

IUGG Annual Report 2001

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Secretary General

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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.

Studies encompassed by IUGG include the shape of the Earth, its gravitational and magnetic fields, the dynamics of the Earth as a whole and of its component parts, the Earth's internal structure, composition and tectonics, the generation of magmas, volcanism and rock formation, the hydrological cycle including snow and ice, all physical aspects of the oceans, the atmosphere, ionosphere, magnetosphere and solar-terrestrial relations, and analogous problems associated with the Moon and other planets. Union activities embrace studies of the Earth by artificial satellites and other techniques for deploying instruments at high altitude.

The IUGG has initiated and vigorously supported collaborative efforts that have led to highly productive world-wide interdisciplinary research programs, such as the International Geophysical Year (1957-58) and the Global Atmospheric Research Programme (1970-80). IUGG participates with other Unions of ICSU in interdisciplinary ICSU bodies such as the Federation of Astronomical

and Geophysical Data Analysis Services (FAGS), the Panel on World Data Centres (WDC), the Scientific Committee on the Lithosphere (SCL), the Scientific Committee for the International Geosphere-Biosphere Programme (IGBP), the Committee on Science and Technology in Developing Countries (COSTED), the Scientific Committee on Antarctic Research (SCAR), the Scientific Committee on the Problems of the Environment (SCOPE), the Special Committee on Oceanic Research (SCOR), the Science Committee on Solar-Terrestrial Physics (SCOSTEP), the Committee on Space Research (COSPAR), the Committee on Water Research (SCOWAR), and the World Climate Research Programme (WCRP), and co-operates with international agencies such as the World Meteorological Organization and UNESCO to achieve common goals.

The official languages of the Union are English and French; the website address is www.IUGG.org.

MEMBERSHIP

By their very nature, geodetic and geophysical studies require a high degree of international co-operation as well as effective central co-ordination. During 2001, the Union had 66 Member Adhering Bodies. However, several are in serious arrears of payment and are in observer status. Four Adhering Bodies have Associate Member status. These Adhering Bodies do not pay dues but may not participate in Council meetings, vote, or hold office. However, they do have active National Committees and we enjoy good communication with them. 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. 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 programmes 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 Union is comprised of 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 general assemblies and sponsor particular symposia, often in partnership with one another. Each is managed by an Executive Committee whose members are elected during their General 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.

The seven International Associations are listed below, and short reports on their 2001 activities are included here. Additional information about each Association is given on their web sites, which can be accessed from the IUGG web site [www.IUGG.org].

International Association of Geodesy (IAG/AIG)

International Association of Geomagnetism and Aeronomy (IAGA/AIGA)

International Association of Hydrological Sciences (IAHS/AIHS)

International Association of Meteorology and Atmospheric Sciences (IAMAS/AIMSA)

International Association for the Physical Sciences of the Ocean (IAPSO/AISPO)

International Association of Seismology and Physics of the Earth's Interior (IASPEI/AISPIT)

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

Inter-Association Commissions, Committees, and Working Groups

Owing to the interactive nature of the subject fields managed by the Union's Associations, a number

of Inter-Association Commissions have been established that promote the study of particular interdisciplinary problems such as geophysical hazards. Two new inter-Association bodies were formed in 2001: the IAGA/IASPEI/IAVCEI Working Group on Electromagnetic Studies of Earthquakes and Volcanoes, and the IAHS/IAPSO Joint Commission on Groundwater Seawater Interactions. The full listing of Inter-Association bodies and their leadership may be found on the IUGG web page.

Officers

The Bureau of the Union is composed of the following officers, elected by the Council in July, 1999, until 2003. T. Beer was appointed in 2001 to fill the position vacated by V. Shannon (South Africa).

President

Vice-President

Secretary General

Treasurer

Members M. Kono

U. Shamir

J.A. Joselyn

A.W. Hansen

J. Chen

H. Gupta

T. Beer (Japan)

(Israel)

(U.S.A.)

(Denmark)

(China)

(India)

(Australia)

The Executive Committee consists of the Bureau, the past President of the Union (P. Wyllie, U.S.A.) and the Presidents of the seven Associations, namely:

IAG

IASPEI

IAVCEI

IAGA

IAMAS

IAHS

IAPSO F. Sanso'

B. Kennett

S. Sparks

D. Kerridge

H.C. Davies

K. Takeuchi

P. Rizzoli (Italy)

(Australia)

(U.K.)

(U.K.)

(Switzerland)

(Japan)

(U.S.A.)

The Finance Committee, also elected by the Council in 1999, is composed of:

President
Secretary
Members A.F. Spilhaus
P. Pinet
V.K. Gaur
E. Groten
M.J. Hamlin (U.S.A.)
(France)
(India)
(Germany)
(U.K.)

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 exchange expertise, research data, and results. The XXIII General Assembly will be held in Sapporo, Japan, June 30 to July 11, 2003. Along with a full scientific programme arranged by the IUGG Associations, in Sapporo there will be a series of six, half-day symposia with the theme: "State of the Planet: Frontiers and Challenges." Invited speakers will explore topics ranging from chaos to predictability, and geophysical measurements to geophysical risk. An important feature of IUGG General Assemblies is the opportunity for inter-Association symposia. 60 such symposia and workshops have been arranged in addition to the regular topical Association programmes.

The IUGG Council meets during General Assemblies and acts to elect officers, adopt the quadrennial budget, agree on policies governing the Union, and to formulate research programs requiring international participation and coordination. The scientific results of programs in progress are discussed at the numerous symposia, Commission and Working Group meetings and other gatherings of scientists that are held during these assemblies.

Other Scientific Meetings

Each Association organizes its own scientific assembly in between general assemblies of the Union. At these important venues, topical scientific progress is reported and Association business is conducted. Associations sometimes meet jointly with the purpose of promoting interdisciplinary science. During 2001, approximately 3220 scientists attended the Association Assemblies held in Hungary, Vietnam, Austria, The Netherlands and Argentina. (IAVCEI held its Assembly in 2000, in Indonesia.) The numerous topical and regional symposia and workshops organized on other occasions by the Associations, together with the general assemblies, provide opportunity for geodesists and geophysicists from most of the countries of the world 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, in which the organizational structure and officers of each body within the Union are listed. The Yearbook is printed and mailed to all Members Countries 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 2001

Administration

The IUGG Bureau met July 30 2001, in Sapporo, Japan. The Executive Committee also met in Sapporo on August 1-2, 2001. Discussions included Membership issues, preparations for the 2003

General Assembly, and most especially, the process whereby IUGG has re-examined its purpose, structure, and goals in order to meet the needs of science in the new century. The results from a Questionnaire distributed to all IUGG Adhering Bodies and to the Associations were analyzed and discussed. Summaries of the minutes of these meetings are posted on the IUGG Web site.

IUGG Grants

In 2001, IUGG awarded \$15,000 to support 7 scientific meetings proposed by the Associations and inter-Associations Commissions. This money was used primarily to assist attendance of young, underrepresented, and scientists from economically disadvantaged countries.

Also, in 2001, IUGG awarded \$29,000 to support six interdisciplinary initiatives proposed by the Associations and inter-Associations Commissions. These initiative, besides being interdisciplinary, must also benefit developing countries.

ICSU

IUGG participated in the Unions Meeting in Paris on Feb 19-20, 2001, and provided input for the ISTC document for the World Summit on Sustainable Development. In response to the call for Position Statements, IUGG is providing a statement on Water Systems and Quality (with substantial assistance from SCOWAR), and will contribute to the Position Statement on Natural Disaster Reduction.

ICSU Grants

In 2001, IUGG received one Category II award of \$10,000 to the International Association for the Physical Sciences of the Oceans (IAPSO), to support travel for scientists from developing countries to attend the Joint IAPSO/IABO (International Association for Biological Oceanography) Assembly in Mar del Plata, Argentina, in October 2001. This was the first joint assembly of its type to be held in Latin America.

Activities of the Associations

The following reports, prepared by the Secretaries General of the Associations have been edited for the sake of brevity. These reports illustrate the impressive range of activities within each Association as well as their dedication to supporting science within developing countries. Each Association has an internet site where much more information can be found.

International Association of Geodesy (IAG)

www.gfy.ku.dk/~iag

(1) Central Bureau activities

The Central Bureau maintains the IAG home-page, and a database of addresses, and publishes a bi-monthly newsletter printed in the Journal of Geodesy. This Journal is distributed to all national representatives and the members of the IAG Executive Committee. The newsletter includes a listing of all geodetic publications (provided by the IAG Bibliographic Service) and updates to the Geodesists Handbook, book reviews and meeting reports. An interim bi-annual report "Travaux de IAG, 1999-2001" was published and distributed free of charge.

(2) The Executive Committee (EC)

The EC had two meetings. The main items of business in Nice, France, 28-29 April, were the preparation of the IAG Scientific Assembly 2001 and the re-structuring of IAG. The EC also met during the scientific assembly in Budapest where the final version of the new statutes and by-laws were discussed. A planning group consisting of the section presidents and chaired by the First Vice-President was given the task of preparing the implementation of the new structure.

A new Special Study Group on "Fractal Geometry in Geodesy" was established.

(3) Meeting of the Council

The Council met at the last day of the Scientific Assembly and adopted new statutes and by-laws. The new structure will make IAG more effective as an organisation. The present 3-level organisational structure (EC, sections, commissions/special commissions/special study groups/services) is reduced to 2 levels (EC and Commissions with working groups and Services).

(4) Symposia and meetings convened or co-sponsored by IAG

3rd Int. Workshop on Mobile Mapping Technology, Cairo Egypt, Jan. 3-5

Int. Winter Seminar on Geodynamics, Sopron, Hungary, Feb., 19-21

Int. Symposium on Vertical Reference Systems. Cartagena, Columbia, Feb. 20-23

1 Int. Symposium on Robust Statistics and Fuzzy Techniques in Geodesy and GIS, Zurich, Switzerland, March 12-16

IAG/IAPSO Joint Working Group on Geodetic Effects of Nontidal Oceanic Processes, March 29

6. Int. Seminar on GPS in Central Europe, Pecs, Hungary, 2-4 May

11th Symposium of the EUREF Subcommittee, Dubrownik, May 16-19

Int. Symposium On Kinematic Systems in Geodesy, Geomatics and Navigation, Banff, Canada June 5-8

Int. Symposium on Recent Crustal Movements, Helsinki. Finland, Aug. 27-31, 2001

IAG Scientific Assembly, Budapest, Hungary, Sept. 2-8

Optical 3D measurement techniques, Vienna, Austria, Oct. 1-3

IAG/IAPSO Symposium, "Gravity, geodesy and the ocean circulation as inferred from altimetry", Mar de la Plata, Argentina, 21-28 Oct

(5) Services

A new structure for the International earth rotation Service, (IERS) started functioning at the beginning of the year. Its central bureau moved from Paris to Frankfurt am Main (Germany).

The charter of a new joint International Gravity Field Services (Bureau Gravimetrique, International Geoid Service, International Center for Earth Tides, with subcenters at NIMA (USA) and BKG (Germany)) was adopted.

(6) Co-ordination with organisations within surveying, cartography and remote sensing

IAG organised a meeting of the so-called Spatial Societies (FIG, ISPRS, ICA, IHO etc.) in Budapest.

(7) Developing Countries

The possibilities for establishing a geodetic reference system for Africa is being investigated on the initiative of IAG Commission X. Using the so-called IAG Fund, IAG sponsored the participation of a number of scientists from developing countries at IAG sponsored meetings, especially at the Scientific Assembly in Budapest.

C.C.Tscherning

IAG Secretary-General

International Association of Geomagnetism and Aeronomy (IAGA)

www.ngdc.noaa.gov/IAGA

The IAGA-IASPEI Joint Scientific Assembly

The main focus for IAGA in 2001 was the IAGA-IASPEI Joint Scientific Assembly held 20th-31st August 2001, and hosted by the Hanoi Institute of Geophysics, National Centre for Natural Science and Technology, Vietnam. This was the first time that IAGA had held an Assembly in South Asia, and the Association is grateful for the tremendous efforts made by the Local Organising Committee

to ensure the success of the meeting. IAGA sponsored 70 symposia, 10 of which were convened jointly with IASPEI, SEDI or ILP. The scientific topics discussed ranged from geomagnetic field reversals to the interaction of the solar wind with the magnetic fields of the Earth and other planets. Prof David Gubbins gave a Joint Association Lecture on thermal core-mantle interactions, and Prof Eigil Friis-Christensen discussed solar variability and climate change in an IAGA Association Lecture. IAGA provided funding at a level greater than at any previous Assembly to support the attendance of young scientists and scientists from the developing world.

The IAGA President, David Kerridge, convened Executive Committee meetings on 19th and 25th August. The record of the previous Executive Committee meeting held in Edinburgh in September 1999 was approved. The President reported on meetings of the IUGG Executive Committee and the Scientific Programme Committee for the 2003 IUGG General Assembly in Sapporo. He noted the agreement reached, at the IUGG Executive Committee meeting, to establish a Working Group on Electric and Magnetic Studies of Earthquakes and Volcanoes, as previously approved by IAGA, and the plan to organise the Sapporo Assembly under the title "State of the Planet: Frontiers and Challenges". The Secretary-General, Dr Herb Kroehl, presented financial reports for 1999 and 2000 and proposed budgets for 2001 and 2002. Celebration of the 50th anniversary of the International Geophysical Year in 2007 was discussed. It was agreed that any events organized should not be purely commemorative; new initiatives should be taken. The idea of an "Electronic Geophysical Year" was suggested, meaning, broadly, demonstration of the ability to and value of attacking scientific problems through rapid access to diverse globally-distributed data sets and analysis tools, made possible by current-day technology. IAGA sponsorship of regional meetings and workshops was discussed and the importance of encouraging and supporting such activities was re-affirmed. Applications for funding to support the following meetings, to be held in 2002, were considered and awards were agreed.

10th IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing, Hermanus Magnetic Observatory, South Africa

16th Electromagnetic Induction Workshop, Santa Fe, USA

Mesospheric Clouds, Perth, Scotland

34th COSPAR Scientific Assembly, Houston, USA

Eighteen countries were represented by accredited National Delegates at the Assembly, and meetings of the Conference of Delegates were held on 20th and 30th August. The Conference of Delegates approved the minutes of the meetings held at the XXIInd IUGG General Assembly in Birmingham in 1999, the 2001 report of the Finance Committee, and the actions of the Executive Committee since election in 1999, as reported by the President. Reports on planning for the IUGG General Assembly in Sapporo in 2003 and from the Nominating Committee for the post of Secretary-General were given. Two important decisions were taken by the National Delegates: firstly, Prof Bengt Hultqvist (Sweden) was elected as IAGA Secretary-General, taking over the position from Dr Kroehl (USA) who had served IAGA in this capacity on an interim basis since 1999; secondly, a proposal brought forward by the French National Committee for Geodesy and Geophysics to host an IAGA Scientific Assembly in Toulouse in 2005 was accepted, following a presentation on the facilities available in Toulouse. The International Commission of the Middle Atmosphere, a component body of IAMAS, will participate in the Toulouse meeting.

The IAGA Divisions and Inter-Divisional Commissions brought forward, from their Business Meetings, proposals for IAGA and inter-Association symposia for the IUGG General Assembly in Sapporo in 2003.

Other Activities

Although in 2001 IAGA funding for meetings was applied principally to the Joint Assembly in

Hanoi, the following conferences promoting the Association's scientific activities were also sponsored.

Chapman Conference on Storm-Substorm Relationship, 12th-16th March 2001, Lonavala, Mumbai, India

VIth Latin American Conference on Space Physics (COLAGE), 1st-5th October 2001, Puerto de Tomé, Chile

Activities undertaken under the auspices of the IAGA Divisions included agreement on a geomagnetic data exchange format, an initiative to convert historical analogue magnetograms to digital form, and engagement with the International Organisation for Standardisation (ISO) on requirements for a standard magnetospheric model. A project to produce a unified and consistent magnetic anomaly map of Antarctica, sponsored by IAGA and other organisations, was completed. An application for an ICSU grant for 2002 for the INTERMAGNET programme, submitted with the support of IAGA was successful. This will enable INTERMAGNET to continue to promote the modernisation of instrumentation, and practice in data collection and dissemination in the global magnetic observatory network.

D.J. Kerridge
IAGA President

International Association of Hydrological Sciences (IAHS)
www.cig.ensmp.fr/~iahs

For IAHS the main event of the year 2001 was the Sixth Scientific Assembly, held at Maastricht (The Netherlands) from 18 to 27 July 2001. The overall theme was: "A New Hydrology for a Thirsty Planet and about 400 hundred participants attended. At Maastricht, the President-elect Kuni Takeuchi became President in place of John Rodda who became Past-President. Four Symposia and seven workshops were organized and reports can be found on the IAHS Web site, Apart from the scientific events, a lot of discussions occurred in the General Assembly, Bureau and Commissions Meetings. It was agreed that the activities of the IAHS should be more linked to the major international scientific programmes, where IAHS would appear as an advisor for all hydrological issues. The "Maastricht Manifesto", which underlines the important role of Hydrological Science in solving the world's water problems, was adopted. IAHS, together with UNESCO and WMO, awarded Igor Shiklomanov (Russia) the International Hydrological Prize and presented the Tison Award for young scientists to Linda See (UK).

The General Assembly approved the creation of an IAHS/IAPSO Joint Commission on Groundwater-Seawater Interactions and the adhesion of IAHS to the IWA/IAHR/IAHS Joint Committee on Hydroinformatics.

Two new working groups were launched:

Hydrology 2020 Working Group. This group is composed of twelve young hydrologists from all over the World nominated by IAHS Commissions, UNESCO and WMO, in order to discuss issues relevant to the future development of hydrology in the forthcoming twenty years. This group met for the first time on January 23 for a two and a half day workshop in Edinburgh, Scotland. It will contribute to the UNESCO/IAHS Kovacs Colloquium in June in Paris and will deliver a provisional report next year in Sapporo.

Prediction of Ungauged Basins (PUBs) Working Group. PUBs is an international research initiative to promote the development of science and technology to provide hydrological data where the ground based observations are needed but missing. PUBs consists of theoretical hydrology, remote sensing, in situ observations and modelling of the quantity and quality of hydrological phenomena,

together with capacity building for the people in need so that they can really use the advanced science and technology and predict the hydrological phenomena for the basins where they are concerned. PUBs connects existing programmes inside and outside IAHS and provides a forum, network and the framework for integration.

In 2001, about 40 scientific events were organized or sponsored by IAHS, including the following:

SWICA-M3-First International Conference on Saltwater Intrusion and Coastal Aquifers:

Monitoring, Modelling and Management (Essaouira, Morocco, 23-25 April 2001)

Challenges of Water Resources Management in the Developing Countries in the 21st Century (Visakhapatnam, India, 6-10 May 2001)

The Second Asian Conference on Water and Wastewater Management (Tehran, Iran, 8-9 May 2001)

OH2: Symposium on the Origins and History of Hydrology from the Origins to the Present (Dijon, France, 9-11 May 2001)

Frontiers in Urban Water Management : Deadlock or Hope ? (Marseille, France, 18-20 June 2001)

Groundwater Quality 2001: Third International Conference (Sheffield, UK, 18-21 June 2001)

Inter-Association Symposia IAMAS/IAHS Assessment of Liquid Precipitation from Convective Systems (Innsbruck, Austria, 10-18 July 2001) in the framework of the IAMAS 8th Scientific Assembly, International Conference on Hydrological Challenges in Transboundary Water Resources Management (Koblenz, Germany, 25-27 September 2001)

International Workshop on Applications of Remote Sensing in Hydrology (Montpellier France, 2-5 October 2001)

Fifth International Symposium on Hydrological Applications of Weather Radar Hydrology (Kyoto, Japan 19-22 November 2001)

International Workshop Non-Structural Measures for Water Management Problems (London, Canada, 18-20 October 2001)

International Workshop on Environmental Risk Assessment of Pesticides and Integrated Pesticide Management in Developing Countries (Kathmandu, Nepal 6-9 November 2001)

In 2001 IAHS Press published six issues of the Hydrological Science Journal, including a special issue "Can Science and Society Avert the World Water Crisis in the 21st Century". Four issues of the IAHS Newsletter have also been published and widely disseminated free of charge, both as hardcopies and on the Web.

IAHS Press also published six "Red Books"

Hydro-ecology: Linking Hydrology and Aquatic Ecology, Edited by M. C. Acreman, IAHS

Publication no. 266

Remote Sensing and Hydrology 2000, Edited by Manfred Owe, Kaye Brubaker, Jerry Ritchie & Albert Rango, IAHS Publication no. 267

Regional Management of Water Resources , Edited by A. H. Schumann, M. C. Acreman, R. Davis, M. A. Marino, D. Rosbjerg & Xia Jun, IAHS Publication no. 268

Impact of Human Activity on Groundwater Dynamics, edited by Hans Gehrels, Norman E. Peters, Eduard Hoehn, Karsten Jensen, Chris Leibundgut, Gasper Griffioen, Bruce Webb & Willem Jan Zaadnoordijk , IAHS Publication no. 269

Soil-Vegetation-Atmosphere Transfer Schemes and Large-Scale Hydrological Models, Edited by A. J. Dolman, A. J. Hall, M. L. Kavvas, T. Oki & J. W. Pomeroy , IAHS Publication no. 270

Integrated Water Resources Management , edited by Miguel A. Mariño & Slobodan P. Simonovic, IAHS Publication no. 272

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.

IAHS and IUGG were represented at the Kick-Off Meeting (Kyoto, June 2001) of 3rd World Water Forum to be held in Kyoto, Shiga and Osaka Japan in March 2003 where they should have a significant presence. Finally, IAHS actively contributed to the Preparation of the Sapporo XXIIIrd IUGG General Assembly to be held next year, and participated to the Meetings of the Scientific Committee (Sapporo, 30 July-2 August 2001, San Francisco 9-10 December 2001).

P. Hubert
IAHS Secretary-General

International Association of Meteorology and Atmospheric Sciences (IAMAS)
www.iamas.org/

The IAMAS Scientific Assembly was held in Innsbruck, Austria July 10-18, 2001. There were 840 registrants, and \$45,000 (USD, \$5000 contributed by WMO) was distributed in travel assistance (56 grants) to developing countries. Scientists under the age of 30 were given free registrations. The ten, diverse commissions of IAMAS worked together well. The Intergovernmental Panel for Climate Change (IPCC) was represented in Innsbruck. Their report included the work of 100-150 atmospheric (mostly IAMAS) scientists. An Assembly innovation was a series of lunch time presentations addressing societal impacts especially for young scientists. These presentations hopefully will be continued at the IUGG General Assembly in Sapporo in 2003.

IAMAS is highly connected with their scientific community. Robert Duce, the immediate past president of IAMAS has become the President of the ICSU Scientific Committee on Oceanic Research (SCOR). IAMAS Vice-President M Geller is also Vice-President of the Scientific Committee on Solar Terrestrial Physics (SCOSTEP). IAMAS Secretary-General, R List, maintains his relationship with the World Meteorological Organization (WMO), especially co-ordinating activities with the World Climate Research Programme (WCRP - most WCRP participants are members of IAMAS), and the International Geosphere-Biosphere Programme (IGBP - to be restructured next year).

H. Davies and R. List
IAMAS President and Secretary-General

International Association for the Physical Sciences of the Ocean (IAPSO)
www.olympus.net/IAPSO/

The principal IAPSO activity in 2001 was the convening of the IAPSO/IABO Joint Assembly in Mar del Plata, Argentina in October. This Joint Assembly had 430 paid registrants including a significant number of students and young scientists. The abstract books are available electronically elsewhere on the IAPSO Web page. In addition to the technical sessions, there was a session on IAPSO history, and the first presentation of the Prince Albert I Medal. There were also several special luncheon meetings including a luncheon for student attendees. The IAPSO Executive Committee had two business meetings plus an initial meeting on the future of IAPSO. There was a tentative decision to convene a follow-up Joint Assembly with IABO in 2005 somewhere in Europe. There were discussions of IAPSO Commissions, with a decision to discontinue the Commission on Sea Ice, and several proposals relating to other possible commissions. ICSU's Scientific Committee for Oceanic Research (SCOR) held an Executive Committee meeting in Mar del Plata immediately following the Joint Assembly.

The formal organization meeting for the new IAPSO/IAHS Joint Commission on Groundwater-Seawater Interactions was held at the IAHS Assembly during the summer of 2001. The commission developed frames of reference and a proposal for future actions over the next several years. Action also progressed on the new Inter-Association IUGG Commission on GeoRisk. Activities of the

Permanent Service on Mean Sea Level (sponsored by IAPSO), and IAPSO's Standard Sea Water Service (operated by Ocean Scientific International) continued in 2001.

The IAPSO President and Secretary General attended the IUGG Executive Committee meeting in Sapporo, Japan, and the meetings of the IUGG Scientific Program Committee in Sapporo and in San Francisco, USA. An IAPSO scientific program was developed for the IUGG General Assembly to be held in Sapporo in 2003. Details of the program are elsewhere on the IAPSO Web page. Maintenance and updating of the IAPSO Web page continued. Additional links were added to university, laboratory and institute Web pages. The IAPSO Secretariat continues to respond to various inquiries for information.

F. Camfield
IAPSO Secretary-General

International Association of Seismology and Physics of the Earth's Interior (IASPEI)
www.iaspei.org

Scientific Meetings

IASPEI-IAGA Joint Scientific Assembly

A Joint Scientific Assembly was held by IASPEI-IAGA at Hanoi, Vietnam, 18-30 August 2001, that was organized by the Vietnam National Center for Natural Science and Technology and sponsored by relevant Vietnamese government agencies, universities, scientific institutions and industrial organizations. The goal of the assembly was to promote discussion of scientific challenges to IASPEI and IAGA in the new millennium by presentation and dissemination of scientific papers, distribution of appropriate and developed methodologies, technologies and knowledge and by exchange of information among scientists from all over the world.

The scientific program featured a comprehensive and multidisciplinary program of oral and poster presentations organized by IASPEI, IAGA, Studies of the Earth's Deep Interior (SEDI) and the International Lithosphere Program (ILP) scientists. Special inter-association and IASPEI symposia focused on the frontiers of international research, such as the origin and evolution of Earth's natural hazards, structure and dynamics of the lithosphere, and global tectonic zones. Invited scientists delivered key. Some workshops, courses and field trips were organized before and after the assembly.

More than 1000 scientists from 64 countries registered for the assembly. The scientific program consisted of 58 scheduled symposia, 7 of which were joint with IAGA. Over 1700 abstracts were submitted, more than 500 of those being sent to IASPEI or IASPEI-led symposia. The Meeting Reports are posted on the IASPEI web site.

Education/Training Activities

IASPEI Workshop

A Workshop on Regional Seismological Cooperation, preceding the IASPEI/IAGA Joint Scientific Assembly, was conducted 13-18 August 2001 at Hanoi, Vietnam. The main focus of the workshop was to provide training in digital data processing to the persons involved in operation of seismological networks and analysis of data in their respective countries. To achieve this goal, the participants provided data for five earthquakes recorded on their networks during January 2001. Initially, the participants worked on a common data set as part of training in SEISAN software. Later on they worked with their own data sets for the 5 selected events using an individual country's network and later locating one event with the data from all networks.

A workshop report (see IASPEI web site) focussed on the enhancement of the whole data set that resulted from regional cooperation and contains a short description of the status of seismology in each country or network. Participants learned how to process local and global data using a database processing system; to experience the importance of using regional data; to present results at the scientific assembly; and to experience enhanced personal cooperation between neighboring networks. Most participants, with supplemental funding from IASPEI, also attended scientific sessions of the IASPEI-IAGA Joint Scientific Assembly the following week

International Handbook of Earthquake and Seismology

Modern scientific investigations of earthquakes began in the 1880's, and the International Association of Seismology (IAS) was organized in 1901 to promote collaboration of scientists and engineers in studying earthquakes. With rapid advances in the 20th century, many branches of seismology developed and there is not an authoritative reference that summarizes our present knowledge about earthquake and engineering seismology. This Handbook is intended to help to bridge the gap between seismologists and earthquake engineers and will be truly international in scope. The aims for the Handbook are: to summarize the well established facts; to review relevant theories; to survey useful methods and techniques; and to document and archive basic seismic data. It will consist of about 84 chapters grouped into 10 parts, with 4 CD-ROMs containing materials to augment the printed chapters, and including a compilation of seismic data from around the world and a global earthquake database with software for displaying seismicity maps.

It is also our desire to prepare an affordable publication. Academic Press will publish the Handbook in 2 volumes (each of about 1000 pages) with 2 CDs. There will be a total of 400 free copies with the following distributions: (1) 100 copies for editors, honorary editors (i.e., Frank Press and George Housner), associate editors, and coordinators; i.e., people that helped in the project; (2) 200 copies for authors; and (3) 100 copies for authors/editors of all national and "large" institutional reports. Publication of this Handbook is under the auspices of the IASPEI Commission on Education and Outreach.

New Manual of Seismological Observatory Practice

The Working Group on the Manual of Seismological Observatory Practice (MSOP) was established in 1994. A concept for the New Manual (NMSOP) was proposed in 1995 and the work started in 1996. A web page was established in the same year under in order to make first drafts already available to a wide community and to invited feedback and comments. Also, most part of the 1979 edition of the MSOP was put on this web site for reference. Officially, the WG finished its work by 2001, although both the final and reviewed printed version and the web site of the NMSOP will be available only in 2002.

By the IASPEI meeting in Hanoi, 2001, 10 out of 13 planned chapters have been completed and reviewed (by 2 to 4 external reviewers). This finished material is readily formatted for printing, in total about 550 pages. 3 more chapters are still in preparation, two of them half ready. The introductory chapter can only be written when all other chapters are completed. The same applies to the index, the list of acronyms, list of content, list of authors, etc. In total, the manual with its annexes will comprise about 700 to 800 pages.

The web site contains at present the first drafts of only partially or not yet reviewed chapters and sections of the manual, about half of the expected total. With the reviews of most chapters now being available, it is hoped that the process of putting the final manual version now on the web could be accelerated and finished by summer 2002.

Activities Involving Developing Countries

ICESA

The International Commission for Earth Sciences in Africa (ICESA) was formed as a Coordinating Committee of the International Lithosphere Program (ILP). It has the overall objective of promoting and coordinating geo-scientific work in Africa by facilitating the exchange of scientific personnel, information and collaboration among African countries and similar organizations working in the field of earth sciences. ICESA is also devoted to the initiation of training programs for African scientists and technicians as well as to the organization of meetings/seminars for the exchange of ideas among earth scientists.

The council of ICESA has been concentrating the commission efforts to the publication of a book on African geology and to stimulate publication of papers in international journals. The central objective of ICESA is the preparation of the book, which will integrate the knowledge accumulated in the last two decades. In order to realise its objective, ICESA has in the year 2001 involved itself with the organisation of several business meetings, paper presentations, and crosscutting discussions by potential contributors to a series of thematic Special Issues of the Journal of African Earth Sciences that will comprise the book.

In 2001 ICESA began the task of setting up the list of authors within the working groups and of coordinating the write up and publication of thematic papers in special issues of the Journal of African Earth Sciences.

Committee for Developing Countries Newsletter

The CDC Newsletter was initiated at a meeting of IASPEI Committee for Developing Countries (CDC) held in Prague during the 23rd ESC General Assembly in September 1992. The first issue came out in June 1993, and it has been issued twice a year since that time. The Newsletter includes IASPEI related information of particular relevance to the scientists in developing countries and provides information about symposia, meetings, training courses, network development, reports of important geological events, software and instrumental development, etc. The Newsletter is also sent to some scientists in developed countries who are especially interested in the development of seismology in third world countries. One of the main achievements is dissemination of information to scientists in developing countries regularly. It provides a forum for various scientific activities of IASPEI and some other scientific bodies. Most importantly, participation from developing countries at IASPEI events like Regional and General Assemblies is enhanced because the meetings are announced well in advance along with advice about the sources of financial support.

Publications Transfer

As part of IASPEI's outreach effort, the Publications Transfer Program of the Committee for Developing Countries (CDC) makes available basic texts and publications on seismology and related earth sciences to institutions in need. The IASPEI Secretariat currently serves as a clearinghouse for all publications requests and offers. In the year 2001 the project has provided the following publications to the Volcanological and Seismological Observatory, Ingeominas, Manizales, Colombia, South America: (1) Journal of Geophysical Research (solid earth only) vol. 74, no.2 (1969) to vol. 94, no.12 (1989); and (2) Geophysical Journal of the RAS/Geophysical Journal/Geophysical Journal International vol. 48, no.1 (1977) to vol. 99, no.3 (1989).

Publications

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 on the World Wide Web, 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: 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.

Committee on Developing Countries Newsletter - The IASPEI Committee for Developing Countries (CDC) circulates biannually from Hyderabad a Newsletter intended to provide a forum for exchanging news and views of geophysical importance among geoscientists, particularly from developing countries.

Haslinger, F., Husen, S.(Editors). Special Issue. Tomographic Imaging of 3-D Velocity Structure and Accurate Earthquake Location, Proceedings of the PAPHOS'99 Workshop, Cyprus, Physics of the Earth and Planetary Interiors, v. 123, 2001.

Gupta, H., Chadha, R.K., Srinagash, D. (Editors). Special Issue. The Nature of Seismic Sources and the Prediction of Earthquakes, Proceedings of the IASPEI Symposium held during the 22nd IUGG General Assembly in Birmingham, UK, Tectonophysics, v. 338, 2001.

Kukkonen, I.T., Cermak, V., Kennett, B.L.N. (Editors). Special Issue. Thermal Structure of the Earth's Structure and Geodynamics, Proceedings of the IASPEI Symposium held during the 22nd IUGG General Assembly in Birmingham, UK, Physics of the Earth and Planetary Interiors, v. 126, 2001.

Special Projects

IASPEI Seismological Software Library (SSL) - Each software volume of the IASPEI Software Library includes the executable code, examples on floppy diskettes, and printed documentation.

IASPEI PC Shareware Library - Under the auspices of the Working Group on Personal Computers, a PC shareware library is being published on diskette, including files with short-form manuals of the programs. The Library provides for fast and wide distribution of geophysical programs and utilities, reduced or demonstration versions of geophysical software, and beta-versions of new programs to be included in future volumes of the SSL.

R.E. Engdahl
IASPEI Secretary-General

International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)
www.iavcei.org

A highlight of 2001 was the highly successful conference "Cities on Volcanoes 2" in Auckland, New Zealand. Approximately 250 volcanologists, planners, and industry and government officials attended the meeting from February 12-16, 2001. The five-day meeting brought together scientists and multidisciplinary experts from around the globe to discuss aspects of volcanic hazards and their effects in urban areas. The meeting consisted of 151 abstracts presented in twelve theme sessions. A travel grant from IUGG helped pay expenses for 10 young scientists or scientists from developing countries. The IAVCEI Executive Committee met in Auckland and conducted two meetings covering many aspects of IAVCEI business.

The next General Assembly is tentatively scheduled for November-December 2004 in Chile. Over the next few years, IAVCEI will focus its efforts on several smaller meetings, including the IAVCEI 1902 Centennial Workshop (May 2002, Martinique). We expect a strong showing for volcanology at the July 2003 IUGG meeting in Sapporo, Japan, as well as excellent field trips. IAVCEI representatives met with the Scientific Program Committee in July and December 2001 to help produce the IUGG 2003 Volcanology Program.

IAVCEI sold several educational products in 2001. Two videos on 1) understanding volcanic hazards and 2) reducing volcanic risk were produced professionally under contract with IAVCEI. Over 70 videos were sold in 2001. Also, a volcano calendar 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 for the calendars.

IAVCEI ended the year strong and healthy, with 588 paid individual members, the second highest total we have had. The IAVCEI web page has recently been redesigned and is frequently updated.. The official IAVCEI listserv is now the volcano listserv administered by Arizona State University. It has 2200 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 2001. 2001 was an active and productive year for IAVCEI.

S. McNutt
IAVCEI Secretary-General

CONCLUSION AND FUTURE PLANS

The IUGG Bureau will meet August 31 - September 1, 2002, in Cape Town, South Africa. The primary task will be preparing for the 2003 IUGG Council meeting, including a draft budget for 2004-2007.

Date and place of the 23rd IUGG General Assembly
June 30 - July 11, 2003, Sapporo (Japan)