unfortunate loss of several members of the IUGG community. In September, Baron Paul Melchior died as a result of serious complications following hip replacement surgery in July. He was the Honorary Secretary General of IUGG, having served as Secretary General from 1973 –1991. He was the winner of the Levallois Medal, granted by the International Association of Geodesy, in honor of outstanding contributions to geodesy. The Earth Tide Commission Medal was awarded in 1997 to Baron Paul Melchior for his outstanding contribution to international cooperation in earth tide research. He was an excellent scientist and wrote several books on Earth tides and in Geodynamics. He will also be remembered as a humanist and a talented historian. Among his many duties, he was Director of the Royal Observatory of Belgium from 1981 till 1990, Director of the International Center of Earth Tides from 1958 till 1995 and Professor at the Université Catholique de Louvain (UCL) from 1972 till 1990. Paul Melchior will be missed not only by his family and friends, but also by his many colleagues, worldwide. His motto was: "In Omnibus Terris Amicus".

We also regret the unexpected deaths of Christian Le Provost, an acclaimed tide modeler, and the former President of the IAPSO Commission on Mean Sea Level and Tides; and of Serguei Balassanian, a renowned authority in the field of natural hazards and risks, who served as President of the National Committee of Armenia, Chair of the IASPEI Asian Seismological Commission, and Co-Chair of a working group on Seismic Hazard and Risk Assessment for Asian-Pacific Regions. Each of these individuals will be dearly missed.

Among the more positive news of 2004 is the wide variety of awards and honors that were bestowed upon members of the IUGG community. These included the following:

- In August, Prof. Véronique Dehant, Head of the Time, Earth Rotation, and Space Geodesy section at the Royal Observatory of Belgium and President of IAG Commission 3: Earth Rotation and Geodynamics, and her research group received the prestigious 2003 Descartes Prize for outstanding results from European collaborative research. The prize was received for the application: Pinpoint Positioning in a Wobbly World.
- In September, Dr. Gerassimos A. Papadopoulos, Vice-Chair of the Tsunami Commission, was presented with the Euroscience Rammal Award at the August 25-28 EuroScience Open Forum in Stockholm.
- In December, Prof. John Rodda received the International Hydrology Prize at the WMO Commission for Hydrology meeting held in October in Geneva. The International Hydrology Prize is awarded annually to a scientist who has made an outstanding contribution to Hydrology. This award is given by the International Association of Hydrological Sciences (IAHS) with the support of the World Meteorological Organization (WMO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- In December, Dr. Harsh Gupta (Department of Ocean Development, India, Bureau Member of IUGG) received the 'National Mineral Award for Excellence - 2002' from the Union Minister of Mines. This lifetime achievement award - the fourth awarded so far since its inception by the Government of India – was conferred upon Dr. Gupta for his outstanding contributions in the fields of seismology and ocean sciences.

- In December, Prof. David Gubbins (University of Leeds, UK, immediate past Chair of the Union Commission on the Study of Earth's Deep Interior), received the 2004 John Adam Fleming Medal from the American Geophysical Union. The medal recognizes original research and technical leadership in geomagnetism, atmospheric electricity, aeronomy, space physics, and related sciences.
- In December, Prof. Yoram Rubin (University of California and President of the IAHS International Commission on Groundwater) received the Hydrology Section Award at the American Geophysical Union meeting in San Francisco, California.

IUGG will convene meetings of its Bureau and Executive Committee in September 2005 in Perugia, Italy, followed by a meeting of the Scientific Programme Committee of the 2007 IUGG General Assembly to be held 2-13 July 2007 in Perugia. IUGG will also participate in the ICSU General Assembly in China in October, and will participate in an opportune meeting of the GeoUnions.

**Jo Ann Joselyn**  
**Secretary General of IUGG**