

*Annual Report 2008*

**INTERNATIONAL UNION  
OF GEOLOGICAL SCIENCES**



### ***About the Front Cover***

#### **“Dead Pan at the end of the Tsauchab River, Namib Desert, Namibia”**

The Tsauchab River is an ephemeral drainage that rises out of the Naukluft Mountains in the east and cuts westwards across the Namib Desert to end in the terminal pans within the main Namib Sand Sea. In recent geological history, the northward migrating dunes of the main Namib Sand Sea have blocked the middle reaches of the river forming impressive pans. The pans are composed largely of calcareous silts. Gravels characteristic of the catchment are exposed amongst the dunes to the west of the pans, indicating earlier extensions westwards to the Atlantic Ocean. In places, the silts of these former extensions harbour fossilised shells of freshwater gastropods. Run-off down the Tsauchab River is dependent on summer rainfall in the catchment area – an extremely variable factor in this marginal zone east of the Namib Desert. Remnants of former pans, such as Dead Pan can be found to the south, as well as to the west of the present active pan. Dead trees in these former pans gave a radiocarbon date of about 900 years before present, and are proof that water reached these parts during that time (Photo courtesy of Gabi Schneider, Geological Survey of Namibia).

### ***About the IUGS Logo***

The IUGS logo represents a person accepting the burden of responsibility for the Earth.

# INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

## Annual Report 2008

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Please note that a list of acronyms used in the report is given in Appendix 8 at the end of the document.

# Foreword

The 2008 Annual Report of the International Union of Geological Sciences (IUGS) covers the period between the 58<sup>th</sup> and 60<sup>th</sup> Executive Committee meetings; held in Marrakech, Morocco (March 2008), at the 33<sup>rd</sup> International Geological Congress in Oslo, Norway (August, 2008) and in Sydney, Australia (January, 2009). Over this period, a new Executive Committee was elected. Meanwhile Union continued to grow in membership, in number of Affiliated Organizations, in public outreach initiatives, in relation to other International Council of Science (ICSU) geo-unions, and in its ability to generate financial support for international science projects. The work of the new Executive Committee will build on the progress of past executive committees, including addressing the Strategic Plan, the Statutes and Bylaws and relationships with the International Geological Congress (IGC) and International Year of Planet Earth ([www.yearofplanetearth.org](http://www.yearofplanetearth.org)).

The Union continued in its' efforts to unite the global geological community through: (a) Promoting development of the geoscience through the support of broad-based scientific studies relevant to the entire Earth-System; (b) Applying the results of these and other studies towards preserving Earth's natural environment, using all natural resources wisely, and improving the prosperity of nations and the quality of human life; (c) Strengthening public awareness of geology and promoting geoscience education; and d) Tripling the IUGS financial support to the IGCP. As the leading NGO of the world geological community, IUGS continued to unite geologists from different countries and branches of geology. Among the NGOs, the only way to achieve unanimity is through consultation, and without unity of actions, the major aims of IUGS would not be achieved. Transparency and democracy are important preconditions to achieve consensus when combined with the division of responsibilities.

# IUGS – role, structure, membership

## THE ROLE OF IUGS

**By Zhang Hongren**  
**President of IUGS 2004-2008**



The International Union of Geological Sciences (IUGS) is a member of the International Council for Science (ICSU; <http://www.icsu.org>) and has represented all geological scientists at the highest international level since its formation in 1961.

Both fundamental research and applied aspects of the Earth sciences of an international and interdisciplinary nature are supported by the Union, through a number of Commissions, Task Groups and Initiatives, as detailed elsewhere. IUGS collaborates with UNESCO (<http://www.unesco.org>) in supporting the International Geosciences Programme (IGCP), and also works with its Affiliated Organizations and with ICSU on topics of mutual interest. IUGS keeps a non-political, and thus a non-governmental stance and remains a non-for-profit making Organization.

## STRUCTURE OF IUGS

The Council, which is the highest body of IUGS, meets every four years at the International Geological Congress, where the representatives of the active members vote on the direction the Union shall take in the subsequent four years.

The Executive Committee comprises the ten elected Executive Officers of IUGS: (President, Secretary-General and Treasurer, the Past-President, two Vice-Presidents and four Councillors). The officers play an active role in running the Union, developing new science programmes, representing the best interests of the Union at congresses and elsewhere, preparing the electronic-bulletin and acting on both standing and ad-hoc committees. The day-to-day work is carried out by the Bureau, comprising the President, Secretary General and Treasurer; these officers meet regularly throughout the year to address the progress of the various matters of concern and interest to the Union.

At the Council meeting in Rio de Janeiro (2000), it was decided that in order to expedite major decisions, the Council could be asked to vote electronically on matters submitted by the Executive Committee. This process was successfully used several times during the term of the last two Executive Committees.

The present Executive Committee (Appendix 1) was elected at the 33<sup>rd</sup> IGC meeting in Oslo, Norway, in August 2008, but, as proposed in the Strategic Planning Committee, the two Councillors appointed in 2006 remain in office until 2010, thus providing the Executive Committee with much needed continuity.

The Executive Committee is currently involved with the International Year of Planet Earth, which forms a major part of IUGS plans to make both politicians and the community at large more cognisant of the significant role the Earth sciences can and should have in most large-scale planning decisions.

The Permanent Secretariat (Appendix 1) in Trondheim, which is generously funded by the Norwegian Government and is based at the Norwegian Geological Survey until 2009, is very important for the day-to-day operations of the IUGS, distributing to and collecting/collating documents from the Adhering Organizations and affiliated members. The Permanent Secretariat is also responsible for IUGS archives.



*The office of the IUGS Secretariat is located above the entrance to the Geological Survey of Norway (top left windows). Photo: NGU*

## **IUGS MISSION AND GOALS**

The mission of the IUGS is to unite the global geological community in promoting development of the earth sciences through the support of broad-based scientific studies relevant to the entire earth-system and applying the results of these and other studies to preserving Earth's natural environment, using all natural resources wisely, and improving the prosperity of nations and the quality of human life. The goals of the IUGS include the following:

- 1) Serve as an impartial international scientific union addressing global issues that involve the earth sciences.
- 2) Contribute to the advancement of geological research throughout the world, including both fundamental earth science aimed at understanding the global system (a plexus of geological, geophysical, geochemical and biological processes and their myriad interactions), and applied earth science that use the developing understanding of the earth system to address problems of particular relevance to the welfare of humans everywhere.
- 3) Represent the geological sciences in governmental and non-governmental forums to inform, provide advice and influence public policy and decision makers.
- 4) Encourage, in cooperation with other organizations, more interdisciplinary involvement within the broad spectrum of the geosciences in developing solutions to global problems.
- 5) Foster collaboration between more developed and less developed countries in earth science research, capacity building and applications.
- 6) Contribute to earth science education and the advancement of public understanding of the earth sciences and their significance in solving societal problems.
- 7) Encourage the career development of young earth scientists.
- 8) Increase the relevance of IUGS publications to issues of truly global earth science and make these publications more widely available.
- 9) Enhance the visibility of the earth sciences and demonstrate their profound influence in planning for rehabilitation and preservation of future planetary environment by seeking greater involvement in public affairs and by publicising the critical role that only earth sciences can play.

## **MEMBERSHIP OF IUGS**

The Adhering Organizations of IUGS cover the majority of geoscientists of the world. Affiliated Organizations (primarily international professional scientific societies) provide a valuable link to a wide cross-section of the world's earth science community. These organizations range in size from less than 100 to more than 125,000 members.

Appendix 2, gives a full list of the current Adhering Organizations, together with their membership category and status during 2008.

Inactive Adhering Organizations must pay the Membership Fees for the previous two years as well as the current outstanding year in order to regain in active status. The Fees for 2005-2008 are given in Appendix 3. Members are classified as inactive if they have not paid their dues for 3 or more years. Only those Adhering Organizations with an active status can vote on IUGS matters; inactive Adhering Organizations can participate as observers. Each category of membership has been assigned a number of units that acts as a multiplier of the basic unit of the Membership Fee (Appendix 3). The value of the unit follows the inflation rate based on the US Consumer Price Index CPI.

# International Year of Planet Earth

By Eduardo F. J. de Mulder  
Executive Director  
International Year of Planet Earth Corporation



The International Year of Planet Earth (subtitle: Earth Sciences for Society) is an IUGS/UNESCO initiative aiming to demonstrate the great potential of the Earth Sciences in the building of a safer, healthier and wealthier society. The focus of the International Year is both on science and outreach so that society would apply geoscience knowledge more effectively in the future.

On December 22<sup>nd</sup>, 2005, the United Nations General Assembly proclaimed 2008 as the International Year of Planet Earth, committing all 191 UN member countries to report on implementation of the goals and ambitions of the International Year. The International Year is a three year event (2007-2009) with the UN Year placed in the central year (2008).

For the first time ever, the Earth Sciences is gaining world-wide political attention and support. Through partnerships, the entire international geoscience community supports the International Year. All publicly available information can be downloaded from [www.yearofplanetearth.org](http://www.yearofplanetearth.org)

Chief accomplishments in 2008, based around the 10 IYPE themes were: OneGeology, the Young Earth Scientists initiative; the 33<sup>rd</sup> IGC in Oslo, Norway; and IYPE Nature Supplement; a number of IYPE Springer books; a Global Launch Event at UNESCO HQ in Paris, an African Launch Event in Arusha; a Latin American Launch Event in Brasilia; many national launch events; a Supplement of the journal Nature and 2 issues of an IYPE book; other promotional items (e.g., brochures, stamps and art exhibits).



# Reports from the Executive Committee

## THE INTERNATIONAL COUNCIL FOR SCIENCE (ICSU)



**By Alberto Riccardi  
President of IUGS  
2008-2012**

The International Council for Science (<http://www.icsu.org>), formerly known as the International Council of Scientific Unions (ICSU), was founded in

1931 to be the umbrella organization for the different unions in each scientific discipline. There are now almost 30 of these, including the eight Earth science related unions (informally called the GeoUnions): the International Union of Geological Sciences (IUGS), the International Union of Geodesy and Geophysics (IUGG), the International Geographical Union (IGU), the International Union of Soil Sciences (IUSS), the International Union for Quaternary Research (INQUA), the International Astronomical Union (IAU), International Union of Radio Science (URSI) and the International Society for Photogrammetry and Remote Sensing (ISPRS). Much of ICSU's funding comes from its national members that are commonly the National Academy of Sciences for a given country.

ICSU has found a very useful niche in today's post-Cold War period. Together with its' unions, it acts as the main representative and facilitator of international science. ICSU serves the scientific world and the general public in several areas:

- 1) Forming standing scientific committees that cross union disciplinary boundaries in order to encourage research and scholarship in those areas that require a multidisciplinary approach.
- 2) Acting as a lighthouse in the enforcement of freedom of access for all scientists to international meetings, workshops, and visits; and listing behavioural standards of scientific ethics.
- 3) Capacity building, especially in developing countries, by working with its unions to ensure that scientists in

less developed countries are included in projects, made aware that they can contribute.

- 4) Issuing position statements on topics that are controversial to some, but in which scientists have a firm opinion.
- 5) ICSU increasingly finds UNESCO as a partner in such activities. These large meetings show the decision-makers and the press the increasing relevance science has in addressing today's problems.

The relationship of IUGS with ICSU is very important. The basis for the international geo-scientific organizations to be affiliated to IUGS is that IUGS can represent them in ICSU. The strength of IUGS as a member of the International Council for Science (ICSU) is its' broad coverage of geoscience fields under one umbrella, and its function as a forum for geoscientists acting to exchange ideas, develop scientific standards, and for the communication of geoscience information. Our links with other ICSU unions complies with the Mid-Term Vision and Strategic Action Plan for the International Union of Geological Sciences (<http://www.iugs.org>). IUGS is uniquely positioned to challenge and promote and organize the world geological community to address the global research problems that require the collaboration of many disciplines as well as many countries. The challenge is to be prompt and organize the global geoscience community and find socially and scientifically relevant and challenging collaborative projects.

In 2008, Vice President Ochir Gerel and Councillors Ezzoura Errami and Marta Mantovani were appointed as IUGS contact people for the ICSU Regional Offices of the Asia and Pacific, Africa and Latin America and the Caribbean, respectively. All the ICSU regional offices have acknowledged these appointments.



## ACTIVITIES OF IUGS



**By Peter Bobrowsky  
(IUGS Secretary General)**

Activities related to IUGS in the office of the Secretary General during 2008 were similar in breadth to those of preceding years. The IUGS Bureau managed the day-to-day activities of the Union, and met on several occasions. The EC members of IUGS are now working smoothly and efficiently as they work through their 3rd year of cooperation. In 2008, IUGS worked aggressively to keep IGCP alive through issuance of communiqués and special meetings. The focus of all IGCP-related efforts has been to preserve the program, assist in the transition to a new identity and enhance IUGS presence and contribution towards the new IGCP. Another challenging issue has been the liaison and maintenance with the International Year of Planet Earth via the Management Team. Progress in the Year has been exceptional.

IUGS continues to support the educational importance of the geosciences, for example through activities with IGEO, facilitating cooperation amongst individuals, organizations and groups involved in the promotion and preservation of our geological heritage. IUGS is instrumental in the launching with UNESCO the International Year of Planet Earth (2007-2009), described elsewhere in this Annual Report.

“Corporate accountability” is maintained through the publication of the Annual Report and Minutes of the Executive Committee Meeting. These formal documents create a more professional and structured image to non-geologists and are welcomed by government politicians and bureaucrats, non-geological Organizations and societies. In 2008, the Annual Report for 2007 was released as printed copies available at the International Geological Congress 2008 and as a digital file downloadable on the IUGS homepage.



**IUGS Visibility:** A large full-colour panel display highlights IUGS’ journal, *Episodes*, and the many activities and Affiliated Organizations in IUGS.

The distribution of electronic Bulletins to its Adhering Organizations, scientific bodies and Affiliated Organizations has been widely lauded. These short, informal “news bites” briefly convey recent activities and accomplishments within the Union and are meant to keep others abreast of changes and events in the community at large.

Collectively, the accomplishments and efforts summarized above indicate that the Executive Committee is proactive and striving to meet the demands and needs expressed by the members. Great achievements have been made in the past few years, although much more work and time is required to fully benefit from these changes. We trust that those who have experienced any of the above support our philosophy.

## IUGS Website

The IUGS website (<http://www.iugs.org>) is regularly updated and cross-linked with a number of other important geoscience websites. The website remains IUGS' most critical modern link to the outside world.



A very considerable amount of information, including contact information, links to the Union's Committees, Commissions, Task Group, Initiatives and collaborative projects with UNESCO and others, as well as copies of the minutes of recent Executive Committee and Council meetings, can be obtained from the IUGS homepage. The Union's quarterly journal, *Episodes*, also publishes much new scientific and general information stemming from IUGS; on-line back issues of the journal on-line are available for downloading at the journal's website (<http://www.episodes.org>).

## IUGS / IGC UPDATE – STATUTES AND BYELAWS

### By Jacques Charvet (Vice President)



Following the recommendations of the IUGS Strategic Planning Committee report in 2000, the IUGS-IGC Councils suggested that the Union and International Geological Congress (IGC) develop a much closer relationship. The IUGS

Council and IGC General Assembly were officially combined in August 2004 at the 32<sup>nd</sup> IGC in Florence,

Italy to provide a clear and simple representation of the global geological community through a unified body and a more effective management of both IUGS and IGC.

A special Task Group was formed to combine and "streamline" the existing statutes and byelaws for IGC and IUGS. The Task Group consists of Eldridge Moores and Alberto Riccardi appointed by the Executive Board of IUGS and Arne Bjørlykke and Jacques Charvet appointed by the IGC Steering Committee; Wolfgang Eder was collectively appointed by IUGS and IGC as Chair since he had not previously held direct position in either IUGS or the IGC.

Steps have been taken by the Task Group to address conflicting passages from the new Definitions, Statutes and Byelaws for IGC and IUGS. Changes to Definitions; Statutes Aims, Objectives and Fiscal Policy; Working Structure of the Union, Council, Nominating Committee and Affiliated Organizations were recommended. In the Bylaws section, slight changes were made to sections on the Executive Council, The Officers, The Nominating Committee and Commissions of the Union. A revised draft of the new Definitions, Statutes and Bylaws was critically reviewed by the IUGS and IGC in 2008.

## IGCP UPDATE

### By Ochir Gerel (Vice-President)



IUGS and UNESCO jointly initiated the International Geological Correlation Programme in 1972 with the aim of providing funding for

promoting research in the Earth sciences. The current objectives of IGCP are to increase understanding of the environment, to assist in the improvement of human welfare, to establish better methods for finding and assessing the natural resources of the world, to further our understanding of geological processes and to improve research methods and techniques in the geosciences.

Under difficult conditions, substantial progress was made in restructuring the IGCP in close cooperation with UNESCO. The cooperation between UNESCO and IUGS is a good example of the cooperation between an important intergovernmental organization and a NGO. Both partners, in addition to the world geological community gain great benefits from such cooperation.

The International Geoscience Program (IGCP) now consists of four Bodies:

- 1) The Bureau is the IGCP's highest authoritative body, responsible for all strategic and administrative matters within IGCP, including the official granting of projects based on prioritization of proposals tabled by the Scientific Board and the IGCP Secretariat.
- 2) The Scientific Board is responsible for evaluating project proposals, for quality assessment of projects that are in progress, as well as for projects in the final year of completion.
- 3) National Committees have an advisory role in the IGCP. They should be composed as broadly as possible of representative national bodies and organizations, while reflecting the mainstreams of national Earth science research, both in basic and of applied sciences.
- 4) The IGCP Secretariat is charged with the overall management of IGCP. This includes liaising with all relevant bodies active in IGCP, such as the National IGCP Committees, IUGS and UNESCO. Moreover, the IGCP Secretariat handles the project administration, the financial administration, the preparation of the annual meetings, the website, and the outreach activities of IGCP.

IGCP projects are selected and evaluated on the basis of their perceived scientific merit and conformance to established criteria for evaluating new project proposals. Mainly, these criteria specify that new IGCP projects should:



- Have a leader and co-leaders of high scientific quality; qualified personnel to carry out the project.
- Reflect the major objectives of the IGCP and focus on high-quality science relevant to the scientific objectives of the IUGS including new ideas, new techniques, etc.
- Meet a world-wide, continental or regional need of societal relevance.
- Involve applications of various branches of earth science and emphasize interdisciplinary cooperation of societal relevance.
- Constitute international participation including also scientists from less developed countries and in particular young, and women scientists, respecting an appropriate number of geographic and scientific discipline distribution of participants.

- Require coordinated action between specialists from different countries.
- Offer long-term benefits and yield tangible short-term practical and societal benefits as results.
- Provide a basis for future studies as well as education and training.
- Promote global geoscience visibility through the publication of scientific results using internationally recognized journals or other media such as congresses, conferences, workshops, etc.
- Have work plans and schedules appropriate and feasible.
- Require appropriate and adequately justified levels of funding.
- Contain an indication on all kinds of support (if any) of the project at the national or regional levels.
- Explicitly acknowledge the sponsorship of IUGS, UNESCO and IGCP.

Recommendations on the basis of the above assessment: clear policy of publication of the scientific results that may include, along with the professional articles, the textbooks, popular science papers and programs via mass media; providing via Internet free access to the data bases, key results and bibliography related to Project for the international scientific community.

## TREASURER'S REPORT

By William Cavazza (Treasurer)

The IUGS has two current accounts and a short term guaranteed deposit account in Trieste, Italy.



The Union's main income is from country members; and the EC functions to serve the member countries. The bulk of the income goes to scientific endeavours (e.g., IYPE, IGCP and IUGS Commissions) and strategic uses; and not to administration. Some 75% of the budget goes toward scientific endeavours (e.g., IYPE and Episodes) and 25% to administration (e.g., Annual Report and promotion). The President, Treasurer and Secretary General all have their travel expenses covered by their own respective countries; the expenses for the rest of the EC are covered by IUGS. Cash flow is a problem and money is clearly lost waiting for members to pay fees to the extent that the Union functions with a net deficit over much of the year.

## IUGS Adhering Organizations

In 2008 the IUGS Adhering Organizations totalled 119, of which 94 active (3 pending) and 25 inactive. This represents the highest number of active adhering organizations in the history of IUGS. In 2008, Lesotho became a new member whereas Costa Rica, Ivory Coast, Senegal and Tunisia became active. Croatia, Cyprus and Estonia upgraded from 1 to 2. The Czech Republic and South Korea upgraded from 2 to 3. Denmark upgraded from 3 to 4. The United Kingdom upgraded from 7 to 8.

### **IUGS expenditures**

Often these do not reflect the real costs. Our annual contribution of US \$23,000 to Episodes for editing, layout, printing and distribution, is relatively small in comparison with the actual costs incurred by the Chinese Ministry of Land and Resources who host the Journal. The same holds true for the costs related to IUGS meetings which are covered, at least in part, by the countries hosting such meetings and for a very substantial part by the parent organizations of the Bureau

members (President, Secretary-General and Treasurer and their supporting staff) which cover salary and all their travel costs. These forms of support save IUGS at least an estimated \$100,000 per year. A comparable amount is further saved by IUGS having been given the continuous generous contribution of the Norwegian government to fully financially support the IUGS Permanent Secretariat in Trondheim. IUGS is extremely grateful to the Chinese, the Norwegian, the Canadian and the Italian governments for this generous support that enables the Union to invest significantly more in science development than would be otherwise possible.

# Publications from IUGS



**By Godfrey S. Nowlan  
(Chair, IUGS  
Publications  
Committee)**

The Publications Committee had a successful and productive year in 2008. Committee members for the year were: Susana Damborenea (La Plata Museum, Argentina), Godfrey

Nowlan (Geological Survey of Canada – Chair), Tim Partridge (University of Witwatersrand, South Africa) and Fred Spilhaus (American Geophysical Union, U.S.A.). The editor of Episodes (Zhenyu Yang) and the IUGS web master (vacant) are *ex officio* members. The committee met in Malaga, Spain in 2008, where it discussed a number of issues, including Episodes, GSL and IUGS programs.

Episodes continued to be published under a Memorandum of Understanding with the China Ministry of Land and Resources, which was in effect until the end 2008. Professor Zhenyu Yang, a professor in the earth science department at the University of Nanjing, continued as Editor of the journal. In 2008, three issues have been published, totaling 372 pages. The first issue in March was an exceptionally large volume (200 pages) that was a special issue for the 33<sup>rd</sup> International Geological Congress in Oslo. It contained 27 articles on the congress and aspects of the geology of the Nordic countries. The second issue in June was a special issue devoted to the Quaternary Period/System with 15 articles. The third (September) was a traditional issue with a mix of articles, news reports, conference reports, book reviews and an Editorial by the new IUGS President, Alberto Riccardi.

The journal is distributed in 145 countries: in some less developed countries, the journal is the only earth science periodical regularly received. Almost every main library in the United States subscribes to the journal. A significant achievement for 2008 is the completion of the on-line availability of Episodes. All issues of Episodes published from 1978 to the present are available as PDF files at the web site, which is updated regularly

([www.episodes.org](http://www.episodes.org)). More than 10,000 visits have been made to the web site in 2008.

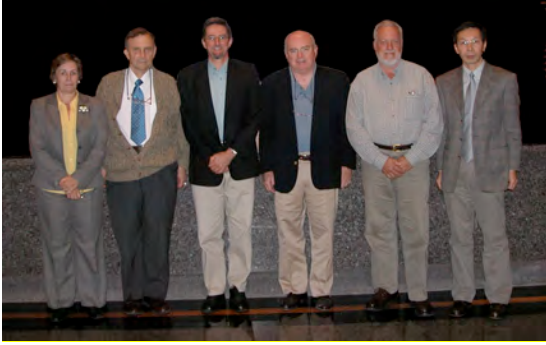


Books continued to be produced under an agreement with the Geological Society of London (GSL), with some 17 published by 2008 and two further titles due in 2009. There are also three accepted titles that will hopefully be published in 2009 and up to six for 2010. Two proposals from IGCP programmes were accepted since the last report; no proposals have been rejected. Two books have been accepted from IGC33 in Oslo, with two other proposals received and are under revision. There are four other sessions whose conveners have expressed a strong interest, but need to have further contact with potential authors and four more than have expressed an interest, but who are less certain.



**The  
Geological  
Society**

New titles continue to be added to the series at a steady pace and the outlook for the future of IUGS book publishing is bright.



Publications Committee (2008); left to right - Susana Damborenea, Fred Spilhaus, Godfrey Nowlan, John Aaron (retired), Tim Partridge, Zhenyu Yang

## James M. Harrison Outstanding Achievement Award

The James M. Harrison Award for Outstanding Achievement was established by the IUGS in 2004 to honour those individuals who have served the Union in an extraordinary fashion and have done so without an official position in the Executive. The award is bestowed on the occasion of the International Geological Congress.

For 2008, the Harrison Award was presented to Dr. Wolfgang Eder, former Director of the UNESCO Division of Earth Sciences, long time supporter of IUGS efforts, and Father of Geoparks. Dr. Eder has also had considerable involvement with the IUGS through his participation in the International Geoscience Programme (IGCP), GeoHeritage issues, and many other activities. A full citation and response will be published in [Episodes](#).



Wolfgang Eder, recipient of the 2008 James H. Harrison Outstanding Achievement Award at the 33<sup>rd</sup> IGC in Oslo, Norway

# Scientific Activities of IUGS

The Union is scientifically active through a series of Committees, Commissions, Task Groups and Initiatives. IUGS is also active with UNESCO, through IGCP and in the Geological Applications of Remote Sensing (GARS) and the Mineral Resources Sustainability Project (MRSP) programmes. IUGS also collaborates with ICSU and IUGG in the Scientific Committee for the Lithosphere (SCL), which co-ordinates the International Lithosphere Programme (ILP). In these programmes, IUGS provides both financial support and scientific input. The results of these research activities are not only widely published, but also form a major part of the programme at the quadrennial IGC.

## ***IUGS Committees***

### ***Ad hoc Review Committee (ARC)***

Following the recommendation of the Strategic Planning Committee, the Executive Committee has made strenuous attempts to institute reviews of as many of the Commissions and scientific bodies run by the Union as possible, during their term of office. There were no active ARCs in 2008.

### ***Nominating Committee***

The Nominating Committee is responsible for making nominations for the positions on the Executive Committee. Following the Statutes and Byelaws of IUGS, a new Nominating Committee was appointed at the last IUGS Council Meeting in Oslo. The Committee is to recommend a slate of candidates for officers of the Union for the next term of IUGS Executive Committee.

The members of the Committee are Zhang Hongren, (Chairman, China), Ryo Matsumoto (Japan), Centeno-Garcia Elena (Mexico), Peadar Mc Ardle (Ireland), Jonas Satkunas (Lithuania), Felix Toteu (Cameroon) and Marita Bradshaw (Australia). The Nominating Committee will start its work mainly after the half way of the current term.

### ***Publications Committee***

The committee now consists of the following members: Susana Damborenea (Museo de La Plata in La Plata, Argentina); Godfrey Nowlan, Chair (Geological Survey of Canada, Calgary, Canada), Tim Partridge (University of the Witwatersrand, Johannesburg, South Africa) and Fred Spilhaus (Executive Director AGU, Washington, D.C.). *Ex officio members* are Zhenyu Yang (Editor, Episodes, Nanjing, China) with one vacant post for IUGS

Webmaster. The committee held the 2008 annual meeting in Malaga, Spain.

All geoscientists are advised to check the IUGS website regularly and to contribute to the Calendar of Forthcoming Events whenever the opportunity arises.

## ***IUGS Commissions***

Commissions undertake the main scientific work of the IUGS. Normally, a Commission lasts for two to three terms (4 years per term), after which it either regroups as a new Commission or is terminated.

### ***Commission for Geological Education, Training and Technology Transfer (COGE)***

Spurred by the Executive Council's decision to develop a Commission on Education, Training and Technology Transfer, the Executive Committee spent much effort in developing such a body. COGE began assisting the International Geoscience Education Organization (IGEO) in undertaking a worldwide survey of the state of earth science education in schools and outreach education.

In 2008, the Commission's representation was expanded in the south-east and Asian regions were expanded. As part of its International Year of Planet Earth activities, the Commission supported the International Earth Science Olympiad and the Earth Science Education Unit (ESEU) of the United Kingdom. It was also involved in the development of an Earth science literacy document to assist developing countries in adopting their own literacy document and as a teaching syllabus. Website development continued with the development and management of the COGE website by Greg McNamara (Australia).

The Commission continues to work with the International Geoscience Education Organization (IGEO) to undertake a survey of the status of Earth science education in schools internationally. Please refer to the following for details:

[www.geoed.com.au/IUGSeducation/indexcomm.html](http://www.geoed.com.au/IUGSeducation/indexcomm.html)

### ***Commission for Geoscience in Environmental Management (GEM)***

GEM aims to provide guidance to geoscientists on how best to integrate geoscience into environmental policy and to communicate the concepts to potential interest groups such as policy makers, politicians, environmental

Organizations, scientists from other disciplines, and the general public. GEM builds on the excellent work of the former Commission on Geological Sciences for Environmental Planning (COGEOENVIRONMENT) that completed its full term. GEM comprises 16 officers from 14 countries, with a full participation by a number of developing countries. GEM has developed its Terms of Reference, and has attained precise objectives reached through Working Groups. Of special interest is the working group on International Borders-Geoenvironmental Concerns. Trans-boundary problems being a field in which international Organizations are highly necessary.

This Commission had a change in leadership in Oslo, with Dr. Kevin Telmer (Canada) becoming the Chair and Dr. Roma Kanopiene (Lithuania) the new Secretary General. Their next annual meeting will be in Montevideo, Uruguay (Aug/Sept 2009) as part of the Third Hemispheric Conference on Medical Geology.

Three Working Groups met their objectives and are now closed. Ideas/concepts for ten potential new Working Groups, several are of which have relevance to the Union. The Commission was the most active and the most physically present at the IGC in Oslo, and has been very active in IYPE activities. Union recognizes the prominent role that GEM plays in IUGS. Extremely important group that is under-supported and under-recognized. GEM is encouraged to contribute more to Episodes.

### **Commission on the Management and Application of Geoscience Information (CGI)**

The aims of this Commission are to provide the means for exchanging knowledge on geoscience information and systems, to support the dissemination of best practices in geoscience information applications, to encourage the development of geoscience standards, to keep IUGS informed on geoscience information matters and to help bring interested bodies and persons together. CGI have well defined objectives and action plans, the leadership and council are dynamic and representative, outreach is excellent (flyers, website, etc.), and working groups are active.

CGI continued to make substantial progress during 2008 and now has 226 members in 62 countries around the world. At the 33<sup>rd</sup> IGC in Oslo, CGI held elections for a new Council for the period 2008 – 2012.

CGI and members of its Council have been very closely involved in the development of OneGeology (<http://www.onegeology.org/home.html>) through the Interoperability Working Group. The Group released the

mark-up language, GeoSciML v2.0 in 2008. The OneGeology portal was formally launched at the 33<sup>rd</sup> IGC. The European Commission, under its eContentplus programme, has agreed to fund a 2-year, €3.25 million, 19-nation project known as OneGeology Europe. The US National Science Foundation is providing almost \$700,000 for a Geoscience Information Network in the 50 US states.

In collaboration with the International Association of Mathematical Geology (IAMG) and the Geoscience Information Consortium (GIC - representing geological surveys), CGI played the key role in the organization of the largest and most comprehensive ever Geoscience Information Symposium at the IGC in Oslo, featuring 3 plenary sessions and 14 technical sessions that focused on the acquisition, management, use, and dissemination of geoscience data. All sessions were well attended reflecting the increasing importance of data management and informatics in the geosciences.

CGI was represented at an Earth & Space Science Informatics Summit in Rome 13-14th March 2008, convened as an Electronic Geophysical Year (eGY) activity. Participants represented the interests of more than 45 leading agencies and initiatives with an interest in geoinformatics.

CGI continues to strengthen its connections with the Open GeoSpatial Consortium (OGC - [www.opengeospatial.org](http://www.opengeospatial.org)) a non-profit, international, voluntary consensus standards organization that is leading the development of standards for geospatial and location based services. OGC comprises 365 companies, government agencies, and universities participating in a consensus process to develop publicly available interface specifications. CGI regards the OGC is the most relevant geoservice standardization body today, and it is actually driving the field.

Visit the informative website at:  
[http://www.bgs.ac.uk/cgi\\_web/welcome.html](http://www.bgs.ac.uk/cgi_web/welcome.html)

### **International Commission on the History of Geological Sciences (INHIGEO)**

INHIGEO, a commission of both IUGS and the International Union on the History and Philosophy of Science (IUHPS), has 218 members in 46 countries (22 elected in 2008), and 9 Honorary Senior Members. The overall objectives are to study the history of geological sciences and publication of works on this subject fit within the stated objectives of IUGS. The Commission attempts to be involved with other international projects such as the IUHPS. INHIGEO meets usually once each year to conduct a major symposium on the history of geology, produce an annual Newsletter and work with various publishing houses and journals, including



Episodes. The task of INHIGEO is to promote studies in the history of geological sciences through symposia and publications.

Publication productivity in 2008 included The History of Geomorphology and Quaternary Geology, as Special Publication of the Geological Society of London (GSL). Another volume is being edited for GSL publication. INHIGEO members have also contributed to Episodes and the annual INHIGEO Newsletter has become a bound volume with well over 100 pages, the last published in 2008. Also in 2008, an INHIGEO conference was held in conjunction with the IGC in Norway. Presentations were grouped in two symposia and a 5-day field excursion was organized. Planned activities for the next four years include four Symposia (Canada, 2009; Spain, 2010; Japan, 2011; Australia, 2012) and sponsorship of two other meetings.

### **International Commission on Stratigraphy (ICS)**

This Commission (<http://www.stratigraphy.org>) is charged with the important and complex task of establishing global stratotype sections and points (GSSPs) for the complete Earth's history. The ICS promotes and coordinates long-term international cooperation in a number of other related stratigraphic topics, is the largest and oldest body within IUGS. It comprises fourteen Sub-commissions on Stratigraphy that determine where to fix the GSSPs defining the base of the Systems, Series and Stages (and thus the boundaries between) in the geological time-scale that comprise the stratigraphic column.

Nearly all Sub-commissions of ICS publish regular newsletters or circulars of a high scientific calibre. ICS receives very little financial support from sources other than IUGS. ICS is internationally well linked and also very active concerning PR (e.g., launch of the Ediacaran and website). ICS has the mandate to have all GSSPs in place by the end of 2008, but the progress is not sufficient to date to meet this deadline. There is also the potential pitfall of doing things hastily, as for example appeared to have been done with the Ediacaran and Quaternary, where some researchers, particularly from Russia, Europe and North America, are not in agreement.

## ***IUGS Initiatives***

### **GeoHeritage**

IUGS supports the concept of GeoHeritage. The Secretary General is primarily responsible for all GeoHeritage issues for the Union, except for representation in the European GeoParks Network (EGN)

which for logistical reasons was managed by Antonio Brambati in Europe.

Geoparks have a role to play in counteracting the decline in interest in geosciences for students. Geopark management must acknowledge and cater to the different users of the parks, to ensure that there is appropriate access to geological sites for professional and practicing geologists as well as for visitors. Their needs are significantly different. Geopark interpretive materials (maps, signs, trails, brochures, etc) need to be improved to include geological information in an engaging manner as well as good photos and diagrams to facilitate the learning process for non-geoscientists. The development, sustainable and appropriate management of Geoparks should form part of a larger global move towards environmental and cultural awareness and sensitivity to the whole of society's role in the planet earth. There is a real sense that the time is right for Geoparks, and individuals are encouraged to use the Geopark Network guidelines for the development of existing and proposed Geoparks.

IUGS also signed a MoU with IUCN to evaluate new GeoHeritage proposals that relate to UNESCO World Heritage site status. IUCN provides a list of sites that have geological components and IUGS has to provide a technical report. IUGS readers are only one group of 10 sets of reviewers.

## ***IUGS Task Groups***

### **Task Group on Global Geochemical Baselines (TGGGB)**

The principal aim of this Task Group (<http://www.bgs.ac.uk/iugs/home.html>) is to prepare a global geochemical database, and its representation in map form, to document the concentration and distribution of chemical elements and species in the Earth's near-surface environment. The database and accompanying maps can then be used to create a geochemical baseline against which future human-induced or natural changes to the chemistry of the land surface may be recognised and measured. The Task Group is organized with a Steering Committee and an Analytical Committee. The nine people involved represent five countries; all of them are from North America or Western Europe.

Dr. Xueqiu Wang (China) was appointed as the new co-leader in the steering committee in 2008; the other committee members have not changed. The Task Group scientific mission made significant progress on near surface sampling and geochemical analysis were completed in most of the areas, including North America and Canada (over 74,000 analysis), Asia including China

and Mongolia (performed the orientation map for starting the sampling on 2009), India (in the Himalayan region), Australia (with 74% collected and 25% under analytical procedures), Brazil (prepared for sampling on 2009) and Europe (completed and published).

### **Task Group on Isotopes and Geochronology (TGIG)**

The goal of this Task Group is to formulate new, specific recommendations for isotopic decay constants, isotopic abundances, and uncertainties. The group is financially and morally supported by both IUGS and IUPAC. The decay constants that have been in use in the geological community for the last 22 years were endorsed and recommended by IUGS. However, recent analytical improvements have exposed potential problems with the 1977 recommendations. Critical to the success of the work of the Task Group is that its members were viewed by the entire scientific community as accomplished, recognized practitioners, rather than consumers, of radioisotope geochemistry and geochronology.

Work during the period 2006-2008 is focusing on nine nuclides ( $^{40}\text{K}$ ,  $^{87}\text{Rb}$ ,  $^{138}\text{La}$ ,  $^{147}\text{Sm}$ ,  $^{176}\text{Lu}$ ,  $^{187}\text{Re}$ ,  $^{232}\text{Th}$ ,  $^{235}\text{U}$ ,  $^{238}\text{U}$ ). In 2008, the focus was on the problem caused by usage of the “year” as a standard unit of time for these measurements. Being not defined by the International System of Units, the SI, the year is not constant and is not commensurate with a day or a second. Analysis of this problem and recommendations are expressed in the paper submitted to the Pure and Applied Chemistry journal. Accordingly, the future activity of the Group includes re-evaluation the major papers on half-lives that are used for the radiometric dating in order to assess the uncertainties caused by the usage of the “year” as a time unit.

### **Task Group on Tectonics and Structural Geology (TECTASK)**

The group encourages innovative research and continued education in Tectonics and Structural Geology, the growth of intellectual capital and hence the impact of our science on the wealth of the global society. The group was accepted by Council in October 2004, and has already established a network of contacts through the USA (various NSF funded programmes) and Europe. Its Vice President is a member of the European advisory council for Africa Array, a new African based initiative to promote geophysics research and training in Africa. TecTask was formed as successor of the dissolved COMTEC committee. The group first identified initial topics and goals for short-term developments and implemented a web portal ([www.tectask.org](http://www.tectask.org)) as the major platform for the group’s activities. Cees Passchier (TecTask chair) hosted a meeting of TecTask officers at the Department of Earth Sciences at University of Mainz

to discuss prospective and future activities of the task group

In 2008, the fourth year of activity, this Task Group established new contacts and explored new directions for boosting tectonics. Continuing the action in Africa, a new initiative was the setup of the JEBEL program in Egypt and Middle East.

One of the main activities of 2008 was the maintenance of the website. There are now more than 600 registered members from 55 countries. An effort will be made for approaching new potential new members, particularly from developing countries, which represent 20%. The website hosts Outcropedia and Geoheritage initiative: a database of outcrops, preservation of geological sites significant for tectonics and structural geology. The registration gives a discount on two journals. The activities are published in the Journal of Structural Geology.

The group supported three conferences during 2008: the 33<sup>rd</sup> IGC in Oslo; the 2008 GSA Joint Assembly, Houston, USA; and the YORSGET Conference, Oviedo, Spain. It sponsored two sessions at IGC and gave travel support to a convener. TecTask helped in organizing the 1<sup>st</sup> International Meeting of Young Researchers in Structural Geology and Tectonics at the University of Oviedo and provided funds (1000 €) for supporting students from developing countries. One book was published and others are in preparation.

## ***IUGS Collaborative projects***

### **Geological Applications of Remote Sensing (GARS)**



Geological Applications of Remote Sensing (GARS) is a joint operation of IUGS and UNESCO and now involves 40 institutes and individuals from 28 countries, most from the developing world. The GARS programme contributes to the advancement of geological research throughout the world and the development of the understanding of the Earth system, in order to address problems of particular relevance to the welfare of the Earth’s population. Currently, under IGOS, GARS is focussing on three of the five strategic issues identified by IUGS: Reducing the vulnerability of communities at risk to natural hazards (IGOS Geohazards Theme); Managing resources in a sustainable and environmentally

sound way (Groundwater Initiative) and Contributing to understanding of global environmental changes.

### **International Lithosphere Programme (ILP)**

This programme (<http://www.sclilp.org>), formerly the Scientific Committee on the Lithosphere (SCL), is a joint venture of IUGS, IUGG and ICSU. It seeks to elucidate the nature, dynamics, origin and evolution of the lithosphere, through international, interdisciplinary collaboration. The Programme involves several hundred scientists from over 60 countries. A number of challenges face ILP, including the need to strengthen the connection between solid-earth and non-solid-earth aspects relevant to the lithosphere and vice-versa; bolster the profile and impact of lithosphere research and topics of societal relevance (i.e., energy and environment); attract young researchers by choosing topics and adopting integrated approaches; promote training of young researchers on lithosphere studies; and to initiate dedicated programmes that address world-class problems.

ILP cooperates with IUGS and IUGG on the IYPE; and is leading the IYPE theme Deep Earth, published in a special brochure. The Programme has 9 Task Forces dealing with 3 general scientific themes, and 5 Regional Coordinating Committees. A meeting of ILP joint Task Forces was held in September 2008 in Ensenada, Mexico, where the decision was made to publish a special volume “Marine and Petroleum Geology”. The ILP Task Force meeting “World Stress Map” took place in Potsdam, mid-October, sponsored by Task Force VII. The 4<sup>th</sup> International TOPO-EUROPE workshop was held in Madrid in early October. A thematic IYPE volume “Frontiers of Integrated Solid Earth Science” was published during winter 2008-2009.

The background of the page is a microscopic image of plant tissue, likely showing cell walls and vascular structures, overlaid with a semi-transparent blue filter. The text is centered on this background.

## Organizations Affiliated with IUGS

Through its expanding number of Affiliated Organizations, IUGS maintains contact with the broadest possible range of Earth Scientists. The Affiliated Organizations not only provide important expertise for the Union, but also disseminate information coming from IUGS to their members.

During the International Year of Planet Earth, IUGS, UNESCO and the Affiliated Organizations are taking an active role in promoting the aims of the Year and encouraging their members to participate in the activities

# Organizations Affiliated with IUGS

## American Association of Petroleum Geologists (AAPG)

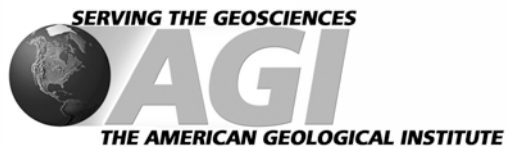
AAPG aims to foster scientific research, to advance the science of geology, to promote technology, and to inspire high professional conduct, aims that still guide the Association today. It is currently one of the world's

largest professional geological societies with a membership of over 32,000 of which over 4,000 are students; and over 30% of the membership works in the international arena. AAPG, together with sister organizations, is setting up branch offices around the world to better serve these members.



AAPG provides publications, conferences, and educational opportunities to geoscientists and disseminates the most current geological information available to the general public. AAPG's GIS Upstream Digital Reference Information Library (GIS-UDRIL) is now one of AAPG's most sought after products. AAPG is also a major player in the Geoscience World; and the publications aggregate now investigating the feasibility of publishing all key geoscience journals electronically. AAPG supports a code of ethics for professional geologists to assure employers and clients of the integrity of its members. Officers guide the Association and a House of Delegates is elected annually. The organization's programs are administered by an Executive Director and staff which are located in Tulsa, Oklahoma. The AAPG is a founding member of IYPE. Visit the Website at: <http://www.aapg.org>

## American Geological Institute (AGI)



The American Geological Institute is a non-profit federation of 44 geoscientific and professional associations representing over 100,000 members. It aims to voice the shared interests of the geological profession. In addition, it plays a major role in strengthening geoscience education and societal awareness. AGI's geoscience database GeoRef has reached 2.9 million references to become the world's largest and most

comprehensive on geoscience. AGI also participates in GeoScience World (GSW), an integrated system of dozens of journals and GeoRef. The fifth edition of the Glossary of Geology (40,000 terms) is available online, including Spanish equivalents for many terms. AGI participates as a member of the IUGS CGI Working Group for the Multilingual Thesaurus of Geosciences. AGI also organized the ninth annual Earth Science Week, together with the USGS, NASA, NOAA, IRIS, the AAPG Foundation, and the National Park Service.

This past year saw appointment of its new director, P. Patrick Leahy. The organization is financially sound. It is heavily involved in the support of teaching of earth science at the primary and secondary school level, and of popularization of earth science through television and films. It annually sponsors Earth Science Week. In 2008 AGI launched an effort to track supply and demand workforce statistics, inform student and parents relative to opportunities in the geosciences using emerging technology, and engage geoscience departments in terms of welcoming and retaining outstanding geoscience students. Activities include revamping the academic associates program. AGI is a Founding Partner of the International Year of Planet Earth.

## American Geophysical Union (AGU)



AGU helps to promote the development of Earth science worldwide and seeks to assure that the increasing understanding of the Earth is taken into account in formulating public policy. It is an active Union with over 54,000 members ranging from geologists to astrophysicists. AGU is self-supporting although some grants, primarily from U.S. government agencies, to support special limited-term projects are also obtained. AGU is formally related with ICSU activities through the START Secretariat, an ICSU/IGBP activity that operates under AGU's umbrella in Washington, DC. AGU and IUGS cooperate and complement each other in achieving common objectives. Both promote the development of the earth sciences worldwide. AGU assures that the increasing understanding of how Earth works is taken into account in formulating public policy and is used to the benefit of the world's citizens. AGU also interacts with IUGG. All AGU journals are now fully electronic and their publication is faster than at any time in the past 15 years even as more pages are being published. A

portion of a new AGU publication, Space Weather, is available on the web free at <http://www.agu.org>.

### Arab Geologists Association (AGA)

AGA has a significant role in the organization of geology in Arabian countries, which helps in promoting IUGS visibility in this area. Unfortunately, there are currently major political complications surrounding this group.

### Association of Applied Geochemists (AAG)



The Association of Applied Geochemists (formerly the Association of Exploration Geochemists - AEG) specializes in advancing the science of exploration and environmental geochemistry and furthering the interests of

both geochemists and geochemistry by encouraging research and development and the distribution of scientific information. The new name better reflects its scope and its membership. It had an active membership about 500 during 2008. The Association has a ten-member Board of Councillors and Regional Councillors outside North America representing the southern Africa, Brazil, Chile, southern Asia, China, United Kingdom and Republic of Ireland.

The Association sponsors the publication of the journal *Geochemistry: Exploration, Environment, Analysis* in partnership with the Geological Society of London, and publishes a quarterly newsletter, *Explore*, which is distributed throughout the world and contains timely articles on a variety of applied geochemistry topics. The Association also produces special publications and conducts short courses on topics of concern in the fields of applied geochemistry. In March 2008, the Association sponsored a workshop titled "Exploration geochemistry: a review of current best practices" at the Prospectors & Developers Association of Canada annual convention in Toronto. AAG is also a participating society for the publication of the magazine *Elements*. The AAG in 2008 sponsored three topics of Distinguished Lecturer Series.

Visit the Website at:

<http://www.appliedgeochemists.org/>

### Association of African Women Geoscientists (AAWG)

This is a new member of the Union. The 3<sup>rd</sup> Conference of AAWG in 2006 was instrumental in bringing together over 150 Earth Scientists from many different continents. The result of that meeting was the publication as Special Issue of the *Journal of African Earth Sciences* in 2008.

This was a landmark event and its publication is in agreement within IUGS objectives. The Union very much welcomes the addition of this group to our Affiliates.

During 2008, the main activities of the association were the organization of the 58<sup>th</sup> Annual Meeting of the IUGS Executive which was held in Marrakech (Morocco) and the organization of the fourth conference of the AAWG under the title "Women and the International Year of Planet Earth" which was held in Cairo (Egypt). This conference was organized jointly by the AAWG and the UNESCO Cairo office. At this conference, a new executive committee was elected: Dr. Ezzoura Errami from Morocco as President, Dr. Tea Juliette from Ivory Coast as Secretary General, Dr. Beatrice Ketchemen Tandia from Cameroon as Treasurer. A Vice President, regional representatives and an editor was elected during the same meeting. A resolution was adopted in order to increase the capacity building for African women geoscientists, to promote geosciences through development of educational and public programs, to establish collaborative research among the African women geoscientists, to create and promote awareness of geosciences among policy makers and general public in Africa on geoheritage sites for conservation and development and to share and disseminate information among the AAWG members.

### Association of European Geological Societies (AEGS)



The Association currently has 30 members from 29 countries. Membership to AEGS is open to all non-governmental societies, institutions and organizations in Europe active on a country wide scale in geology or earth sciences. Since 1975,

AEGS has helped in the organization of the biannual meetings: MAEGS (Meeting of the Association of European Geological Societies). In this way the association serves as a "clamp" for European geological sciences, especially on the level of the national geological societies.

The executive committee meets annually; and in 2008 it met in late June at Cluj-Napoca, Romania. A partial renewal of EC took place, especially nomination of a new secretary: Marco Giardino. AEGS holds meetings every two years. The next, entitled "Geology for society: education and cultural heritage", will be held in Cluj-Napoca on July 9-13, 2009. Its preparation is in progress: flyers, website, and field trip program. It will be an affiliated activity of IYPE.

## Association of Geoscientists for International Development (AGID)

The Association encourages communication between individuals, societies, agencies and corporations with interest in the application of geosciences to sustainable development and further encourages and promotes activities in geoscientific fields that are related to the needs of developing countries. The headquarters are in Bangladesh. In recent years, there has been a fall in membership in the 'developed' world; however, the activities of AGID in the Indian sub-continent demonstrate that a decentralised AGID can continue to function successfully as a regional network. The volunteer services of AGID officers keep the expenditures of the organization low. UNESCO provides modest support to a regularly published regional Geoscience Newsletter. AGID's newsletter is published quarterly in India with financial assistance from UNESCO and is mailed to over seven hundred addresses in 35 countries around the world. AGID continued to distribute its' journal Geoscience and Development in 2008. Copies of the S and W Asia edition of the Geoscience Newsletter were distributed worldwide. Plans are to make these publications available on-line at ([http://www.bgs.ac.uk/agid/AGID\\_Index.html](http://www.bgs.ac.uk/agid/AGID_Index.html)), hosted by the British Geological Survey. AGID interfaces with several international projects bringing to them their experience with developing countries; for example, IYPE, the Geological Society of London, IAH and IGCP.

International Meetings for the GROWNET (Ground Water Network) project included: 1) at the International Groundwater Congress in India (March); 2) at the 33IGC in Norway (August); and 3) in Djibouti during the International Symposium on Hydrogeology of Volcanic Rocks (December). AGID proposed to IYPE an outreach project entitled "Geoscience Information for Schools in Developing Countries" or "The Earth and Me" (TEAM). Leaflets on practical geosciences are distributed free to schools in Nigeria (Africa) and Bangladesh (S Asia). The target was 200,000 pupils and 40 schools. Results for 2008 were 13 schools and 2500 pupils in the south-western region and 6 primary schools in Rivers State the south-south zone. AGID sponsored or co-sponsored nine symposia at the 33<sup>rd</sup> IGC (groundwater, geoeducation in developing countries, geoethics, geoheritage and geotourism). A regular session on Geoethics and meeting of the AGID Working Group on Geoethics was held at the Mining Pibram Symposium in the Czech Republic; the next one will take place in October 2009.

## Association Pour l'Etude des Argile (AIPEA)



AIPEA is an old, well-established association, which has a well-defined scientific focus. The association has played an important role in promoting clay mineral research worldwide. It serves a small scientific field, which today is of considerable practical importance (for instance with the increased application in environmental science). The aim of AIPEA is the worldwide promotion of clay research and technology and to foster international cooperation in these fields. These aims are fulfilled by sponsoring international conferences, stimulating young clay mineralogists and by stimulating communications between clay researchers and clay technologists. The group, which has a large number of affiliated clay societies, runs two committees, on Nomenclature and on Teaching. The society offers an award to assist scientists attending the International Clay Conference.

## Balkan Geophysical Society (BGS)

This is a non-profit organization that unites the Geophysical Societies of the Balkan countries (Albania, Bulgaria, Greece, Romania, Serbia and Turkey). BGS is an associated society to EAGE, SEG, SPE and IUGS. Among the major results of the BGS activity in 2008 are the patent of Hellenic geophysicists for "Multi-parametric probe for the qualitative and quantitative surface- and groundwater monitoring", financed and approved by Executive Committee, as well as the website of the BGS Congress 2009 and related promotion materials. The 5<sup>th</sup> BGS Congress will take place on May 10-16, 2009 in Belgrade.

## Carpathian Balkan Geological Association (CBGA)



The objective of this group is to promote and encourage joint fundamental and applied geological research, as well as training and specialization, in the Carpathian-Balkan realm. This concerns virtually all branches of the geological sciences (including geophysics), their environmental implications, and related disciplines. CBGA interfaces internationally with IGCP.

CBGA unites 14 collective members which are: Albania, Austria, Bulgaria, Czech Republic, F.Y.R. of Macedonia,

Greece, Hungary, Montenegro, Poland, Romania, Slovakia, Slovenia, Serbia and Ukraine. Activity of CBGA is connected to IGCP and to the Central European Initiative (CEI). The major events of the CBGA in 2008 were the CBGA Council meeting in Thessaloniki (May 2008) and organizing a Committee of the CBGA Conference in Thessaloniki in 2010. The CBGA Council is planning to establish the official journal of the Association and the website.

**Commission for the Geological Map of the World (CGMW)**



CGMW aims to promote, coordinate, publish and disseminate Earth Science maps at a small scale of continental and/or oceanic areas of the World. Geological Surveys or organizations responsible for national geological mapping

of all countries and territories of the World are statutory members, whereas others interested groups are allowed to join as Associated Members.

Products and activities in 2008 included the third edition of the Geological Map of the World, the Magnetic Anomaly Map of the World, work on the World Map of Gravimetric Anomalies, and the Andes Hazards Map. Several maps were presented at the 33<sup>rd</sup> IGC, Oslo, Norway, including the Structural Map of Antarctica, the Structural Map of the North Atlantic Ocean, the International Geological Map of Asia and the International Tectonic Map of Africa. Additional projects include involvement in the OneGeology project, development of an active marketing policy for some products prepared for the general public.

**Circum-Pacific Council for Energy and Mineral Resources (CPC)**



The Council develops and promotes research and cooperation among industry, government and academia for the sustainable

utilization of earth resources in the Pacific Region. Its ‘Crowding the Rim Project’ has created tools to promote cross-sector international discussion to mitigate regional catastrophes. These tools included: 1) HazPac, short for hazards of the Pacific, is a compilation of digital data on natural hazards, population and infrastructure. See <http://www.hazpac.org>; 2) RimSim, short for PacificRim

Simulation is a conflict negotiation simulation that provides an opportunity to address risk in an increasingly interconnected global community; and, 3) The CTR Educational Module, a set of secondary-level classroom curricula, was developed to educate young people and others about risk in the context of the Pacific Rim. The latest GeoHab (Marine Geological and Biological Habitats) mapping meeting was held in Sitka, Alaska in early May 2008. Over 120 participants attended the meeting. The next GeoHab meeting is scheduled to take place in Trondheim, Norway in early May 2009. Visit their Website at: <http://www.circum-pacificcouncil.org/>

**Drilling, Observation and Sampling of the Earth’s Continental Crust (DOSECC)**

DOSECC is a not-for-profit corporation whose mission is to provide leadership and technical support in subsurface sampling and monitoring technology for addressing topics of scientific and societal importance. It comprises 54 Member Institutions that provide input to a Board of Directors and President on promoting a coordinated and integrated continental scientific drilling program for the earth science community. Funding for drilling projects comes from numerous international sources, including the International Continental Scientific Drilling Program (ICDP) and various national scientific funding agencies (e.g., United States, Germany, Austria and Switzerland)

Since the late 1990’s DOSECC has performed or provided expertise or drilling equipment to more than 35 scientific drilling projects throughout the world. DOSECC’s chief accomplishments over the last five years include successful completion of many international drilling projects, design and manufacture of the Global Lake Drilling System (GLAD800), design and manufacture of a suite of soft sediment sampling tools allowing collection of deep sediment samples in lakes and marine environments, and increased interaction with the scientific drilling community.

In 2008, DOSECC worked on the preparation and conduct of scientific drilling projects in Argentina, Russia, Israel, Turkey, USA, Macedonia, and Ethiopia. Two issues of the Scientific Drilling Newsletter were published. Over the last five years (2003-2008), DOSECC accomplished several drillings, designed and manufactured the Global Lake Drilling System and a suite of soft sediment sampling tools. For the next five years, the Organization anticipates completion of many international drilling projects, and increase of education and outreach.

**European Association of Science Editors (EASE)**

EASE (<http://www.ease.org.uk/>) is a non-governmental and not-for-profit organization, registered in England and



Wales, and operated exclusively for the advancement of science editing and educational purposes. Since 2000, it has been a Company Limited by Guarantee in the UK. Membership in 2008 was 561 from 50 countries; 42 % of members are from the UK and 15 % outside Europe. EASE is an international non-governmental organization in a Category C relationship with UNESCO and Category A liaison with Technical Committee 46 of ISO (Information and Documentation Subcommittee 9; Presentation, identification and description of documents). The association was active in 2008 promoting improved communication in scientific journals. EASE is running strong international projects with UNESCO and IUBS (International Union of Biological Science), as well as IUGS.

Accomplishments include in 2008 included: courses in scientific writing in Eastern European countries; four issues of the journal *European Science Editing* (ESE); presentation in London to a delegation of 20 Chinese academics and journal editors; and participation with a seminar in the EuroScience Open Forum (Barcelona, Spain). The EASE web site was redesigned.

### **European Association for the Conservation of Geological Heritage (ProGEO)**

ProGEO aims to promote the conservation of Europe's rich heritage of landscape, rock, fossil and mineral sites. It informs a wide public of the importance of this patrimony, its' relevance to modern society, and advising those responsible for protecting our Earth heritage. ProGEO organizes and participates in research into all aspects of planning, science, management and interpretation that are relevant to geoconservation. To involve all countries in Europe, ProGEO exchanges ideas and information in an open forum, and taking a full part in conservation in a global setting, including the formulation of conventions and legislation. In 2008 it continued to work towards an integrated European listing of outstanding geoscience sites, thus enabling full support to be given to the work of other international bodies, as well as to national initiatives towards site protection. To achieve an integrated approach to nature conservation, ProGEO promotes a holistic approach to the conservation of biological and physical phenomena. ProGEO is a new Affiliate of the IUGS.

It held its 5<sup>th</sup> Annual ProGEO conference in 2008 in Croatia, where W.A.P. Wimbledon (UK) was elected the new President. The Association has launched a new journal entitled *GeoHeritage* through Springer Verlag (under the editorship of Jose Brilha) with the first issue planned for 2009. ProGEO sponsored two sessions in Oslo and is trying to be active on behalf of IYPE. It publishes a digital newsletter four times per year. Next significant meeting will be in June 2010 in Ruhr, Germany.

### **European Mineralogical Union (EMU)**

EMU members are national scientific societies from European countries, including Russia, with only one member per country allowed. It is dedicated to furthering European cooperation in the mineralogical sciences (mineralogy, petrology and geochemistry) and supports conferences within Europe of a high scientific standing and of an international character. In particular, it supports the Experimental Mineralogy, Petrology and Geochemistry (EMPG) and the European Union of Geosciences (EUG) meetings. EMU is an active organization with an excellent track record in organizing Schools, co-sponsoring International Conferences, widely spread over Europe and annually awarding medals for Research Excellence in Mineralogy, Petrology and Geochemistry.

In 2008, EMU co-organized three schools and workshops on HPHT mineral physics: implications for geosciences (Bressanone, Italy); Layered material: structure and properties (Vercelli, Italy); Mineral Equilibria, metasomatism; and Mass transport - evolution and stabilization of rock on a fluid-rich world (Smolenice, Slovak Republic). EMU also helped 56 institutional libraries facing serious financial difficulties (mainly in Eastern Europe and Latin America) by donating free subscriptions to the *European Journal of Mineralogy*.

### **Geochemical Society (GS)**



The Geochemical Society encourages the application of chemistry to the solution of geological and cosmological problems. Its membership (around 2000) is international and diverse in background, encompassing such fields as biogeochemistry, organic geochemistry, high and low-temperature geochemistry, petrology, meteoritics, fluid-rock interaction, and isotope geochemistry. The Geochemical Society sponsors (jointly with the European Association of Geochemistry) the V. M. Goldschmidt Conference: a broad-scope conference covering all aspects of geochemistry and cosmochemistry. The Geochemical Society sponsors (jointly with the Meteoritical Society) the professional research journal "*Geochemica et Cosmochemica Acta*," as well as a quarterly newsletter "The Geochemical News," a quarterly newsletter which distributed to all members. In addition, the society publishes two book series, the Special Publications Series and, jointly with the Mineralogical Society of America, the Reviews in Mineralogy and Geochemistry Series. The Geochemical Society sponsors (jointly with the European Association of Geochemistry) the V. M. Goldschmidt Conference, a

broad-scope conference covering all aspects of geochemistry and cosmochemistry.

The Goldschmidt Conference was held July, 2008 in Vancouver Canada. GS annually allocated 10,000 US\$ as travel grants to qualifying students attending the Goldschmidt Conference. GS provided a number of awards to the distinguished scientists. The Geochemical Society Programming Committee also organized geochemical sessions and symposia for the Spring AGU meeting, Annual GSA meeting and the Fall AGU meeting and GC Awards. Society supports many publications, including *Elements Magazine*, *Geochemica* and *Cosmochemica Acta*, *Geochemistry*, *Geophysics*, *Geosystem Special Publications Series*, *Reviews in Mineralogy & Geochemistry* sponsored by GS and other professional organizations.

### Geological Society of Africa (GSAf)



This Society aims to promote the advancement of the geological sciences throughout the African continent by encouraging and supporting education, training, research, the establishment of national societies and local groups and the organization of

conferences and other meetings. GSAf has now ca 600 nominal members from 35 African countries and 19 countries outside the continent. The Society does not directly implement scientific projects but continues to encourage members to take the initiative and become involved in international collaborative research. GSAf does not run its' own projects but is involved in bringing African scientists more actively into IGCP projects, and in 2008 African scientists participated as leaders or members of 10 IGCP projects.

The main activity for 2008 was focused particularly on the organisation of the joint 22<sup>nd</sup> Colloquium of African Geology and the 13<sup>th</sup> GSAf conference which were organised in Tunisia. During this meeting, a new council was elected: Dr. Mogessi Aberra from Ethiopia as President, Dr. Hassina Mouri from South Africa as Secretary General, Prof. Eckart Wallbrecher from Austria as treasurer and Dr. Peter Zawada from South Africa as editor/information Officer. Vice presidents and councillors will be selected by the nominating committee. During 2008, the Society supported meetings in Africa (International Conference on Speleology in Agadir/Morocco) and was active in supporting and promoting the International Year of Planet Earth on the continent. The society supported also the Association of Geology Students of Gaborone/ Botswana.

GSAf also encourages their members to publish papers in *Journal of African Earth Sciences* and *Africa Geosciences Review*, as well as in *Episodes*. It is involved in the publishing of *African Geology*. GSAf was also active in promoting the African National Committees of IYPE and the formation of national societies. Visit the Website at:

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

### Geological Society of America (GSA)



The GSA is a broad, unifying scientific society, which aims to foster the human quest for understanding the Earth, planets, and life, catalyzing new scientific ways of thinking about natural systems and applying geoscience knowledge and insight to

human needs and aspirations and stewardship of the Earth. There are now more than 20,000 members. Future annual meetings are now planned through 2011 (2007 – Denver; 2008 – Houston; 2009 – Portland, 2010 – Denver, and 2011 – Minneapolis).

In 2008, the Council voted to eliminate the distinction between allied (who have formal memorandum of understanding) and the associated (who do not) societies. Now all are the latter. Also, the GSA integrated the associated societies more into their planning process and formally invited their associated societies to participate in setting GSA's future goals and direction. Another development is that the GSA has formed an international section to replace the international division, which was the only division not organized around a geological topic. A recent evolution at the Society has resulted in collaboration, education and outreach that links established GSA education and outreach programs, teaching awards, professional development, student development and research grants. The GSA is also addressing how to better communicate and advance geoscience, enhancing the professional growth of its members, and promoting the geosciences in the service of humankind. Two new ad hoc committees were established in 2008 to examine overarching science themes for the society, our annual meeting, and other programs, and to investigate how GSA communications need to evolve in the transition to serve an ever more electronically oriented society. Visit the Website at

<http://www.geosociety.org/>

### Geological Society of India (GSI)

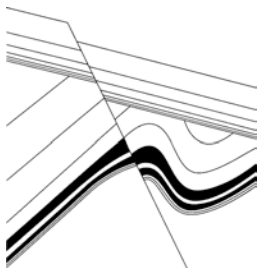
A new Affiliate Organization in 2008, the Geological Society of India (GSI) was founded in 1958 with the main objectives of promoting the cause of advancement

in all branches of Earth Sciences in India by co-operating with other institutions with similar objectives.

The GSI has 1425 members, 683 Honorary Fellows and 10 Corporate Members. It publishes a monthly journal, memoirs, text-books, monographs, and special publications, and organizes training programmes, seminars, meetings and conferences. The Journal is the leading earth science journal of India, which in the future will be published under an agreement to be signed with Springer (India). The Society has a Library, which is under permanent expansion; its holdings are being computerized. The GSI organizes monthly meetings providing a platform to present results of research and abstracts of the presentations are being published in the Journal. In addition special lectures are arranged from time to time. The GSI has a website ([www.geosocindia.org](http://www.geosocindia.org)) which is under permanent improvement and is linked to IUGS website.

The Golden Jubilee Year is being celebrated with 13 seminars in different parts of India, nine of which took place between 2007 and 2008. The jubilee began formally on October 12, 2008 with a special meeting where five special volumes were released. Seven Proceedings volumes pertaining to the Seminars already conducted were also edited, and six technical sessions with 32 lectures of leading experts of earth sciences from India and abroad were arranged. The GSI is also producing short illustrated booklets for information of school children, three of which have already been published. Publications of the GSI receive regular grants from the Department of Science and Technology and the Ministry of Earth Sciences.

### Geologische Vereinigung (GV)



Geologische Vereinigung has 1600 members in 64 countries; but its Executive Committee is almost entirely Germanic. GV promotes the Earth sciences within the framework of modern society; fostering understanding between individuals, organizations

and institutions is regarded as being an important part of its role, which it undertakes through promoting Annual Meetings, short courses and excursions.

The society communicates with its members by GMit (Geowissenschaftliche Mitteilungen), a quarterly jointly edited with the other earth-science societies of Germany, and its website. The ranking of the International Journal of Earth Sciences (Geologische Rundschau) improved, as reflected by journals citation index. GV spends about 12% of its budget for public relations. The GV has

started a new series of publications with Springer Verlag, entitled *Frontiers in Earth Sciences*.

The Annual Meeting was held in Aachen, and titled “Geo 2008 - Resources and Risks in the Earth System”. Special support is provided for students to attend the meetings and courses. Visit the Website at <http://www.g-v.de/>

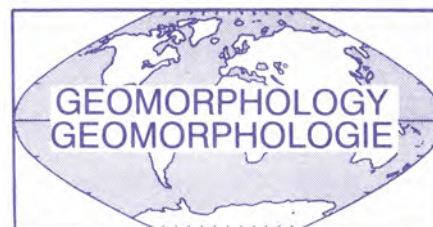
### International Association for Engineering Geology and the Environment (IAEG)



The IAEG is devoted to the investigation, study and solution of engineering and environmental problems, which may arise as the result of the interaction

between geology and the works and activities of man as well as to the prediction and the development of measures for prevention or remediation of geological hazards. IAEG is a worldwide scientific society with more than 5500 members in 66 National Groups and in individual memberships. The Association cooperates with a number of other international bodies (IAH, ISRM, ISSMGE and GEMS) expects to cooperate with these groups on several topics including education and training, professional practice, sustainable use of underground space, ancient monuments, soft rocks and indurated soils. The Association publishes *The Bulletin of Engineering Geology and the Environment*, distributes a newsletter and runs nine Commissions. Every two years a medal and a prize are awarded: The Hans Cloos Medal (senior award) and the Richard Wolters Prize, the latter specially recognizes meritorious achievement by a younger member of the engineering geology profession. Visit the Website at <http://www.iaeg.info/>

### International Association of Geomorphologists (IAG)



IAG (<http://www.geomorph.org/>) was founded to promote and develop collaboration in geomorphology between nations; affiliation is via National Scientific Members. It is an extremely active scientific association with 39 national members. IAG runs a number of working groups and task forces, such as those on Arid Regions, Geoarchaeology, Large Rivers, Volcanoes,

Geomorphological Sites, Sediment Budgets in Cold Environments, Rocky Coasts Geomorphology, Human Impact on the Landscape, Earth Systems, Geomorphological Hazards, Global Change and Geomorphology, Geomorphological Mapping and Planetary Geomorphology.

The Association also sponsors conferences and publishes scientific material. IAG's income is derived from annual fees paid by affiliated National Scientific Members and from scientific publications royalties (e.g. Encyclopaedia of Geomorphology). Most of the income serves to run a number of working groups and to support training activities for young geomorphologists, mostly from developing countries. Changes in the IAG constitution now give member organizations from severely low income countries exemption from fees provided they submit annual report of their activities. IAG is very active in publishing, and they have a very positive approach to cooperation with other scientific bodies. There are now fifteen Working Groups, many with no financial support from IAG. There is some income from membership fees, but considerable income from book royalties (e.g. Encyclopedia of Geomorphology) and their website ([www.geomorph.org](http://www.geomorph.org)) is extremely popular. IAG are actively seeking new members and will continue to promote geomorphology to young students. Publication with Wiley will continue. IAG was a major force on behalf of IYPE and has a long history of successful collaboration with IUGS.

#### **International Association of Geochemistry (IAGC)**

The IAGC is a pre-eminent international geochemical organization with over 500 members, whose prime objective is to foster co-operation in, and advancement of, geochemistry in its broadest sense. IAGC celebrated its 40<sup>th</sup> anniversary in 2007. They sponsor meetings and publications organised by Working Groups to study problems that benefit from international co-operation.

The Association's journal, Applied Geochemistry, is issued 12 times a year and periodically publishes special issues on topics of current importance. A Newsletter is published twice a year and made available to its membership electronically or by regular mail. Summary of activities and news items are included in the bi-monthly periodical Elements. IAGC has five working groups. The 8<sup>th</sup> International Geochemistry of the Earth's Surface Symposium (GES-8), sponsored jointly by IAGC, International Association of Geochemistry, Mineralogical Society and the Natural History Museum, was held at the Natural History Museum in London (UK) from 18-22 August, 2008. Almost 150 mineralogists and geochemists attended the meeting which featured 25 lectures from invited speakers and posters presentations from delegates. Many of the invited presentations are available for viewing at the Mineralogical Society's

website at [www.minersoc.org](http://www.minersoc.org) and extended four-page abstracts of the majority of the presentations are available as a special issue of Mineralogical Magazine which is freely available on the web at: [www.minersoc.org](http://www.minersoc.org). The IAGC also initiated The IAGC Student Research Grant program in 2007, with the first awards being made in 2008.

#### **International Association on the Genesis of Ore Deposits (IAGOD)**

The Association's principal objective is to foster cooperation in, and advancement of, geochemistry and cosmochemistry in their broadest sense by working with any interested group in planning symposia and other types of meetings related to geochemistry, by sponsoring publications on topics not normally covered by existing organizations; and by the appointment of Working Groups to study problems that require, or would profit from, international cooperation. IAGOD plays a vital role in ore deposit research, together with other bodies (SGA, SEG, IGCP), with whom they cooperate. It is noteworthy, how much is achieved by IAGOD with small financial contributions by its membership. IAGOD is an Associate Partner in the International Year of Planet Earth.

In 2008, IAGOD co-sponsored three disciplinary symposia during 33<sup>rd</sup> IGC in Oslo and three symposia in Australia, Russia, Germany and London. The journal Global Tectonics and Metallogeny, published by Schweizerbart'sche Verlagsbuchhandlung, was edited by late J. Kutina, as part of the activities of the IAGOD Commission on Tectonics of Ore Deposits (CTOD). In 2008, Vol. 9, No. 1-4 was published under a title "Mineralogy of large and super-large ore deposits". IAGOD launched new website in 2008 [www.iagod.org](http://www.iagod.org). The Organization also continued to work towards a successful mineral resources contribution to IYPE. Likewise, members of the IAGOD working group on tin and tungsten continued to contribute towards the compilation of a digital database on global tin and tungsten deposits.

#### **International Association of Hydrogeologists (IAH)**



IAH (<http://www.iah.org/>) aims to advance public education and promote research in hydrogeological sciences. IAH is an organization of more than 3700 individual members from over 140 countries. In parallel with the preparation for the World Water Forum, IAH continues in international partnership projects with UNESCO.

The 35<sup>th</sup> Congress on the subject of Groundwater and Ecosystems was held in Lisbon, drawing nearly 600 attendees from nearly 60 countries. There were in total 400 scientific contributions supporting the 12 keynote lectures at the Congress. In addition the Congress hosted a number of side meetings and special sessions organized by bodies such as UNESCO, UNEP and the European Commission as well as IAH Commissions and working groups. IAH, through its Commissions and Chapters, organized and cosponsored over 30 groundwater related meetings around the world. IAH is an Associate Partner in the International Year of Planet Earth.

IAH in November 2008 had 3800 individual members from over 140 countries. There are currently 44 National Chapters. Elections for Council were held in 2008. The major IAH event of the year was the 36<sup>th</sup> Congress held in Toyama in October 2008 with the title “Integrating Groundwater Science and Human Wellbeing”. The congress drew nearly 500 attendees. The second major event of 2008 was the conference on Groundwater and Climate Change in Africa, which attracted more than 300 delegates to Kampala, Uganda in June. IAH, through its Commissions and Chapters, organized and co-sponsored nearly 30 groundwater related meetings around the world. IAH continued its active participation with bodies with responsibilities for water management in the UN-system. With UNESCO the most significant are WHYMAP (Hydrogeological Map of the World). Hydrogeology Journal, published by Springer, is one of the major cited international journals dealing with groundwater issues. It is in its 16<sup>th</sup> volume and now has eight issues per year with a target of 1650 pages annually.

**International Association for Mathematical Geology (IAMG)**

This specialised Association aims to promote international cooperation in the application and use of mathematics in geological research and technology. This is done through the organization of meetings, field excursions and visits to centres of research and technology, through publications and through cooperation with other professional organizations. A Student Grants Programme supports graduate student research in broad areas of mathematical geology for the purposes of advancing the development and application of quantitative methods in the geosciences. The Association publishes Computers & Geosciences (now



on-line), Mathematical Geology and Natural Resources Research.

Though relatively small (in October 2008 the Organization had 630 members) it is quite active. The mission of the IAMG is to promote, worldwide, the advancement of mathematics, statistics and informatics in the geosciences. This is done through the organization of meetings, field excursions and visits to centres of research and technology, through publications and through cooperation with other professional organizations. A Student Grants Programme supports graduate student research in broad areas of mathematical geology for the purposes of advancing the development and application of quantitative methods in the geosciences.

Scientific publication remains the primary function of IAMG and continues to account for much of their income. The Association publishes three well-known international scientific journals: Computers & Geosciences (Elsevier), Mathematical Geosciences (formerly Mathematical Geology) and Natural Resources Research (both with Springer). These are available on-line. In addition to these three main journals in 2008 the IAMG published two special issues of Computers and Geosciences, and three more are in preparation.

In 2008, the IAMG held its annual meeting at the 33<sup>rd</sup> IGC in Oslo. It also held a Topical Symposia on Mathematical Geology and co-sponsored with IUGS-CGI and the Geoscience Information Consortium the session on “General Contributions to Geoscience Information” the proceedings of these sessions being part of the general proceedings of the Congress. In April the IAMG accepted the invitation to become the 15<sup>th</sup> International Partner of the IYPE. IAMG website at [www.iamg.org/](http://www.iamg.org/)

**International Association of Sedimentologists (IAS)**



IAS (<http://www.iasnet.org/>) promotes the study of sedimentology through publications, discussion and comparison of research results, by encouraging the interchange of research through international collaboration and by favouring integration with

other disciplines. The IAS homepage is regularly updated.

### International Centre for Training and Exchange in the Geosciences (CIFEG)



The International Centre for Training and Exchange in the Geosciences (Centre International pour la Formation et les Echanges en Géosciences, CIFEG) promotes the exchange of geosciences between northern and southern hemisphere countries through

supporting training and research programmes; essentially it aims to promote bilateral knowledge sharing. The group runs two main projects; PANGIS – Pan-African Network for a Geological Information System and SANGIS – South East Asian Network for a Geological Information System.

In 2008, CIFEG participated in the IYPE official opening and the Foundation supported 25 African students from 10 countries of the continent to attend the global launch event in Paris. CIFEG also supported the 4<sup>th</sup> conference of the Association of African Women Geoscientists (AAWG4) held in Cairo. The 1<sup>st</sup> CIFEG Prize was given in 2008 to Seifu Kebede, University of Addis Ababa, for its contribution in the field of water resources. The prize consisted on 2000 €. The second edition is foreseen in 2010 in South Africa. Visit the Website at <http://www.cifeg.org>

### International Consortium on Landslides (ICL)



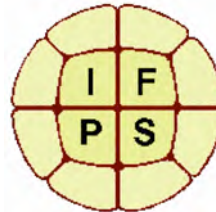
ICL (<http://icl.dpri.kyoto-u.ac.jp/>) is involved with international coordination, exchange of information and dissemination of research activities and capacity building through various meetings, dispatching experts, developing a landslide database, and publishing its journal

“Landslides”. ICL’s central activity is the International Programme on Landslides (IPL). The construction of the headquarter building of UNITWIN (university twinning and networking) was jointly conducted by ICL, UNESCO and Kyoto University. ICL has strong links to UNESCO and WMO: and is well supported by these UN organizations. Although it only has about 40 members, ICL has a broad international membership with a strong bias in favour of Japan. There is considerable scientific focus, but minor attention to the public or education of young scientists.

In 2008, the ICL organized the 1<sup>st</sup> World Landslide Forum in Tokyo, Japan (400 participants). The 2<sup>nd</sup> WLF

will be in Rome, Italy in 2011. New Executive elected Dr. Paolo Canuti (Italy) as their new President. Dozens of international activities and projects underway including a full color journal entitled Landslides published by Springer. ICL holds annual Board of Representative meetings at which IUGS is always present. ICL regularly promotes the role IUGS plays in supporting the association.

### International Federation of Palynological Societies (IFPS)



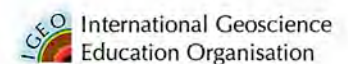
Currently, 22 societies are members of IFPS (<http://www.geo.arizona.edu/palynology/ifps.html>) and the number of affiliated palynological societies and members increased in 2008. Bonn, Germany was the site

of IPC-XII in August 2008.

The major achievement of IFPS in 2008 was the joint forum of 12<sup>th</sup> International Palynological Congress (IPC12) and the 8<sup>th</sup> International Organisation of Palaeobotany Conference (IOPC8), from 30<sup>th</sup> August to 5<sup>th</sup> September 2008, in Bonn (Germany) with over 900 delegates in attendance. With its 536 oral and 238 poster presentations, as well as with a number of the fieldtrips, this forum was a success. During IPC12 a new IFPS committee led by President Dr. Thomas Servais was elected. IFPS continued its normal activity such as newsletter PALYNOS publication, the website, a new “World Directory of palynologists” and collection of membership dues.

### International Geological Education Organization (IGEO)

This organization promotes education in the geosciences at all levels, works for the enhancement of quality in the international



“promoting GeoScience education worldwide”

provision of geoscience education and encourages all developments that raise public awareness of the geosciences, in particular amongst younger people.

IGEO organized the Second International Earth Science Olympiad (IESO-2008) in Manila and Legazpi, Philippines from August 31<sup>st</sup> to September 8<sup>th</sup>, 2008. Seven countries participated. The Third IESO will be

hosted by Taiwan in 2009 and the Fourth IESO by Indonesia in 2010.

Twelve oral and 20 posters were presented during IGC33 in Oslo, with the theme of 'Geoscience education for the 21st century'. Also, the International Council Meeting of IGEO was held in Oslo. IGEO issued a Newsletter in January 2008, is supporting the 'Earth Learning Idea' and co-hosted the International conference on GEOSCIENCE FOR GLOBAL DEVELOPMENT (GeoDev). Financial help from IUGS were used to support the attendance of delegates from the developing nations to attend various international initiatives conducted by IGEO.

#### **International Medical Geology Association (IMGGA)**

In 2008 several courses and numerous presentations were held at meetings and conferences dedicated to public health, geosciences and medical sciences. A newsletter for the working group and other interested people is being produced. IMGGA contributed to the 33<sup>rd</sup> IGC and has a good working relationship with IYPE.

#### **International Mineralogical Association (IMA)**

IMA comprises 39 mineralogical societies or groups (one per country) with a limited number of individual memberships. Its activities are carried out by 11 commissions and working groups. The Association promotes exchanges amongst mineralogists of all nations by organizing events or publishing relevant literature. IMA is a very important organization and IUGS promotes the more intensive use of its expertise by other IUGS bodies and projects.

In 2008, the IMA commissions and working groups sponsored scientific sessions in five meetings. A major portion of IMA's activities are geared toward mineral nomenclature and classification. During the year, the Commission on new Minerals, Nomenclature and Classification has dealt with 64 new mineral proposals, showing a slight increase on the previous years. Members of the commission evaluate all nomenclature proposals and cast their votes on a monthly basis. The 'Annual List of New Minerals and Changes in Nomenclature' is now available on the IMA website. This is possibly an activity which could be somehow linked to IUGS. A new Outreach Committee was launched during 2008. Its goal is to recommend and develop research activities, useful and educative outreach materials that will be used by IMA society members, mineralogists, and to a larger extent by Earth scientists including teachers. This will help the interest in Mineralogical Sciences and complementary Earth Sciences.

#### **International Palaeontological Association (IPA)**



**International  
Palaeontological  
Association**

IPA's 1200 members and nineteen corporate member organizations

aim to promote and coordinate international cooperation in palaeontology and to encourage the integration and synthesis of all palaeontological knowledge (<http://ipa.geo.ku.edu/index3.html>). The new homepage contains a link to fossil collections of the world, to a very popular directory of palaeontologists and to a PalaeoLink database. The IPA has Associate Partner status in sponsorship of the International Year of Planet Earth (2007-2009).

The year was highlighted by the 9<sup>th</sup> International Conference on Permafrost (NICOP) and the continuation of the IPA participation in the International Polar Year. From June 29 to July 3, 2008 approximately 700 participants representing 30 countries convened at the University of Alaska Fairbanks (UAF) for the NICOP. The theme of the conference was "Permafrost on a Warming Climate: Impacts on Ecosystems, Infrastructure and Climate". During the conference, the IPA Council met to elect a new Executive Committee. A three-session symposium was organized for the 33<sup>rd</sup> IGC Oslo conference. IPA actively uses the outreach potential of the Internet. The popular IPA website (over 1000 hits a month), the Directory of Paleontologists of the World, the Directory of the fossil collections of the World, and the Paleolink Database make IPA an effective and dynamic organization.

#### **International Permafrost Association (IPA)**



IPA unites 12 corporate members from China, Czech Republic, France, India, Japan, New Zealand, Romania, Spain, United Kingdom and United States. There are about 160 individual

subscribers for the Lethaia magazine which is authorized by IPA to collect membership dues as a component of each subscription. The objectives of IPA (<http://www.geo.uio.no/IPA/>) include the dissemination of knowledge concerning permafrost and the promotion of cooperation between persons and organizations engaged in scientific investigations and engineering work on permafrost. Some 24 national/multinational organizations form the basis of the membership, although individual membership is possible if no national body exists. Ten working and three task groups covering a

range of topics undertake scientific work for the Association; many of these are involved in collaborative work with a very wide range of international bodies, including IUSS, IPA, IGU, the International Commission on Snow and Ice, and with bodies within IGOS (GCOS/GTOS). The Association publishes *Frozen Ground* and contributed special issues to several other journals. The group has continued developing “Thermal State of Permafrost” (TSP) which proposes to obtain a “snapshot” of permafrost temperatures throughout Planet Earth during the period 2007–2008. The post-IPY and Planet Earth “Legacy” goal for the TSP project is to establish a permanent International Network of Permafrost Observatories (INPO). Several relevant working groups are considering ways to input to the themes of the International Year of Planet Earth (including soils, hazards and climate). IPA is an Associate Partner in the International Year of Planet Earth. A major project is: “Thermal State of Permafrost” (TSP), which together with WMO Global Terrestrial Network for Permafrost (GTN-P) will support IUGS Geoinformatics Initiative, and will result in the establishment of a permanent International Network of Permafrost Observatories (INPO). IPA is also an affiliated member of the IGU. Co-operation in different programmes sponsored by ICSU (IGBP, SCAR, SCOPE), WMO, IGU, IUGG, INQUA, ICO, IASC, IUSS, IUBS, IUMS, places IPA at the crossroads of important scientific research projects on climate related subjects.

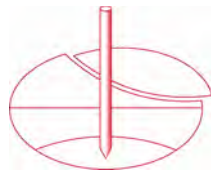
IPA sponsored 4 symposia and held the 9<sup>th</sup> International Conference on Permafrost in Fairbanks, Alaska, USA. At this meeting IPA recognized its 25<sup>th</sup> anniversary.

### International Society for Rock Mechanics (ISRM)

The ISRM

(<http://www.isrm.net/>)

operates in the field of physical and mechanical behaviour of rocks and rock masses and the applications of this knowledge for the better understanding of geological processes and in the fields of Engineering. The IRSM website provides information about the association, its national groups, commissions and meetings. The group continues close co-operation with the Sister Societies IAEG and ISSMGE. The Society envisages planning and undertaking certain scientific activities with IUGS, such as the study of geological problems. The Association published *News Journal* and developed a web site. However, the increase of publication costs is becoming a serious issue. The ISRM is seeking to form a federation with the IAEG and ISSMGE. IRSM published proceedings, commission reports, and news journal and their *Blue Book* in 2008.



During 2008, the society organized the ISRM Regional Symposia: “Construction Technique of Subsea Tunnel”, in Xiamen (China); the 6<sup>th</sup> International Symposium on Ground Support in Mining and Civil Engineering Construction in Cape Town (South Africa); the Rock Mechanics Symposium in San Francisco (USA); the I Simposio Suramericano de Excavaciones en Roca, Bogota (Colombia); the 1<sup>st</sup> Southern Hemisphere International Rock Mechanics Symposium held in Perth (Australia); and the 5<sup>th</sup> Asian Rock Mechanics Symposium in Tehran (Iran). The society publishes one issue of the “ISRM News Journal”, a quarterly “Newsletter” and reports. It created new ISRM Commissions, Joint Technical Committees and Interest Groups, a Federation of International Geo-engineering Societies and a Virtual Library.

### International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)

The aim of the Society (<http://www.issmge.org/home/>) is to promote international co-operation amongst engineers and scientists for the advancement and dissemination of knowledge in the field of geotechnics, and its engineering and environmental applications. The ISSMGE is composed of 75 national societies and has over 17,000 individual members. The Society has 23 technical committees, which are asked to produce reports by 2009. A Newsletter of interest to the younger members will be re-launched soon. The main educational activity is the ISSMGE touring lectures (now renamed as ISSMGE International Seminar), delivered in less wealthy, developing countries such as Albania, Vietnam, Costa Rica, El Salvador, Indonesia, China, Hungary and Sri Lanka in 2008. As an overarching structure in this field, ISSMGE is doing important promotional activities in geotectonics.

### Meteoritical Society (MS)



The Society, founded in 1933, promotes research and education in planetary sciences, with an emphasis on studies of meteorites and other extraterrestrial materials that further the understanding of the origin of the solar system. The society has around 950 members in 37 countries. The Society publishes its own journal, *Meteorites and Planetary Sciences* and also the *Meteoritical Bulletin*. Members donated ten subscriptions of the former journal to libraries in countries where the journal is unavailable. The Society publishes *Geochemica et Cosmochemica Acta*, together with the Geochemical Society. Visit the Website at: <http://www.meteoriticalsociety.org/>



The 71<sup>st</sup> annual meeting of the society was held July 28<sup>th</sup> – August 1<sup>st</sup>, 2008 in Matsue, Japan. The program committee accepted 326 abstracts for oral or poster presentations. A number of awards were presented to distinguished scientists during Annual Meeting. Some students were sponsored by Planetary Studies Foundation, and were sponsored by the Barringer Crater Company, the Planetary Studies Foundation, SOKENDAI, and, NASA Cosmochemistry Program. Important changes were made to the electronic access for the journal *Meteoritics and Planetary Science*. Two issues of the *Meteoritical Bulletin* were published in 2008, under the editorship of Harold Connolly and Michael Weisberg, listing descriptions of 2365 new meteorites. The *Meteoritical Bulletin* online database of all known meteorites has grown and improved: <http://tin.er.usgs.gov/meteor/metbull.php>

### National Groundwater Association (NGWA)

The National Ground Water Association is the newest affiliated organization of IUGS. NGWA is dedicated to advancing the expertise of all ground water professionals and to furthering ground water awareness and protection through education and outreach. It has more than 14,000 members in 60 nations to advance the science and technology of the ground water professions. NGWA is supported by dues from individual and organizational members, and by income derived from its other activities. Federal government support of various NGWA professional development initiatives tallied more than \$400,000 US. NGWA neither receives nor expects financial support from IUGS.

The impact factors for the journal *Ground Water* increased from 1.117 to 1.441 and *Ground Water Monitoring & Remediation* increased from 0.704 to 1.194. In March 2008, the National Research Council of the National Academies of Science, in cooperation with NGWA and other ground water organizations, hosted a managed underground water storage public policy forum in Washington, DC, to discuss the development and implementation of science-based policy and regulations for aquifer storage and recovery. An online database containing 17,000 citations of papers and articles from NGWA publications *Ground Water*, *Ground Water Monitoring & Remediation*, *Water Well Journal*, and selected NGWA conference proceedings, with attached PDF files of the articles and papers is now available from the NGWA Web site.

### Society of Economic Geologists Inc. (SEG)

This Society is an international body that is committed to excellence in science, discovery, documentation, interpretation, evaluation and responsible development of mineral resources and the professional development of its members. SEG formed a tripartite relationship with IAGOD and SGA, and also has a good working relationship with IUGS. Members are currently distributed through more than 80 countries worldwide. SEG is a leading international society in its field, and having co-sponsored meetings with many national and international Organizations, including UNESCO, indicates its relevance for important society issues. SEG is closely associated with IAGOD, forming an ICSU cluster. SEG is playing a modest role in IYPE as an Associate Partner and resources are a key issue.



In 2008, the Society organized, sponsored, or participated in the 15 conferences, workshops, symposia, field courses, and field trips. SEG successfully continued in SEG lectures program, and awards for leading scientists and distinguished lecturers. SEG publications for the three quarters of 2008 exceeded the same period last year and were made up largely of bookstore orders (80%) with the remainder (20%) coming from exhibit booth sales. Publications includes monographs, Guidebooks, including CDs, Compilation series (CD), Special publications, the Dummett DVD and other very popular series. The most popular digital publication is the Hugo Dummett Memorial Economic Geology Archive 1905-2004, available for all members.

The SEG Foundation and SEG Canada Foundation awarded a total of 70 student research grants worth \$220,000. The grant recipients attended 45 universities in 14 countries. In addition, \$212,500 was awarded in graduate student fellowships to 18 students at 13 universities. Thirty students also benefited from the SEG Foundation student field trip program with two trips taking place in northern Chile at a cost of US\$70,000.

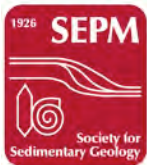
## Society for Geology Applied to Mineral Deposits (SGA)



The Society aims to advance the application of scientific knowledge to the study and development of mineral resources and their environment, to promote the profession and to improve and maintain professional

standards. In 2008, SGA included over 850 members from 80 countries. In May, SGA co-sponsored GAC-MAC-SEG-SGA meeting in Quebec, Canada and sponsored and co-sponsored several symposia during the 33<sup>rd</sup> International Geological Congress and Special Session and three short courses in XIII Latin American Geological Congress and the XIV Peruvian Geological Congress. Publications include 7 issues of the journal *Mineralium Deposita*, and SGA News. SGA presented an Award for the best paper, a Young Scientist's Award and SGA-Newmont Gold Medal. SGA also contributed to IYPE in 2008. The next 10th SGA Biennial Meeting will be held in 2009, Townsville, Australia.

## Society for Sedimentary Petrology (SEPM)



SEPM (<http://www.sepm.org/>) is an international not-for-profit Society dedicated to the dissemination of scientific information on sedimentology, stratigraphy,

palaeontology, environmental sciences, marine geology, hydrogeology, and many additional related specialties. SEPM was active in 2008. The Society supports two major scientific journals, the *Journal of Sedimentary Research* (JSR) and *PALAIOS*, in addition to producing technical conferences, short courses, and Special Publications. The foundation is also playing a key role in supporting the digitization of the past issues of *PALAIOS*. SEPM is an Associate Partner in the International Year of Planet Earth. Excellent papers have been published in the *Journal of Sedimentary Research*.

In 2008, SEPM organized its annual meeting in cooperation with AAPG (American Association of Petroleum Geologists) and was involved in four major research conferences, two of which were in partnership with The Geological Society of London. The schedule for 2009 includes two to three conferences with meetings in Chile, Houston and tentatively in Bermuda. SEPM also organized eight short courses and fieldtrips.

## Geological Society of France (SGF)

The Geological Society of France is a non-profit association built in 1830. It publishes scientific results in a bulletin (6 issues per year) and various books, organizes scientific meetings, for scientists and a larger public. In 2008, it entered the French Federation of Geology. In 2009 it will merge with UFG (Union Française des Géologues). It plays and will play a role in the preservation of geological heritage.



## Appendices

**Appendix 1: Executive Committee Officers, Permanent Secretariat, Executive Committee and Bureau Meetings**

**Appendix 2: IUGS Adhering Organizations**

**Appendix 3: Membership Category and Status**

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**Appendix 8: Acronyms Used by IUGS**

## APPENDIX 1

# IUGS – Executive Members and Meetings

### OUT-GOING EXECUTIVE COMMITTEE OFFICERS OF THE IUGS IN 2008

President	Prof. Z. Hongren	Aug. 2004 – Aug. 2008	<a href="mailto:iugs8@yahoo.com">iugs8@yahoo.com</a>
Past President	Prof. E.F.J. de Mulder	Aug. 2004 – Jan. 2007	<a href="mailto:e.demulder@planet.nl">e.demulder@planet.nl</a>
Secretary General	Dr. P.T. Bobrowsky	Aug. 2004 – Aug. 2008	<a href="mailto:pbobrows@nrcan.gc.ca">pbobrows@nrcan.gc.ca</a>
Treasurer	Prof. A. Brambati	Aug. 2004 – Aug. 2008	<a href="mailto:brambati@univ.trieste.it">brambati@univ.trieste.it</a>
Vice President	Prof. S. Haldorsen	Aug. 2004 – Aug. 2008	<a href="mailto:sylvi.haldorsen@umb.no">sylvi.haldorsen@umb.no</a>
Vice President	Prof. E. Moores	Aug. 2004 – Aug. 2008	<a href="mailto:Moores@geology.ucdavis.edu">Moores@geology.ucdavis.edu</a>
Councillor	Prof. R. Matsumoto	Aug. 2004 – Aug. 2008	<a href="mailto:ryo@eps.s.u-tokyo.ac.jp">ryo@eps.s.u-tokyo.ac.jp</a>
Councillor	Dr. G. Schneider	Aug. 2004 – Aug. 2008	<a href="mailto:gschneider@mme.gov.na">gschneider@mme.gov.na</a>
Councillor	Prof. M. Mantovani	Aug. 2006 – Aug. 2010	<a href="mailto:mismanto@usp.br">mismanto@usp.br</a>
Councillor	Prof. M. Fedonkin	Aug. 2006 – Aug. 2010	<a href="mailto:mfedon@paleo.ru">mfedon@paleo.ru</a>

### IN-COMING EXECUTIVE COMMITTEE OFFICERS OF THE IUGS IN 2008

President	Prof. A. Riccardi	Aug. 2008 – Aug. 2012	<a href="mailto:riccardi@museo.fcnym.unlp.edu.ar">riccardi@museo.fcnym.unlp.edu.ar</a>
Past President	Prof. Z. Hongren	Aug. 2008 – Aug. 2012	<a href="mailto:iugs8@yahoo.com">iugs8@yahoo.com</a>
Secretary General	Dr. P.T. Bobrowsky	Aug. 2008 – Aug. 2012	<a href="mailto:pbobrows@nrcan.gc.ca">pbobrows@nrcan.gc.ca</a>
Treasurer	Prof. W. Cavazza	Aug. 2008 – Aug. 2012	<a href="mailto:william.cavazza@unibo.it">william.cavazza@unibo.it</a>
Vice President	Prof. O. Gerel	Aug. 2008 – Aug. 2012	<a href="mailto:gerel@must.edu.mn">gerel@must.edu.mn</a>
Vice President	Prof. J. Charvet	Aug. 2008 – Aug. 2012	<a href="mailto:jacques.charvet@univ-orleans.fr">jacques.charvet@univ-orleans.fr</a>
Councillor	Prof. E. Errami	Aug. 2008 – Aug. 2012	<a href="mailto:erramiezzoura@yahoo.fr">erramiezzoura@yahoo.fr</a>
Councillor	C. Simpson	Aug. 2008 – Aug. 2012	<a href="mailto:simpsons@grapevine.com.au">simpsons@grapevine.com.au</a>
Councillor	Prof. M. Mantovani	Aug. 2006 – Aug. 2010	<a href="mailto:mismanto@usp.br">mismanto@usp.br</a>
Councillor	Prof. M. Fedonkin	Aug. 2006 – Aug. 2010	<a href="mailto:mfedon@paleo.ru">mfedon@paleo.ru</a>

### PERMANENT SECRETARIAT

Head of Secretariat	Dr. Rognvald Boyd	<a href="mailto:rognvald.boyd@ngu.no">rognvald.boyd@ngu.no</a>
Assistant	Ms. A. Liinamaa-Dehls	<a href="mailto:Anne.Dehls@ngu.no">Anne.Dehls@ngu.no</a>

### EXECUTIVE COMMITTEE AND BUREAU MEETINGS, FEBRUARY 2008 – JANUARY 2009

Bureau meeting	Paris, France	February 11 – 13, 2008
58 <sup>th</sup> Executive Committee Meeting	Marrakech, Morocco	March 17 – 21, 2008
Bureau Meeting	Marrakech, Morocco	March 24 – 28, 2008
Bureau Meeting	Sacramento, California	May 19 – 21, 2008
Bureau Meeting	Oslo, Norway	August 4 – 5, 2008
59 <sup>th</sup> Executive Committee Meeting	Oslo, Norway	August 6 – 10, 2008
Bureau Meeting	Maputo, Mozambique	October 20, 2008
60 <sup>th</sup> Executive Committee Meeting	Sydney, Australia	January 11-15, 2009

APPENDIX 2

# IUGS Adhering Members

List of Member Countries 2008 and Status

Total 119, 94 active (3 pending), 25 inactive

CATEG.	COUNTRIES	Status 2008
1	Albania	A
1	Angola	A
1	Azerbaijan	A
1	Bangladesh	A
1	Bosnia and Herzegovina	A
1	Cameroon	A
1	Chile	A
1	Colombia	A
1	Congo	A
1	Costa Rica	A
1	Gambia, Republic of	A
1	Guyana	A
1	Iceland	A
1	Ivory Coast	A
1	Jamaica	A
1	Jordan	A
1	Kenya	A
1	Latvia	A
1	Lebanon	A
1	Lesotho	A
1	Libya	A
1	Lithuania	A
1	Luxembourg	A
1	Malawi	A
1	Malaysia	A
1	Mongolia	A
1	Mozambique	A
1	Namibia	A
1	Nigeria	A
1	Pakistan	A
1	Peru	A
1	Senegal	A
1	Serbia	A

<b>CATEG.</b>	<b>COUNTRIES</b>	<b>Status 2008</b>
1	Slovenia	A
1	Sudan	A
1	Surinam	A
1	Syria	A
1	Tanzania	A
1	Thailand	A
1	Tunisia	A
1	Uganda	A
1	Uruguay	A
1	Yemen	A
1	Vietnam	A
1	Zambia	A
1	Algeria	I
1	Belarus	I
1	Belize	I
1	Bolivia	I
1	Burkina Faso	I
1	Burundi	I
1	Cuba	I
1	Ecuador	I
1	Georgia	I
1	Ghana	I
1	Guatemala	I
1	Indonesia	I
1	Korea North (PDR)	I
1	Madagascar	I
1	Nicaragua	I
1	Niger	I
1	Panama	I
1	Papua New Guinea	I
1	Paraguay	I
1	Philippines	I
1	Somalia	I
1	Sri Lanka	I
1	Swaziland	I
1	Venezuela	I
2	Botswana	A
2	Bulgaria	A
2	Croatia	A
2	Cyprus	A
2	Egypt	A
2	Estonia	A
2	Greece	A
2	Israel	A
2	Mexico	A
2	Morocco	A

<b>CATEG.</b>	<b>COUNTRIES</b>	<b>Status 2008</b>
2	Poland	A
2	Portugal	A
2	Slovak Republik	A
2	Uzbekistan, Republic of	A
2	Iraq	I
3	Argentina	A
3	Austria	A
3	Belgium	A
3	Czech Republic	A
3	Finland	A
3	Hungary	A
3	Iran	A
3	Kazakh Republic	A
3	Korea South	A
3	New Zealand	A
3	Norway	A
3	Romania	A
3	Sweden	A
3	Taipei (China)	A
3	Turkey	A
3	Ukraine	A
4	Denmark	A
4	Ireland	A
4	Netherlands	A
4	Saudi Arabia, Kingdom of	A
4	South Africa	A
4	Spain	A
4	Switzerland	A
4	Brazil	A
5	India	A
6	Australia	A
6	Canada	A
7	China, Peoples Republic of	A
7	France	A
7	Germany	A
7	Italy	A
8	Japan	A
8	Russia	A
8	United Kingdom	A
8	USA	A

## APPENDIX 3

# Categories of IUGS Membership

## AND MEMBERSHIP FEE (2007-2009)

<b>Categories of Membership for 2007</b>								
Category	1	2	3	4	5	6	7	8
Units	1	2	4	7	12	20	35	70
Value in US \$	501	1002	2004	3508	6014	10024	17542	35085

<b>Categories of Membership for 2008</b>								
Category	1	2	3	4	5	6	7	8
Units	1	2	4	7	12	20	35	70
Value in US \$	521	1042	2084	3647	6252	10420	18235	36470

<b>Categories of Membership for 2009</b>								
Category	1	2	3	4	5	6	7	8
Units	1	2	4	7	12	20	35	70
Value in US \$	541	1028	2164	3787	6492	10820	18935	37870



APPENDIX 4

**IUGS Financial Situation and Statement**

**Income in 2008**

INCOME	RECEIVED			TOTAL (US dollars)
	< 2008	2008	> 2008	
<b>Membership dues</b>	<b>35,073.00</b>	<b>314,386.73</b>	<b>3,025.00</b>	<b>352,484.73</b>
Adhering Organizations	35,073.00	314,386.73	3,025.00	
<b>IGCP Program</b>	<b>21,796.00</b>	<b>40,000.00</b>		<b>61,796.00</b>
UNESCO	21,796.00	40,000.00		
<b>UNESCO Other Contracts</b>	<b>1,000.00</b>			<b>1,000.00</b>
EPISODES Dissemination	1,000			
<b>Other incomes</b>	<b>7,188.57</b>	<b>4,626.90</b>		<b>11,815.7</b>
Participants fees 33rd IGC Oslo		56,622.12		
Geological Society of London		5785.73		
<b>Interests</b>		<b>30,270.87</b>		<b>30,270.87</b>
<b>INCOME</b>				<b>507,959.45</b>

## Expenses in 2008

	PAID			TOTAL
	< 2008	2008	> 2008	
<b>EXPENSES</b>				
<b>IGCP Projects</b>	<b>16,000.00</b>	<b>108,000.00</b>		<b>124,000.00</b>
UNESCO		48,000.00		
IUGS	16,000.00	60,000.00		
<b>Joint Programs</b>		<b>19,065.00</b>		<b>19,065.00</b>
ILP		15,000.00		
Geoparks Networks		4,065.00		
<b>IUGS Commissions, Task Groups and Committees</b>		<b>72,000.00</b>		<b>72,000.00</b>
Commissions		54,500.00		
Task Groups		9,000.00		
Committees		8,500.00		
<b>Affiliated Organizations</b>		<b>6,000.00</b>		<b>6,000.00</b>
<b>IUGS Grants</b>		<b>0.00</b>		<b>0.00</b>
<b>Contributions</b>		<b>4,250.00</b>		<b>4,250.00</b>
Contribution ICSU		4,250.00		
<b>Other expenses</b>	<b>2,840.00</b>	<b>108,397.00</b>		<b>111,237.00</b>
Routine meetings		88,999.00		
Representing Scientific Meetings	2,840			
Exhibition		3,695.00		
Annual report, brochure		15,935.00		
Promotional items				
Bank charges		3,463.00		
<b>Episodes</b>	<b>1,000.00</b>	<b>23,000.00</b>		<b>24,000.00</b>
Contribution PR China		23,000.00		
Episodes: Dist. to Devel. Countries	1,000.00			
<b>Contingency</b>		<b>7,023.00</b>		<b>7,023.00</b>
<b>Officers reserve</b>		<b>3,000.00</b>		<b>3,000.00</b>
<b>GeoHost</b>		<b>20,000.00</b>		<b>20,000.00</b>
<b>IYPE Loan</b>		<b>10,000.00</b>		<b>10,000.00</b>
<b>EXPENSES</b>				<b>400,575.00</b>

ACCUMULATED BALANCE (including investments)	
On 31 December 2007	937,611.10
On 31 December 2008	1,047,654.47

APPENDIX 5

## IUGS Allocations in 2008

Budget 2008	Amount in US \$
<b>IGCP</b>	
UNESCO	90,000
IUGS	60,000
<b>Joint Programmes</b>	
GARS	5,000
ILP	15,000
GEOPARKS NETWORKS	5,000
<b>IUGS Commissions</b>	
New Commissions ( <i>Call for Proposals</i> )	10,000
GEM (COGEOENVIRONMENT)	10,000
CGI ( <i>Manage. &amp; Application of Geoscience Info.</i> )	10,000
ICS ( <i>Stratigraphy</i> )	40,000
INHIGEO ( <i>Hist. Geol. Sci.</i> )	4,500
COGE ( <i>Education, Training and Tech Transfer</i> )	5,000
TECTASK ( <i>Tectonics and Structural Geology</i> )	6,000
<b>IUGS Task Groups</b>	
TGGB ( <i>Geochemical Baselines</i> )	3,000
TGIG ( <i>Isotope Data in Geosciences</i> )	4,900
<b>Committees</b>	
PC ( <i>Publications Committee</i> )	8,500
<b>Affiliated Organizations</b>	
AGID ( <i>Ass. of Geoscientists for Inter. Develop.</i> )	1,000
CGMW ( <i>Geol. Map of the World</i> )	4,000
GSAf ( <i>Geological Society of Africa</i> )	5,000
ICL ( <i>Intern. Consortium on Landslides</i> )	3,000
IAMG ( <i>Inter. Ass. for Math. Geol.</i> )	3,000
<b>Contributions</b>	
ICSU	4,250
<b>Other expenses</b>	
Routine Meetings	70,000
Representative Scientific Meetings	6,000
Exhibitions	6,000
Annual report	10,000
Promotional items	0
Bank Charges	5,000
<b>Episodes</b>	
IUGS Contribution	23,000
Episodes distribution UNESCO's contribution	2,500
<b>Contingency</b>	12,000
<b>Hutchinson reserve</b>	2,000
<b>Officers reserves</b>	3,000
<b>Total</b>	<b>437,150</b>

APPENDIX 6

# ICS – IUGS Ratified (2004-2008)

## GLOBAL BOUNDARY STRATOTYPE SECTIONS AND POINTS (GSSP)

EON, Era, System, Series, Stages	Age (Ma)	Est. ±Ma	Derivation of age	Principal correlative events	GSSP and location	Status	Publication
<b>PHANEROZOIC Eon</b>							
<b>Cenozoic Era</b>							
<b>Quaternary System</b>							
<b><i>Holocene Series</i></b>							
Holocene	0.011784	0.00	Annual layer counting in ice core ("ka" is relative to AD2000); counting uncertainty is 69 years	Climatic -- End of the Younger Dryas cold spell, which is reflected in a shift in deuterium excess values, followed closely by changes in δ18O, dust concentration, a range of chemical species, and by a change in annual layer thickness	North GRIP ice core, Greenland (75.1°N, 42.32°W)	Ratified 2008	-
<b><i>Pleistocene Series</i></b>							
Tarantian Stage	0.126	0.00	Astronomical cycles in sediments	Climatic -- Base of the Eemian interglacial stage (= base of marine isotope stage 5e) before final glacial episode of Pleistocene. Base of Tyrrhenian regional stage of Mediterranean	Amsterdam-Terminal borehole (63.5 m below surface), Netherlands (52°22'45"N, 4°54'52"E)	Accepted by ICS in 2008; on hold by IUGS	-
Ionian Stage	0.781	0.00	Astronomical cycles in sediments	Magnetic -- Brunhes-Matuyama magnetic reversal (base of Chron 1n)	Candidate sections in Italy (Montalbano Jorica or Valle di Manche) and Japan (Chiba)	GSSP anticipated in 2009	-
<b>Neogene System</b>							
<b><i>Miocene Series</i></b>							
Serravallian Stage	13.82	0.00	Astronomical cycles in sediments	Climatic -- Mi3b isotopic event (global cooling episode) in upper magnetic polarity chronozone C5ACn. Above (13.65 Ma) is the lowest occurrence of nannofossil <i>Sphenolithus heteromorphus</i> (previously considered base of Serravallian).	Base of Blue Clay Formation, Ras il Pellegrin coastal section, Fomm Ir-Rih Bay, west Malta (35°54'50"N, 14°20'10"E)	Ratified 2007	-

Langhian Stage	15.97	0.00	Calibrated magnetic anomaly scale	Planktonic foraminifer -- Near first occurrence of <i>Praeorbulina glomerosa</i> and top of magnetic polarity Chron C5Cn.1n	Potentially in astronomically-tuned ODP core	GSSP anticipated in 2009	-
Burdigalian Stage	20.43	0.00	Calibrated magnetic anomaly scale	Planktonic foraminifer -- Near lowest occurrence of <i>Globigerinoides aliaperturus</i> or near top of magnetic polarity Chron C6An	Potentially in astronomically-tuned ODP core	GSSP anticipated in 2009	-
<b>Paleogene System</b>							
<b>Oligocene Series</b>							
Chattian Stage	28.4	0.1	Calibrated magnetic anomaly scale relative to base-Miocene and C24n. Arbitrary 100 kyr uncertainty assigned.	Potentially extinction of planktonic foraminifer <i>Chiloguembelina</i> (base Foram Zone P21b); or an isotopic/climatic event	Monte Cagnero (Umbria-Marche region, Italy)	GSSP anticipated in 2009	-
<b>Eocene Series</b>							
Priabonian Stage	37.2	0.1	Calibrated magnetic anomaly scale relative to base-Miocene and C24n	Potentially near lowest occurrence of calcareous nannofossil <i>Chiasmolithus oamaruensis</i> (base Zone NP18)	Tiziano Bed, Alano section (Piave River; Veneto Prealps, Belluno province, N. Italy)	GSSP anticipated in 2009	-
Bartonian Stage	40.4	0.2	Calibrated magnetic anomaly scale relative to base-Miocene and C24n	Potentially near base of magnetic polarity Chron C19n, or extinction of calcareous nannofossil <i>Reticulofenestra reticulata</i>	Contessa highway section near Gubio, Central Apennines, Italy	GSSP anticipated in 2009	-
Lutetian Stage	48.6	0.2	Calibrated magnetic anomaly scale relative to base-Miocene and C24n	Potentially a planktonic foraminifer (lowest occurrence of <i>Hantkenina</i> ), or magnetic polarity chronozone. [Events traditionally thought to be synchronous and used to place the base-Lutetian are now known to occur at different levels.]	Leading candidates are Gorrondatxe beach section, W Pyrenees, Basque country (Spain) and Agost section, Murcia province, Betic Cordilleras (Spain)	GSSP anticipated in 2009	-
<b>Paleocene Series</b>							
Thanetian Stage	58.7	0.2	Astronomical cycles in sediments scaled from base Paleocene, using base of magnetic polarity chronozone C26n. Arbitrary 0.1 (2 precession cycles, plus the base-Paleogene radiometric) uncertainty assigned to all estimates.	Magnetic polarity chronozone, base of C26n	Leading candidate is Zumaya section, northern Spain	Ratified 2008	-

Selandian Stage	61.1	0.2	Astronomical cycles in sediments scaled from base Paleocene, using magnetic polarity chronozone placement of C26r	Geochemical -- Onset of a carbon isotope shift and sea-level drop (Exxon/Hardenbol sequence boundary "Se1"); near diversification of the <i>Fasciculith</i> group of calcareous nannoplankton, preceding the lowest <i>Fasciculithus tympaniformis</i> (base of nannoplankton zone NP5). Approximately 0.65 myr (ca. 33 precession cycles) above the base of magnetic polarity Chron C26r	Base of the red marls of Itzurun Formation in the Zumaia section at San Telmo Beach (N. Spain) (43°18'02"N, 2°15'34"W)	Ratified 2008	-
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### Mesozoic Era

#### Cretaceous System

Most Cretaceous substages also have recommended GSSP criteria

#### Upper Cretaceous Series

Campanian Stage	83.5	0.7	Spline fit of Ar-Ar ages and ammonite zones	Crinoid, extinction of <i>Marsupites testudinarius</i>	Leading candidates are in west of Seafprd Head (southern England) and Waxahacie dam spillway (north-central Texas)	GSSP anticipated in 2009	-
Santonian Stage	85.8	0.7	Spline fit of Ar-Ar ages and ammonite zones	Inoceramid bivalve, lowest occurrence of <i>Cladoceramus undulaticus</i>	Leading candidates are Olazagutia (Spain) and Ten-Mile Creek (Texas)	GSSP anticipated in 2009	-
Coniacian Stage	89.3	1.0	Spline fit of Ar-Ar ages and ammonite zones	Inoceramid bivalve, lowest occurrence of <i>Cremnoceramus rotundatus</i> (sensu Tröger non Fiege)	Candidates are in central Poland, Colorado, USA, and Germany	GSSP anticipated in 2009	-

#### Lower Cretaceous Series

Albian Stage	112.0	1.0	Cycle-stratigraphy of FAD of <i>P. columnata</i> relative to base of Cenomanian, with large uncertainty due to lack of GSSP criteria	Candidates include: (1) calcareous nanofossil, lowest occurrence of <i>Praediscosphaera columnata</i> (= <i>P. cretacea</i> of some earlier studies), (2) carbon-isotope excursion (black-shale episode), (3) ammonites	Southeastern France	GSSP anticipated in 2009	-
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Aptian Stage	125.0	1.0	Base of M0r, as recomputed from Ar-Ar age from MIT guyot	Magnetic -- base of Chron M0r; near base of <i>Paradeshayesites oglanlensis</i> ammonite zone	Leading candidate is Gorgo a Cerbara, Piobbico, Umbria-Marche, central Italy	GSSP anticipated in 2009	-
Barremian Stage	130.0	1.5	Pacific spreading model for magnetic anomaly ages (variable rate), using placement at M5n.8.	Ammonite -- lowest occurrence of <i>Spitidiscus [now Taveraidiscus] hugii</i> – <i>Spitidiscus vandeckii</i> group	Río Argos near Caravaca, Murcia province, S. Spain	GSSP anticipated in 2009	-
Hauterivian Stage	133.9	2.0	Pacific spreading model for magnetic anomaly ages (variable rate), using placement at base M11n	Ammonite -- lowest occurrence of genus <i>Acanthodiscus</i> (especially <i>A. radiatus</i> )	Leading candidate is La Charce village, Drôme province, southeast France	GSSP anticipated in 2009	-
Valanginian Stage	140.2	3.0	Pacific spreading model for magnetic anomaly ages (variable rate), using placement at M14r.3 (base T. pertransiens).	Calpionellid -- lowest occurrence of <i>Calpionellites darderi</i> (base of <i>Calpionellid</i> Zone E); followed by the lowest occurrence of “ <i>Thurmanniceras</i> ” <i>pertransiens</i>	Leading candidates are near Montbrun-les-Bains (Drôme province, SE France) and Rio Argos (S. Spain)	GSSP anticipated in 2009	-
Berriasian Stage, base Cretaceous System	145.5	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), assigning to base of <i>Berriasella jacobi</i> zone (M19n.2n.55)	Maybe near lowest occurrence of ammonite <i>Berriasella jacobi</i>	-	Guide event is undecided. GSSP anticipated in 2009	-

## Jurassic System

### Upper Jurassic Series

Tithonian Stage	150.8	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), age is provisionally assigned as base M26r.2	Maybe near base of <i>Hybonoticeras hybonotum</i> ammonite zone and lowest occurrence of <i>Gravesia</i> genus, and the base of magnetic polarity Chron M22An	Candidates are Pfeffingen (Swabian Alb, SW Germany) and in Russia	GSSP anticipated in 2009	-
Kimmeridgian Stage	155.6	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), assigning to base M26r.2 (Boreal ammonite definition)	Ammonite -- base of <i>Pictonia baylei</i> ammonite zone of Boreal realm	Flodigarry (Isle of Skye, NW Scotland) (57.6°N, 6.2°W)	GSSP anticipated in 2009	-
Oxfordian Stage	161.2	4.0	Pacific spreading model for magnetic anomaly ages (variable rate), assigning to base M36An	Ammonite -- <i>Cardioceras redcliffense</i> Horizon at base of the <i>Cardioceras scarburgense</i> Subzone (defines base of <i>Quenstedtoceras mariae</i> Zone)	Candidates are Redcliff Point (Dorset, SW England) and Saviouron (Provence province, SE France)	GSSP anticipated in 2009	-

<b>Middle Jurassic Series</b>							
Callovian Stage	164.7	4.0	Equal subzones scale Bajo-Bath-Callov	Ammonite -- lowest occurrence of the genus <i>Keplerites</i> ( <i>Kosmoceratidae</i> ) (defines base of <i>Macrocephalites herveyi</i> Zone in sub-Boreal province of Great Britain to southwest Germany)	Candidates are Pfeffingen (Swabian Alb, SW Germany) and in Russia	GSSP anticipated in 2009	-
Bathonian Stage	167.7	3.5	Equal subzones scale Bajo-Bath-Callov	Ammonite -- lowest occurrence of <i>Parkinsonia (G.) convergens</i> (defines base of <i>Zigzagiceras zigzag</i> Zone)	Candidates are in Iberia, and Ravin du Bès near Digne (Hautes-Alpes, SE France)	Ratified 2008	-
<b>Lower Jurassic Series</b>							
Toarcian Stage	183.0	1.5	Duration of Aalenian-Toarcian from cycle stratigraphy	Ammonite -- near lowest occurrence of a diversified <i>Eodactylites</i> ammonite fauna; correlates with the NW European Paltus horizon.	Peniche (Portugal)	GSSP anticipated in 2009	-
Pleinsbachian Stage	189.6	1.5	Base of Bed 73b	Ammonite association of <i>Bifericeras donovani</i> and <i>Apoderaceras</i> sp.	Wine Haven, Robin Hood's Bay, Yorkshire Coast, England	Ratified 2005	<a href="#">Episodes 29/2 p.93-106, 2006</a>
Hettangian Stage	199.6	0.6	U-Pb age just below proposed GSSP for base-Jurassic in British Columbia	Near lowest occurrence of <i>Psiloceras</i> ammonite group; associated with a carbon-isotope excursion	Leading candidate is New York Canyon (Nevada, USA) with Kunga Island (British Columbia, Canada) as auxiliary. Other candidate is St. Audries' Bay (Somerset, UK)	GSSP anticipated in 2009	-
<b>Triassic System</b>							
<b>Upper Triassic Series</b>							
Rhaetian Stage	203.6	1.5	Magnetostratigraphic correlation to cycle-scaled Newark magnetic polarity pattern	Near lowest occurrence of ammonite <i>Cochlocera</i> , conodonts <i>Misikella</i> spp. and <i>Epigondolella mosheri</i> , and radiolarian <i>Proparvicingula moniliformis</i>	Key sections in Austria, British Columbia (Canada), and Turkey	GSSP anticipated in 2009	-
Norian Stage	216.5	2.0	Magnetostratigraphic correlation to cycle-scaled Newark magnetic polarity pattern. However, revised correlations suggest 228.8 Ma	Ammonoid -- Base of <i>Stikinoceras kerri</i> ammonoid zone; near the appearance of <i>Metapolygnathus echinatus</i> within the <i>M. communisti</i> conodont zone	Candidates are Black Bear Ridge (Williston Lake, Canada) and Pizzo Mondello (Sicily, Italy)	GSSP anticipated in 2009	-



Carnian Stage	228.7	2.0	Magnetostratigraphic correlation to cycle-scaled Newark magnetic polarity pattern. However, revised correlations suggest 236.8 Ma	Ammonoid -- lowest occurrence of <i>Daxatina</i> (base of <i>D. canadensis</i> subzone of Trachyceras Zone). Near appearances of conodont <i>Metapolygnathus polygnathiformis</i> noah and of <i>Halobia</i> bivalves. Just above base of S2n magnetic polarity zone and above the maximum flooding surface of Sequence Lad 3.	Candidate GSSP is base of marly limestone bed from base of San Cassiano Fm, 4.5 km south of S. Cassiano town, Dolomites, N. Italy. Important reference sections in New Pass (Nevada, USA).and Spiti (India) (46°31'37"N, 11°55'49"E)	Ratified 2008	Albertiana 36, Dec 2007
<b>Middle Triassic Series</b>							
<a href="#">Ladinian Stage</a>	237.0	2.0	U-Pb array by Mundil et al. on levels near Nevadites (= Secedensis) ammonite zone in Dolomites, plus placement relative to magnetostratigraphy correlations to cycle-scaled Newark magnetic polarity pattern. However, revised correlations and zircon processing suggest 240.5 Ma	Ammonoid -- lowest occurrence of the <i>Eoprotrachyceras curionii</i> (base of the E. curionii zone); onset of the Trachyceratidae family. Above lowest <i>Budurovignathus praehungaricus</i> conodont	Top of "Chiesense groove", 5m above base of Buchenstein Beds, Caffaro river bed, Bagolino (Brescia province, N. Italy) (45°49'9.5"N, 10°28'15.5"E)	Ratified 2005	<a href="#">Episodes 28 (4), 233-244, 2005</a>
Anisian Stage	245.0	1.5	Cycle-stratigraphy scaled to base-Triassic. However, revised zircon processing at P/Tr suggest 251.0 Ma	Either Conodont -- profound turnover including lowest occurrences of <i>Chiosella</i> ( <i>Cs. gondolloides</i> ) followed by <i>Cs. timorensis</i> , or Magnetic -- base of magnetic normal-polarity chronozone MT1n between those two conodont levels. Near base of <i>Paracrochordiceras-Japonites</i> ammonite beds	Candidate GSSPs are in northern Dobrogea province, Romania, and Guandao Guizhou province, China	GSSP anticipated in 2009	Albertiana 36, Dec 2007
<b>Lower Triassic Series</b>							
Olenekian Stage	249.5	0.7	Cycle-stratigraphy scaled to base-Triassic. However, revised zircon processing at P/Tr suggest 251 Ma	Conodont -- lowest occurrence of <i>Neospathodus waageni</i> s.l., just above base of <i>Rohillites rohilla</i> ammonite zone, and below lowest occurrence of <i>Flemingites</i> and <i>Euflemingites</i> ammonite genera. Within a prominent positive Carbon-13 peak, and just above widely recognizable sequence boundary	Candidate GSSP is in the Mikin Fm.-1 km NE of Mud (Muth) village, Spiti valley, northwest India (31°57'55.5"N, 78°01'28.5"E)	GSSP anticipated in 2009	Albertiana 36, Dec 2007

Paleozoic Era							
Permian System							
Lopingian Series							
<a href="#">Changhsingian Stage</a>	253.8	0.7	Permian-Carboniferous time scale is derived from calibrating a master composite section to selected radiometric ages	Conodont -- near lowest occurrence of conodont <i>Clarkina wangi</i>	Base of Bed 4a-2, 88 cm above base of Changxing Limestone, Meishan D section (Zhejiang province, E. China) (31°4'55"N, 119°42'22.9"E)	Ratified 2005	<a href="#">Episodes 29(3), p. 175–182, 2006</a>
<a href="#">Wuchiapingian Stage</a>	260.4	0.7	"	Conodont -- lowest occurrence of <i>Clarkina postbitteri postbitteri</i>	Base of Bed 6K/115 in Penglaitan section, S. bank of Hongshui River, 20 km ESE of Laibin country town (Guangxi province, S. China). Nearby Tieqiao (Rail-bridge) section is a supplementary reference section (23°41'43"N, 109°19'16"E)	Ratified 2004	Episodes 29(4), p.253-262, 2006
Cisuralian Series							
Kungurian Stage	275.6	0.7	"	Conodont -- near lowest occurrence of conodont <i>Neostreptognathus previ-N. exculptus</i>	Leading candidate is Mechetlino in southern Ural Mtns.	GSSP anticipated in 2009	-
Artinskian Stage	284.4	0.7	"	Conodont -- lowest occurrence of conodont <i>Sweetognathus whitei</i>	Leading candidate is Dalny-Tulkas sections in southern Ural Mtns.	GSSP anticipated in 2009	-
Sakmarian Stage	294.6	0.8	"	Conodont -- near lowest occurrence of conodont <i>Sweetognathus merrelli</i>	Leading candidate is at Kondurovsky, Orenburg Province, Russia	GSSP anticipated in 2009	-

<b>Carboniferous System</b>							
<b><i>Pennsylvanian Subsystem</i></b> (series classification approved in 2004)							
<b><i>Upper Pennsylvanian Series</i></b>							
Gzhelian Stage	303.4	0.9	"	Conodont -- lowest occurrence of <i>Idiognathodus simulator</i> (s.str.). Close to lowest occurrence of ammonoid <i>Shumardites</i>	Candidates are in southern Urals or Nashui (south China)	GSSP anticipated in 2009	-
Kasimovian Stage	307.2	1.0	"	Fusulinid (benthic foraminifer) -- lowest occurrence of fusulinid <i>Protriticites</i> , which is near lowest occurrence of ammonoid <i>Eothalassoceras</i> . Alternative (higher) base is lowest occurrence of fusulinid <i>Montiparus montiparus</i> , which is near lowest occurrence of conodont <i>Idiognathodus sagittalis</i> . Age given here is the higher version; the lower one is about 1 myr older.	Candidates are in southern Urals, southwest USA and south-central China	GSSP anticipated in 2009	-
<b><i>Middle Pennsylvanian Series</i></b>							
Moscovian Stage	311.7	1.1	"	Conodont -- either the lowest occurrence of <i>Idiognathoides postsulcatus</i> or of <i>Declinognathodus donetzianus</i>	Candidates are in southern Urals or Nashui (south China)	GSSP anticipated in 2009	-
<b><i>Lower Pennsylvanian Series</i></b>							
<b><i>Mississippian Subsystem</i></b>							
<b><i>Upper Mississippian Series</i></b> (series classification approved in 2004)							
Serpukhovian	328.3	1.6	"	Conodont -- lowest occurrence of <i>Lochriea ziegleri</i> [one zone lower than working definition in GTS04]	Candidates are Verkhnyaya Kardailovka (southern Urals) or Nashui (south China)	GSSP anticipated in 2009	-
<b><i>Middle Mississippian Series</i></b>							
Visean	345.3	2.1	"	Benthic Foraminifer -- first appearance of <i>Eoparastaffella simplex</i> , in the lineage of " <i>E. ovalis</i> group" to <i>E. simplex</i>	Stream section south of Pengchong village, about 130 km SW of Guilin, Guangxi Autonomous Region (south China) (24°26'N, 109°27'E)	Ratified 2008	-

## Ordovician System

### Upper Ordovician Series

<a href="#">Hirnantian Stage</a>	445.6	1.5	"	Graptolite, lowest occurrence of <i>Normalograptus extraordinarius</i> , base of major positive carbon-13 isotope excursion, and beginning of pronounced sea-level fall associated with onset of a major glaciations	0.39 m below base of Kuanyinchiao Bed, Wangjiawan North section, 42 km N. of Yichang city (west Hubei province, China) (30°59'2.68"N, 111°25'10.76"E)	Ratified 2006	<a href="#">Episodes 29 (3), p.183-196, 2006</a>
<a href="#">Katian Stage</a>	455.8	1.6	"	Graptolite, lowest occurrence of <i>Diplacanthograptus caudatus</i> . Just below base of Guttenberg carbon-13 isotope excursion	Above base of Bigfort Chert, Black Knob Ridge section, 5 km NE of Atoka town (S. Oklahoma, USA) (34°25.829'N, 96°4.473'W)	Ratified 2006	Episodes 30 (4), 2007

### Middle Ordovician Series

Dapingian Stage	471.8	1.6	"	Conodont -- lowest occurrence of <i>Baltoniodus triangularis</i> . Approximates the boundary between the lower and upper intervals of <i>Azygograptus suecicus</i> graptolite zone	Near base of the Dawan Formation (Huanghuachang roadside exposure, 22km NE of the Yichang city (Hubei Province, South China) (30°51'37.8"N, 110°22'26.5"E)	Ratified 2007	Proposal in <a href="#">Episodes 28 (2), p.105-117, 2005</a>
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## Cambrian System

Overview of potential Cambrian subdivisions in *Episodes 23 (3)*, p. 188-195, 2000

### Furongian Series

Stage 10	492.0	-	Estimated from trilobite-zone scalings	Trilobite -- lowest occurrence of <i>Lotagnostus americanus</i> . An internal substage division might be lowest occurrence of <i>Codylodus adesei</i> conodont	Candidate section is Duibian (Zhejiang province, China)	GSSP anticipated in 2009	-
Stage 9	496.0	-	Estimated from trilobite-zone scalings	Trilobite -- lowest occurrence of <i>Agnostotes orientalis</i>	Candidate sections at Duibian (Zhejiang province, China) and Gonggiri (Korea)	GSSP anticipated in 2009	-

<b>Series 3</b>							
Guzhangian Stage	503.0	-	Estimated from trilobite-zone scalings	Trilobite -- lowest occurrence of <i>Lejopyge laevigata</i>	>121.3 m above the base of the Huaqiao Formation. Louyixi, Guzhang County, NW Hunan Province, S. China (28°43.20'N, 109°57.88'E)	Ratified 2008	-
Drumian Stage	506.5	-	Estimated from trilobite-zone scalings	Trilobite -- lowest occurrence of <i>Ptychagnostus atavus</i> . Just above the GSSP is a significant negative carbon-isotope excursion	62 m above base of Wheeler Fm., Stratotype Ridge, Drum Mountains, western Utah, USA (39°30.705'N, 112°59.489'W)	Ratified 2006	Episodes 30 (2), 2007
Stage 5	510.0	-	Estimated from trilobite-zone scalings -- slightly younger than the 511 Ma age on <i>Protolenus</i> and <i>Ellipsocephalus</i> -bearing strata in New Brunswick	Trilobite -- potentially lowest occurrence of <i>Oryctocephalus indicus</i>	Candidate sections are Wuliu-Zengjiayan (east Guizhou, China) and Split Mountain (Nevada, USA)	GSSP anticipated in 2009	-
<b>Series 2</b>							
Stage 4	517.0	-	-	Trilobite -- lowest occurrence of <i>Olenellus</i> or <i>Redlichia</i>	-	GSSP anticipated in 2009	-
Stage 3	521.0	-	-	Trilobites -- their lowest occurrence (superfamily <i>Fallotaspidoidea</i> )	-	GSSP anticipated in 2009	-

Status of GSSPs 2004 - 2008 modified from a compilation by James Ogg (ICS Executive Secretary)  
<http://www.stratigraphy.org/gssp.htm>

APPENDIX 7

# IGCP Projects – 2008

(IUGS-UNESCO CO-SPONSORED)

Project Number	Title Leader(s) Duration Website (s)
475	<p><b>Deltas in the Monsoon Asia-Pacific Region (DeltaMAP)</b>            S. Goodbred, Jr. (United States), Y. Saito (Japan)            2003-2007 (OET)  <a href="http://unit.aist.go.jp/igq/rq/cug-rq/ADP/ADP_E/a_1stannual_en.html">http://unit.aist.go.jp/igq/rq/cug-rq/ADP/ADP_E/a_1stannual_en.html</a></p>
478	<p><b>Neoproterozoic-Early Palaeozoic Events in South-West-Gondwana</b>            C. Gaucher (Uruguay), P. C. Boggiani (Brazil), A. Braun (Germany), H. Frimmel (Germany), J.B. Germs (South Africa), Poiré (Argentina)            2003-2007            Official website: <a href="http://www.vssagi.com/igcp478/igcp478.htm">www.vssagi.com/igcp478/igcp478.htm</a>            Mirror website: <a href="http://www.igcp478.com">www.igcp478.com</a>            Related website: <a href="http://www.congresos-rohr.com/vssagi/ingles/home.htm">www.congresos-rohr.com/vssagi/ingles/home.htm</a></p>
480	<p><b>Tectonics of Central Asia</b>            B. Natal'in (Turkey), A. Yin (United States), A. M. C. Şengör (Turkey), M. Kuzmin (Russia), Shuwen Dong (China)            2005-2009  <a href="http://www.igcp.itu.edu.tr/index.html">http://www.igcp.itu.edu.tr/index.html</a></p>
481	<p><b>Dating Caspian Sea Level Change</b>            S.B. Kroonenberg (Netherlands), S. Leroy (United Kingdom)            2003-2007  <a href="http://www.caspage.citg.tudelft.nl/">http://www.caspage.citg.tudelft.nl/</a>  <a href="http://www.caspiansealevelchange.org">www.caspiansealevelchange.org</a></p>
486	<p><b>Au-Ag-Telluride-Selenide Deposits</b>            N. J. Cook (Norway), K. Kojonen (Finland)            2003-2007  <a href="http://www.ngu.no/igcp486">www.ngu.no/igcp486</a></p>
487	<p><b>Seismic Microzoning of Latin American Cities</b>            J. L. Alvarez Gómez (Cuba), A. Giesecke (Peru), G. F. Panza (Italy)            2004-2008  <a href="http://www.ictp.trieste.it/~sand/SMLAC/SMLAC.html">www.ictp.trieste.it/~sand/SMLAC/SMLAC.html</a></p>
493	<p><b>The Rise and Fall of the Vendian Biota</b>            M. Fedonkin (Russia), P. Vickers-Rich (Australia), J. Gehling (Australia)            2003-2007  <a href="http://www.earth.monash.edu.au/PreCsite/index.html">http://www.earth.monash.edu.au/PreCsite/index.html</a></p>
495	<p><b>Quaternary Land-Ocean Interactions</b>            A. Long (United Kingdom), S. Islam (Bangladesh)            2004-2008  <a href="http://www.geography.dur.ac.uk/Projects/Default.aspx?alias=www.geography.dur.ac.uk/projects/igcp495">www.geography.dur.ac.uk/Projects/Default.aspx?alias=www.geography.dur.ac.uk/projects/igcp495</a></p>
497	<p><b>The Rheic Ocean</b>            U. Linnemann (Germany), R. D. Nance (United States), M. de Wit (South Africa), E. Bozkurt (Turkey), P. Kraft (Czech Republic), F. Pereira (Portugal), R. A. Strachan (United Kingdom)            2004-2008  <a href="http://www.snsd.de/igcp497/">http://www.snsd.de/igcp497/</a></p>
499	<p><b>Devonian land-sea interaction: Evolution of Ecosystems and Climate in the Devonian</b>            P. Königshof (Germany), J. Lazauskiene (Lithuania), E. Schindler (Germany), Volker Wilde (Germany) and N. Yalçin (Turkey)</p>

- 2004-2008  
<http://www.ipc2006.ac.cn>
- 500 Dryland Change: Past, Present, Future**  
D. Thomas (United Kingdom)  
2004-2008
- 502 Global Comparison of Volcanic-hosted Massive Sulphide Districts**  
R. Allen (Sweden), F. Tornos (Spain), J. Peter (Canada), N. Çagatay (Turkey)  
2004-2008  
[www.ltu.se/tkg/avd/kgoforsk/IGCP](http://www.ltu.se/tkg/avd/kgoforsk/IGCP)
- 503 Ordovician Palaeogeography and Palaeoclimate**  
T. Servais (France), D.A.T. Harper (Denmark), J. Li (China), A. Munnecke (Germany), W. Owen (United Kingdom), P.M. Sheehan (United States)  
2004-2008 <http://sarv.gi.ee/igcp503/>
- 506 Marine and Non-marine Jurassic**  
Jingeng Sha (China), Nicol Morton (France), W. A.P. Wimbledon (United Kingdom), Paul E. Olsen (United States), Alberto G. Riccardi (Argentina), Grzegorz (Gregory) Pieńkowski (Poland), Yongdong Wang (China)  
2005-2006 (2009)  
<http://www.niqpas.ac.cn/IGCP506>
- 507 Paleoclimates of the Cretaceous in Asia**  
Yong Il Lee (Korea), Xiaoqiao Wan (China), Takashi Sakai (Japan), and Krishnan Ayyasami (India)  
2006-2010  
<http://igcp507.kopri.re.kr/>
- 509 Palaeoproterozoic Supercontinents and Global Evolution**  
S.M. Reddy (Australia), D.A.D. Evans (United States), R. Mazumder (India)  
2005-2009  
<http://earth.geology.yale.edu/igcp509/>
- 510 A-type Granites and Related Rock through Time**  
Roberto Dall'Agnol (Brazil), Carol D. Frost (United States), O. Tapani Rämö (Finland), L.J. Robb (South Africa)  
2005-2009  
<http://www.igcp-510.org>
- 511 Submarine Mass Movements and Their Consequences**  
Jacques Locat (Canada), Juergen Mienert and Roger Urgeles - (IOC link)  
2005-2009  
<http://www.geohazards.no/IGCP511>
- 512 Neoproterozoic Ice Ages**  
Graham Shields (Australia), Emmanuelle Arnaud (Canada)  
2005-2009  
[www.igcp512.com](http://www.igcp512.com)
- 513 Karst Aquifers and Water Resources**  
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- 526 Risks Resources and Record of the Past on the Continental Shelf**  
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- 529 Availability of groundwater resources in selected urban areas in Southern African Development Community (SADC) region**  
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- 546 Subduction zones of the Caribbean**  
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- 557 Diamonds, xenoliths and kimberlites**  
Holger Sommer (Botswana), Klaus Regenauer-Lieb (Australia), Christoph Hauenberger (Austria) Jonathan Kashabano (Tanzania), Gétan Moloto-A-Kenguemba (Université de Bangui)
- 559 Crustal Architecture and landscape Evolution**  
Bruce R. Goleby (Australia) and 14 members (USA, Canada, China, Finland, Netherlands, New Zealand, Russia)  
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- 565 Geodetic Monitoring of the Global Water Cycle**  
Hans-Peter Plag (USA), Richard S. Gross (USA), Markus Rothacher (Germany), Norman L. Miller (USA), Susanna Zerbini (Italy), Chris Rizos (Australia)  
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- 567 Earthquake Archaeology – Archaeoseismology along the Alpine-Himalayan seismic zone**  
Manuel Sintubin (Belgium), Iain Stewart (United Kingdom), Tina Niemi (USA), Erhan Altunel (Turkey)  
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- 572 Permian-Triassic ecosystems**  
Zhong Qiang Chen (Australia), Richard J. Twitchett (United Kingdom), Jinnan Tong (China), Margret L. Fraiser (USA), Sylvie Crasquin (France), Steve Kershaw (United Kingdom), Thomas J. Algeo (USA), Kliti Grice (Australia)  
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<b>Funded projects</b>	<b>33</b>
<b><u>O.E.T. (on extended term)</u></b>	<b>5</b>
<b>Total</b>	<b>38</b>

## APPENDIX 8

# Acronyms Used by IUGS

AAPG	American Association of Petroleum Geologists
AAS	NC for Solid Earth Sciences
AAS	Australian Academy of Science
AAWG	Association of African Women Geoscientists
AEGS	Association of European Geological Societies
AGA	Arab Geologist Association
AGA	Asociación Geológica Argentina
AGI	American Geological Institute
AGID	Association of Geoscientists for International Development
AGS	Albanian Geological Survey
AGSO	Geoscience Australia
AGU	American Geophysical Union
AIPEA	Association Internationale Pour l'Etude des Argiles
ANCG	Austrian National Committee for Geosciences
ANGPA	Asociacion Nacional de Geólogos Profesionales Afines
ASRT	Academy of Scientific Research and Technology
Az NCG	Azerbaijan NC of Geologists for IGCP and IUGS
BGS	Belarussian Geological Society
BUMIGEB	Bureau of Mines and Geology of Burkina Faso
CBCG	Comitê Brasileiro de Ciências Geológicas, Brasília
CBGA	Carpathian Balkan Geological Association
CCCDRLP	Coordinating Committee on Continental Drilling for International Lithosphere Program
CCOP	Coastal Committee for Offshore and Geoscience
CFES	Canadian Federation of Earth Sciences
CGI	Commission on the Management & Application of Geoscience Information
CGMW	Commission for the Geological Map of the World
CIFEG	International Center for Training and Exchanges in the Geosciences
CNFG	Comité National Français de Géologie
CODATA	Committee on Data for Science and Technology
COGE	IUGS Commission on Education, Training and Tech Transfer
COSPAR	Committee on Space Research
COSTED/IBN	Committee on Science & Technology in Developing Countries
CPC	Circum-Pacific Council
DGRM	Dirección General de Recursos Minerales
DGSM	Department of Geological Survey and Mines
DINAGE	La Dirección Nacional de Geología
DMG	Dirección des Mines et de la Geologie
DNC	Danish National Committee for Geology
DOSECC	Drilling, Observation and Sampling of the Earth's Continental Crust
EAGE	European Association Geological Engineering
EASE	European Association of Science Editors
EGU	European Geosciences Union
EMU	European Mineralogical Union
ENCGS	Egyptian National Committee of Geological Sciences
EstNCG	Estonian National Committee for Geology
FCT	Fundação para a Ciência e Tecnologia
FNCG	Finnish National Committee for Geology

GARS	IUGS/UNESCO Program on Geological Application of Remote Sensing
GEM	Geoscience for Environmental Management
GMD	Geologisch Mijnbouwkundige Dienst
GRAS	Geological Research Authority of Sudan
GS	Geochemical Society
GSL	Geological Society of London
GSA (m)	Geological Society of America
GSA (f)	Geological Society of Africa
GSB	Geological Survey of Bangladesh
GSC	Geological Society of China
GSC	Geological Society of Croatia
GSD	Geological Survey Department, Cyprus
GSD	Geological Survey of Zambia
GSI	Geological Survey of Iran
GSI	Geological Society of India
GSMRB	Geological Survey and Mineral Resources Board
GSN	NC for Geological Sciences for New Zealand
GSN	GSN's Subcommittee for IUGS
GST	Geological Survey of Tanzania
GV	Geologische Vereinigung
IAEG	International Association of Engineering Geology and the Environment
IAG	International Association of Geomorphologists
IAGC	International Association of GeoChemistry
IAGC	The Indonesian Association of Geologists
IAGOD	International Association on the Genesis of Ore Deposits
IAH	International Association of Hydrogeologists
IAMG	International Association for Mathematical Geology
IAS	International Association of Sedimentology
IAU	International Astronomical Union
ICL	International Consortium on Landslides
ICS	International Commission on Stratigraphy
ICS ISES	Subcommission on Ediacarn Stratigraphy
ICS SCCS	Subcommission on Carboniferous Stratigraphy
ICS SSC	Subcommission on Stratigraphic Classification
ICS SCS	Subcommission on Cretaceous Stratigraphy
ICS SDS	Subcommission on Devonian Stratigraphy
ICS SJS	Subcommission on Jurassic Stratigraphy
ICS SNS	Subcommission on Neogene Stratigraphy
ICS SOS	Subcommission on Ordovician Stratigraphy
ICS SPS	Subcommission on Paleogene Stratigraphy
ICS SPS	Subcommission on Permian Stratigraphy
ICS SSS	Subcommission on Silurian Stratigraphy
ICS STTP	Subcommission on the Terminal Proterozoic System - finished
ICS-STS	Subcommission on Triassic Stratigraphy
ICSU	International Council for Science
ICSU-Africa	ICSU Regional Office for Africa
ICSU-Asia	ICSU Regional Office for Asia and the Pacific
IFPS	International Federation of Palynological Societies
IGCC	International Geological Congress Committee
IGCP	IUGS-UNESCO International Geoscience Program
IGEO	International Geoscience Education Organization
IGME	Institute of Geology and Mineral Exploration

IGU	International Geographical Union
ILP	International Lithosphere Program
IMA	International Mineralogical Association
IMGA	International Medical Geology Association
INGEOMIN	National Institute of Geology and Mining
INGEOMET	Instituto Geologico Minero y Metalurgico
INHIGEO	International Commission on the History of Geological Sciences
INQUA	International Union for Quaternary Research
IPA	International Palaeontological Association
IPA	International Permafrost Association
IRGM	Institute for Geological and Mining Research
ISCS	Subcommission on Cambrian Stratigraphy
ISPGJ	Albanian Geological Research Institute
ISPRS	International Society for Photogrammetry and Remote Sensing
ISRM	International Society for Rock Mechanics
ISSMGE	International Society of Soil Mechanics & Geotechnical Engineering
IUGG	International Union of Geodesy and Geophysics
IUGS	International Union of Geological Sciences
IUSS	International Union of Soil Sciences
IWGSSM	International Working Group on Sustainable Subsurface Management
IWGUG	International Working Group on Urban Geology
IYPE	International Year of Planet Earth
JGA	Jordanian Geologists Association
JMG	Minerals and Geoscience Department Malaysia
KazGEO	The Kazak Geological Society
Met. Society	Meteoritical Society
MGS	Ministère de l'Energie et des Mines
MIME	Dirección Nacional de Minería y Geología
MME	Commission for Geological Sciences
NC	Nominating Committee
NDG	National Directorate of Geology
NGWA	National Ground Water Association
ONM	Office National des Mines
ORGM	Office National de Recherche Géologique et Minière
PAGS	Pakistan Academy of Geological Sciences
PC	Publications Committee
ProGEO	The European Association for the Conservation of the Geological Heritage
RASAB	The Royal Academies of Sciences and Arts of Belgium
RNCG	Russian National Committee of Geologists
RSZN	Royal Society of New Zealand
SC-IGBP	Scientific Ctte. for the International Geosphere-Biosphere Prog.
SCAR	Scientific Committee on Antarctic Research
SCCT	Subcommission on Computing in Tectonics
SCFCS	Standing Committee on Freedom in the Conduct of Science
SCMR	Subcommission on the Systematics of Metamorphic Rocks
SCNS	Swedish National Committee for Geology
SCOPE	Scientific Committee on Problems of the Environment
SCOR	Scientific Committee on Oceanic Research
SDBP	Subcommission on Data Bases for Petrology
SECE	Commission on Solid Earth Chemistry and Evolution
SEG	Society of Economic Geologists, Inc.
SEPM	Society for Sedimentary Geology

SERGIOTECMIN	Servicio Nacional de Geología y Minería
SEUA	Laboratory of Experimental Seismotectonics
SGA	Society for Geology Applied to Mineral Deposits
SGCH	Sociedad Geologica de Chile
SGS	Saudi Geological Survey
SIS	Stratigraphic Information Services
SNIG	Sistema Nacional de Instituto Geografico
SPC	Subcommission on Precambrian Stratigraphy
SQS	Subcommission on Quaternary Stratigraphy
SSIR	Subcommission on the Systematics of Igneous Rocks
SSSR	Subcommission on Systemics of Sedimentary Rocks
TECTASK	Task Group on Tectonics and Structural Geology
TGGB	IUGS Task Group on Global Geochemical Baselines
TGPA	IUGS Task Group on Public Affairs
TIGG	Isotope Geology and Geochronology
UFRSTRM	CURAT – Science de la Terre e des Ressources minieres
UNAM	National Committee for Geological Sciences
URSI	International Union of Radio Science
USNC	U.S. National Committee for IUGS
Uzbekistan NC	National Committee of Geologists of Uzbekistan
VUGS	Vietnam Union of Geological Sciences

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