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The ***front cover*** shows part of the geological map of the Auckland region of New Zealand, prepared by Christian Gottlieb Ferdinand Hochstetter (1829–1884). Ferdinand Hochstetter was born in Esslingen, Württemberg, Germany and entered the University of Tübingen in 1849, finishing with a PhD on the mineralogy of calcite in 1852. In 1856, he joined the Austrian Geological Survey (Kaiserlich-königliche geologische Reichsanstalt) and in 1857 he sailed from Trieste on the Novara Expedition, calling at Australia, before arriving in New Zealand on 22 December 1858, where he was asked to undertake mapping of the Drury Coalfield, in conjunction with Julius Haast (1822-1887). Hochstetter and Haast then went south to the Nelson province before Hochstetter returned to Austria in January 1860. The map shown, which is amongst the first detailed geological maps of New Zealand produced, was published in 1864 in *Reise der Österreichen Fregate Novara um die Erde. (Original courtesy of Dr Albert Schedl of the Geologisches Bundesanstalt, Vienna)*.



# Foreword

**By Prof. Ed F. J. de Mulder**
**President of IUGS 2000-2004**

*This is the first Annual Report of the International Union of Geological Sciences (IUGS). During the past 41 years, IUGS has kept you updated about its activities through the minutes of the annual meetings of the Executive Committee and, more recently, through its website (www.iugs.org). To date, 50 Executive Council meetings have been held, the last one having been in February 2002, in Lower Hutt, New Zealand. Inspired by this, the present Executive Committee considered it timely to provide you with not only the administrative matters forming the bulk of the Executive Committee meetings, but also with details of the scientific progress of the IUGS bodies and its Affiliated Organisations. One of the recommendations by the Strategic Planning Committee was directed to a better exposure of IUGS and this Annual Report is  an attempt to do so. Other efforts to improve our visibility are the e-mail bulletins to the Affiliated Organisations and Adhering Bodies which provide concise and factual information, and our expanded website. The minutes of the Executive Committee meetings will still be accessible on the IUGS website and may be ordered in printed format as well.*

*This report covers the major activities of IUGS since the Executive Committee started its term of office in August 2000; future reports will cover only the period between the annual Executive Committee meetings. Two issues are particularly highlighted in this report: what we have done to develop a Strategic Action Plan and our efforts to get an International Year of Planet Earth proclaimed, together with UNESCO and other geoscientific bodies. Both topics are well under way and you will hear more about them soon.*

*As this is the first IUGS Annual Report, we would greatly appreciate your comments. Please send these to our Permanent Secretariat at iugs.secretariat@ngu.no.*

*On behalf of the Executive Committee, I hope you enjoy reading this report!*

# The Strategic Action Plan

The Strategic Action Plan is the result of the ad hoc Strategic Planning Committee meeting held in Prague, Czech Republic, between September 12-14, 1999. This Committee, which was set up by IUGS during the Presidency of Robin Brett and chaired by Peter Cook, produced a report titled *"International Earth Science in the 21st Century"* in 2000, in which 32 recommendations were made to improve the relevance and impact of IUGS in the upcoming new millennium. These recommendations were discussed at the 46th IUGS Executive Committee meeting in Cairo, January 2000, published in March 2000 and officially adopted at the IUGS Council Meeting during the 32nd IGC meeting in Rio de Janeiro, August 2000. The Council requested the Executive Committee to proceed with implementing the recommendations and this is considered by the current Executive Committee to be its top priority. The 32 recommendations are all geared to a better exposure of the Geosciences to the public, to a better involvement of IUGS in international science programmes and at a better organisation. At a meeting in Catania, Sicily, in December 2000, a Project Team, comprising members of the Executive Committee (Ed de Mulder, Attilio Boriani, Werner Janoschek, Jane Plant, Tadashi Sato and Peter Bobrowsky), developed the framework for a Strategic Action Plan and established eleven Task Groups, covering all the fields touched on by the Strategic Planning Committee and in which all members of the Executive Committee were involved. A first draft of the Strategic Action Plan, describing the various actions of the Task Groups was sent for comments to the members of the Council in May 2001. An extraordinary meeting of the Executive Committee (49th EC meeting) was held in late-September, 2001, in the People's Republic of China, solely dedicated to further development of the Strategic Action Plan. By then, 75% of the actions proposed had already been addressed. By the 50th (ordinary) meeting of the Executive Committee, in New Zealand, in February 2002, considerably more progress had been made and at the end of that meeting the level of implemented actions had risen to 93% and the work of eight out of the eleven Task Groups was considered completed. The Task Groups dealt with the following topics:

*Task Group 1 (Research and Development)* set up a Committee for Research Directions (CRD) for identifying which scientific fields should be covered and stimulated by IUGS. This Committee is already active, having met in Paris in early February 2002. In addition, Ad-hoc Review Committees (ARC) were initiated for reviewing IUGS Commissions on a regular basis.

*Task Group 2 (Project Proposals)* developed criteria for new research grants to be provided by the IUGS for special fields strongly related to the Research Directions proposed by the CRD (see above).

*Task Group 3 (Joint Programmes)* explored possibilities for new joint research programmes to be undertaken together with other organisations. Several of these were identified and one of the new Councillors (Jean-Paul Cadet) was charged with coordination.

*Task Group 4 (Technology Transfer and Education)* dealt with geoscience education, training and technology transfer. To this end, it was proposed to collaborate closely with one of our new affiliated organisations, the International Geoscience Education Organisation (IGEO; see below).

*Task Group 5 (Exposure)* assessed the options for a better visibility and exposure of IUGS to the public and the geoscientific community. The officers met with senior experts in this field and preparations were made for developing a new logo, a new brochure, an electronic bulletin, conference poster/exhibition material, etcetera. Also, the International Year of Planet Earth (IYPE; see below) is perceived as a good way of increasing the exposure of IUGS.

*Task Group 6 (Publications)* developed new criteria for our house journal *Episodes* and paved the way for outsourcing non-serial publications. In addition, a long series of additional actions are ready for implementation.

*Task Group 7 (Finances)* set up the first steps to identify possibilities for increasing the financial income of IUGS.

*Task Group 8 (Commissions and Working Groups)* succeeded in developing new guidelines for the Commissions and other bodies in IUGS.

*Task Group 9 (International Geological Congress)* was charged with perhaps the most complicated task of all: To prepare for a merger of IUGS and the International Geological Congress (IGC). Although these bodies presently have separate Statutes and Councils, good progress has already been made.

*Task Group 10 (Affiliated Organisations)* explored the advantages of affiliation to IUGS for both parties. One of the Vice-Presidents (Peter Bobrowsky) was charged with coordination between IUGS and our Affiliated Organisations.

*Task Group 11 (National Committees)* addressed the relationship between IUGS and its Adhering Members, which are represented in the Council. A number of proposals and actions were developed to further improve this relationship.

The next step is to finalise the last few percent of the over 100 actions and to publish the Strategic Action Plan. This is due to be finalised in the late Autumn of 2002. The Strategic Action Plan process has been a very interesting exercise for all members of the Executive Committee and has contributed much to a better future for both the geosciences in general and IUGS in particular.

Details of the work undertaken by the Task Groups can be found at www.iugs.org/iugs/transact/ec49min1.htm



# The International Year of Planet Earth (IYPE)

As the Earth becomes more and more crowded, with the available natural resources necessarily further stretched, humankind will inevitably discover that very substantial financial and scientific investments need to be made to ensure that our children, as well as all subsequent generations, will be able to live healthily and in good harmony with the ecology of Earth, our home planet. This message is not well understood by politicians and the general public. Therefore, the IUGS aims to prepare society for such investments, initially to obtain a better understanding of how the Earth actually works, through undertaking major geoscientific research programmes, and secondly to raise public awareness of the value and relevance of such knowledge for ensuring a better and safer life on Earth. To that end, the Executive Committee launched an initiative in 2001 to proclaim, together with the United Nations, an *International Year of Planet Earth (IYPE)*, starting in 2004 and reaching a climax in 2007. The very successful International Geophysical Year (IGY), held in 1957 and 1958, served as a model for this Year.

With this initiative we aim:

– to demonstrate to the public (including the media and politicians) that the geosciences are indispensable for a sound development of our planet and
– to launch major geoscientific research programmes with a global outreach.

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This initiative was supported by the Earth Science Division of UNESCO, who immediately joined as a partner. In February 2001, the IUGS Executive Committee decided to explore the feasibility of this initiative. One year later, at its 50th meeting, the Executive Committee endorsed the report of this feasibility study and agreed to start the Preparatory Phase. A small Project Team, chaired by Henk Schalke, is currently exploring the level of moral and financial support for the IYPE. A Scientific Programme Committee, chaired by Ed Derbyshire, is preparing the major geoscientific issues to be addressed during the IYPE and plans are being made to get an Outreach Program developed.

With this rather ambitious project, IUGS met with not only great enthusiasm but also some scepticism. The IUGS encourages all organizations and individual geoscientists to participate in this initiative and to link the IYPE with your own National events. All suggestions are welcome at henkscha@wordonline.nl.

Some themes for IYPE have been provisionally identified:

- *Safe groundwater for a thirsty Planet.*
- *New resources and sustainable exploitation.*
- *Our last frontier: the subsurface; a transparent subsurface for transparent decision making.*
- *Risk reduction of natural hazards.*
- *Sustainable development of ocean floors.*
- *Early and deep life.*
- *Earth Impact on Global change.*
- *Future of this Planet and its People.*
- *Preserving Palaeorecords.*
- *Earth & Health.*

All of these topics, and many more, will be discussed by the Scientific Programme Committee, who will select some 6 to 8 topics for final implementation.

An initiative like this can only become successful if all geoscientific bodies join. Therefore, we need your support!



# IUGS – role, structure, membership

**THE ROLE OF THE IUGS**

The International Union of Geological Sciences, IUGS, which was founded in 1961, is the largest non-governmental, non-political, and non-profit making scientific union in the world. Since its inception, it has been a member of the International Council for Science (ICSU; http://www.icsu.org), a non-governmental organisation dedicated to international scientific collaboration for the benefit of mankind. The membership of ICSU comprises 26 International Scientific Unions and 98 National Academies of Science or Research Councils. ICSU provides sponsorship for research programmes carried out by the member Unions and may itself collaborate in some projects with the Unions. Within ICSU, IUGS is the largest Union, representing in the order of 800,000 Earth Scientists from its 114 Adhering Members.

IUGS supports both fundamental and applied research activities in all branches of the geosciences which are concerned with both the Earth´s and human welfare. This is done by promoting and funding international and interdisciplinary collaborative projects, often in conjunction with other major international agencies, particularly UNESCO (http://www.unesco.org).

The Executive Committee is dedicated to raising public awareness about the importance of the Geosciences to the world community. With this in mind, the concept of an International Year of Planet Earth (IYPE), planned for 2004-2007, has become a major factor; this is described in more detail above.

Further, a major aim of the present Executive Committee is to increase awareness of IUGS in the Geosciences community. Many geoscientists are unaware of the broad range of the projects sponsored by IUGS, except for the IGCP and ICS (International Commission on Stratigraphy) projects described in detail below. To increase this awareness, a number of tasks have been initiated, amongst which is the production of this Annual Report.

**STRUCTURE OF THE IUGS**

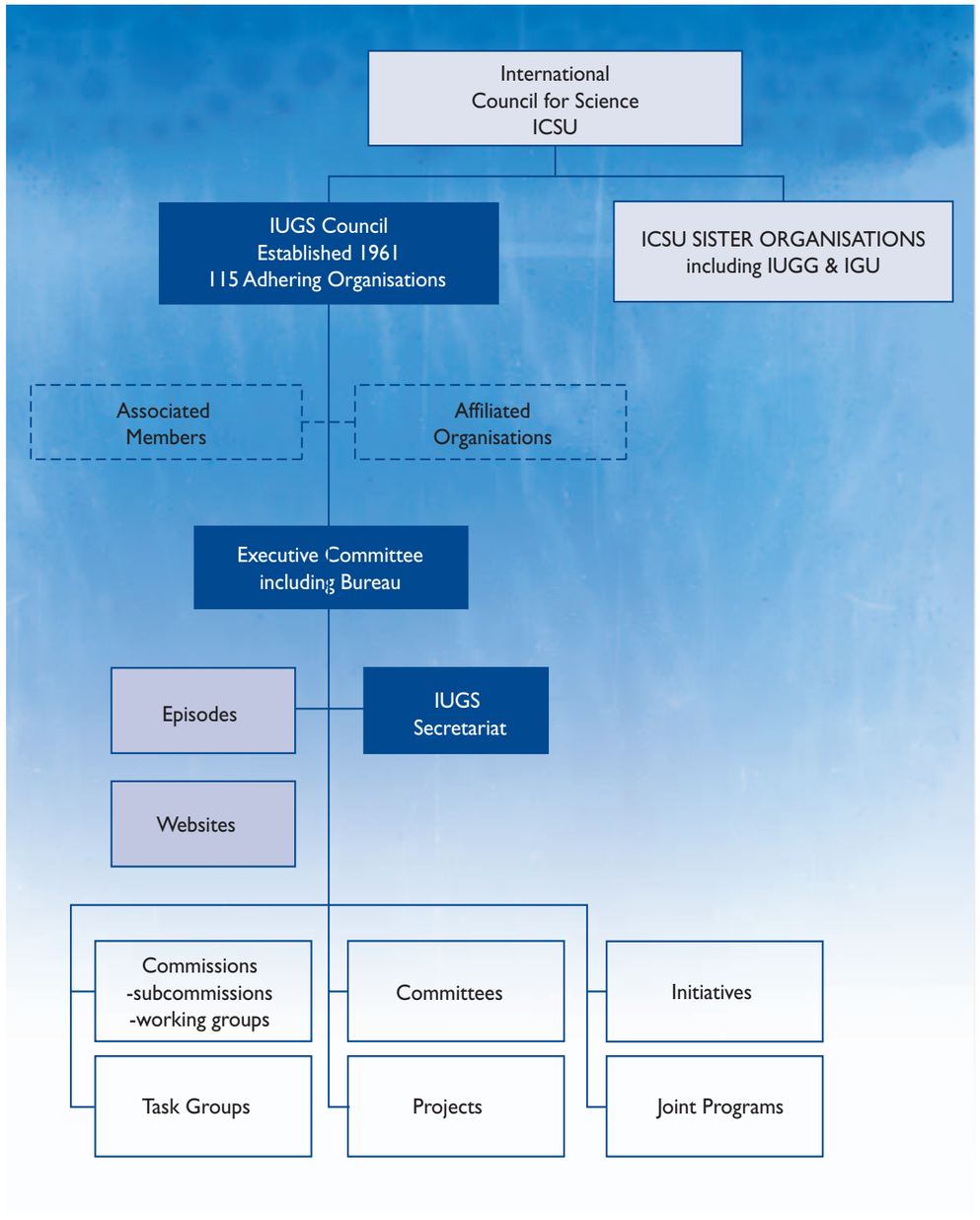
The IUGS consists of Adhering Members (see below) whose representatives constitutes the IUGS Council. This meets every four years, coincident with the International Geological Congress (IGC).

Since the adoption of the amended Statutes at the Council Meeting in August 2000, during the 31st International Geological Congress, the Executive Committee comprises the Executive Officers of IUGS: the President, the Secretary General, the Treasurer (together forming the Bureau), the Past-President, two Vice Presidents and four Councillors. For the period of this Report, four Vice-Presidents and two Councillors were in function, complying to the former IUGS Statutes.

The officers of the present Executive Committee (Appendix 1) were elected during the Council Meeting at the 31st IGC meeting in August 2000, in Rio de Janeiro, Brazil, and will serve until the 32nd IGC meeting, in Florence, Italy, in August 2004. However, the elected Secretary General for 2000-2004, Attilio Boriani, resigned in February 2002 due to his commitments to the Florence Congress, to which he has been elected as President. Werner Janoschek, then Treasurer, was elected as the new Secretary General in February 2002, whilst remaining as Acting Treasurer until a new Treasurer is elected (at the end of 2002).

IUGS also maintains a permanent secretariat in Trondheim, Norway, for the day-to-day operations of the Union (Appendix 1). Here, the main documentary archives of IUGS are stored. The postal address is given at the start of the report.

*IUGS Secretariat staff. Hanne Refsdal and Anne Liinamaa-Dehls.*




A considerable amount of further information about IUGS may be obtained from the IUGS website, www.iugs.org, currently run by John Aaron (jaaron@his.com) and through *Episodes*. This also provides links to the various projects sponsored by IUGS and to other relevant international agencies.

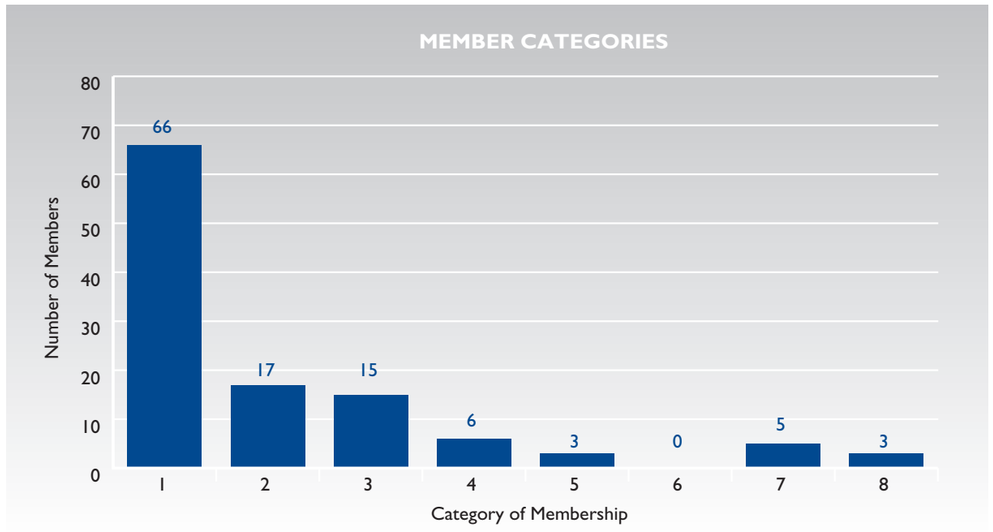


**Executive and Bureau Meetings in 2001**

There were two Executive Committee meetings in 2001. The 48th Executive Committee meeting was held in Hyderabad, India, between February 24 and March 2. The 49th Executive Committee meeting was held in Yichang, China, from September 24 to 28. Both meeting were superbly organised and hosted (by the National Geophysical Research Institute in Hyderabad, India, and by the Ministry of Land and Resources of the People's Republic of China, respectively). Normally only one such meeting is held every year; the second meeting in 2001, however, was especially dedicated to the Strategic Action Pan (see above). A complete list of Executive Committee and Bureau meetings held by the present IUGS Officers is given in Appendix 1.

**MEMBERSHIP OF THE IUGS**

There are 114 Adhering Members of IUGS, with Peru set to join and become the 115th Member. The Members include c. 70% of the countries in the world. A detailed breakdown of the Adhering Members is given at the end of the Report, in Appendix 2. Of the 114 Members, 84 are active (74%) and 30 (26%) are inactive, the latter being those which are three year in arrears with their Membership Fees. To become active again, an Adhering Member must pay the Membership Fee for the last three years (Membership Fees for 2000-2002 are given in Appendix 3). Only active Members are allowed to vote in IUGS matters.




Unfortunately, most inactive Members (50%) come from Africa, as do many of the larger countries, which are not Adhering Members of IUGS, reflecting the serious poverty of much of this geologically important continent. Despite the poor national representation on the list of active members, IUGS maintains strong links with the continent, particularly through the Geological Society of Africa, which is an Affiliated Organisation, and many of the IGCP projects are undertaken in collaboration with African scientists. In April 2001, the IUGS President had the pleasure of attending the Annual Meeting of the Geological Society of Africa, held in the Cameroon.

The Membership Fee varies according to the Membership Category, each category being assigned a number of units, which acts as a multiplier of the basic unit fee (Appendix 3). This unit was set at US $ 420 in 2001, but will rise to US $ 440 in 2002 and subsequently will be linked to the inflation rate in the USA. Currently, the inflation rate in the United States is amongst the lowest in the world.

By far the largest number of Adhering Members lies within Category 1, with fewer members in the higher categories. No Adhering Members are in Category 6, and only three are in the highest Category (Category 8; Japan, Russia and the USA).

Two independent organisations are Associate Members of IUGS. These are the Australian Geological Survey Organisation and King Abdulaziz City for Science and Technology, Saudi Arabia.

## IUGS COMMITTEES

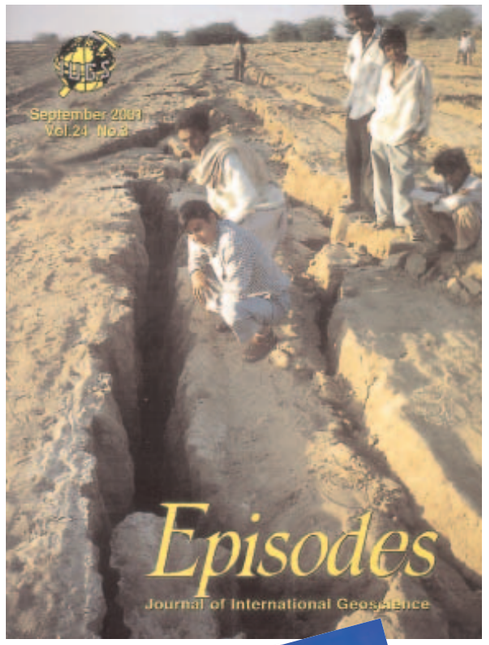
### Committee for Research Directions

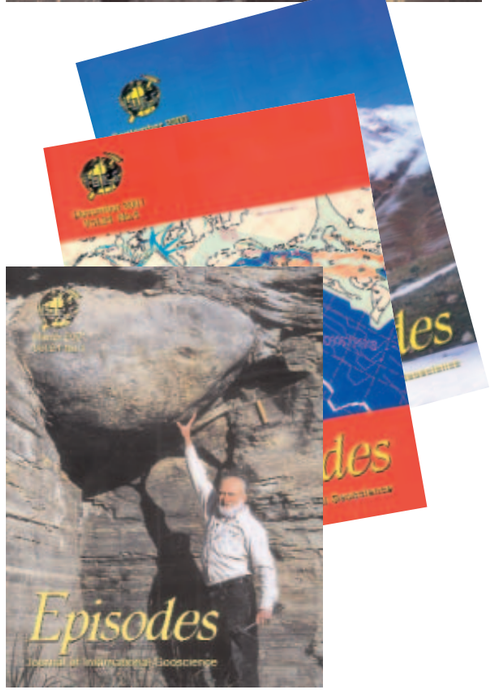
This Committee explores new fields of scientific research to be supported by IUGS and advises the Executive Committee in such matters. It comprises Edward Derbyshire (Chairman), Maurizio Gaetani, James Teller, Gerhard Wörner, Victor Ramos, Ian Dalziel and Sylvi Haldorsen, with the President and Secretary General of IUGS as ex-officio members. The Committee, which met for the first time in Paris, February 2002, was created in response to Strategic Action Plan.

### Publication Committee

This Committee identifies appropriate ways to publish IUGS material, either through its home Journal *Episodes*, through its website, or through external publishing houses. The current Committee comprises Anthony Berger (Chairman), Fred Spilhaus, and two members of the Executive Committee, Werner Janoschek and Peter Bobrowsky, together with two *ex officio* observers, the webmaster (John Aaron) and the Editor-in-Chief of *Episodes* (Zhang Hongren).






### Nominating Committee

This Committee compiles candidates for positions in the Executive Committee and proposes nominations to the members of the Council. The Committee comprises Robin Brett (Chairman, Past President), Wissam Al-Hashimi, Glenn Caldwell, Marta Mantovani, Isabelle Niang-Diop, Michael Schmidt-Thomé and Zhang Hongren. The Committee has been active twice during its term. Initially in preparing nominations for the election of a new Secretary-General, following the resignation of Attilio Boriani. Werner Janoschek, then Treasurer of IUGS, was elected as the new Secretary General. The process to elect a new Treasurer was then set in hand.

## TREASURER'S REPORT

The main income of IUGS consists of the annual fees of the Adhering Members and of earmarked contributions to the main scientific programmes, such as the IGCP, the GARS and the DMP (see below), which come from UNESCO and the US National Science Foundation. The biggest expenses are dedicated to the IGCP and to the Committees, Commissions, Task Groups and Initiatives of IUGS. A few of the IUGS Affiliated Organisations are supported with some seed money, particularly to enhance international cooperation and involvement of participants from developing coun-tries. Some money is spent on IUGS meetings, such as the Executive Committee Meetings, but it should be noted that the President, the Secretary General, the Treasurer and the Permanent Secretariat must fund all travel expenses from their own financial sources, provided by their national governments or science funding organisations. Financial details can be seen in Appendices 4 and 5. Further information can be obtained from the more comprehensive financial report regularly published in the March edition of *Episodes*. The most recent, for the year 2001, was printed in *Episodes*, Vol. 25/1.

## SCIENTIFIC ACTIVITIES OF THE IUGS

IUGS encourages geoscientific research through its Commissions, Task Groups (formerly Working Groups), Joint Programs and Initiatives. In addition, scientific projects are run collaboratively with UNESCO (IGCP), other ICSU members and ICSU itself. IUGS also sponsors the quadrennial International Geological Congress (IGC).

### IUGS Commissions

Commissions and their component sub-commissions address geoscientific topics requiring medium to long-term study.

### Commission on Geological Sciences for Environmental Planning (COGEOENVIRONMENT)

The Commission on Geological Sciences for Environmental Planning (http://www.sgu.se/hotell/cogeo/) is led by Colin Simpson (simpsons@webone.com.au), with Joy Pereira (joy@pkrisc.cc.ukm.my) as Secretary General. The Commission has a team of officers drawn from 14 countries and 250 Corresponding Members from 85 countries, and it interfaces with 25 other international bodies.

The aims of the Commission are to increase the importance of the role of geosciences in planning and managing the environment, not only in professional bodies, but also in the general public. Further, the Commission promotes research aimed at improving not only our understanding of the environment but also our ability to solve environmental problems through proper geoscientific input.

Within COGEOENVIRONMENT, the Geoindicators Initiative (www.geoindicator.org) received US $ 125,000 external funding over five years for assessing indicators of rapid environmental change - that is, changes in the environment, which may have a direct or indirect human impact on a timescale of less than 100 years. The Medical Geology Initiative (http://home.swipnet.se/medicalgeology) received US $ 30,000, as well as US $ 25,000 over 5 years external funding, for evaluating the influence of natural geological factors on the health of animals and humans and the environment. Both the effects of contamination by, for example, toxic or heavy metals, and the loss of other essential elements in the food chain (such as iodine, causing goitre) lie within the scope of the group. Further, the effects of natural high background radiation can be a significant health danger, especially for developing children.

*Landslide near highway east of Trondheim, Norway, April 2002. Photo: Morten Antonsen, Adresseavisen.*

COGEOENVIRONMENT maintains a Working Group on Urban Geology, covering natural disasters in urban areas. In addition, COGEOENVIRONMENT is assessing the feasibility of establishing a Working Group on Geology and Ecosystems and also a Working Group on Geological Heritage and Tourism.

### Commission on Global Sedimentary Geology (CGSG)

This Commission, chaired by Aymon Baud (aymom.baud@sst.unil.ch), promotes research into sedimentary deposits, their formation from erosion to deposition, their fossil assemblages and the development of the basins in which they lie. A further aim lies in the more applied problems of finding and husbanding the natural resources occurring in sedimentary rocks.

A new flagship project for CGSG *"Sedimentary environments of East Asia Mesozoic Deposits"* (SEAMED) has been adopted, under the leadership of Paul Markevitch, at the Far East Geological Institute, Vladivostok, Russia.

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

Manuel S. Pinto (mpinto@geo.ua.pt) is the Chairman of this Commission, with David R. Oldroyd as Secretary (d.oldroyd@unsw.edu.au). The Commission promotes the investigation and documentation of the history of the Earth Sciences and aims to stimulate national and regional bodies that have the same purpose. The Commission, which is affiliated with the International Union of the History and Philosophy of Sciences, produced a substantial Newsletter (No 34, for 2001; ISSN 1028-1533) containing short articles, book reviews and conference/exhibition reports. There is an elected membership of 171 from 37 countries. 14 new members were elected in 2001.

INHIGEO is responsible for the ˙Classic Papers´ series in *Episodes*, the IUGS journal, in which critically important papers in the Earth Sciences are reviewed and assessed. To date, papers by Mohorovi? and Wadati (both seismologists) and by Lapworth (biostratigrapher) have been published.

### International Commission on Stratigraphy (ICS)

The International Commission for Stratigraphy (http//:www.micropress.org/stratigraphy), which is the largest Commission within IUGS, is chaired by Felix Gradstein (felix.gradstein@geologi.uio.no), with James Ogg as Secretary (jogg@purdue.edu). The Commission promotes and coordinates long-term international cooperation and standardisation in stratigraphy. In 2001, the Commission was revamped, with a greater emphasis on web-based data dissemination.

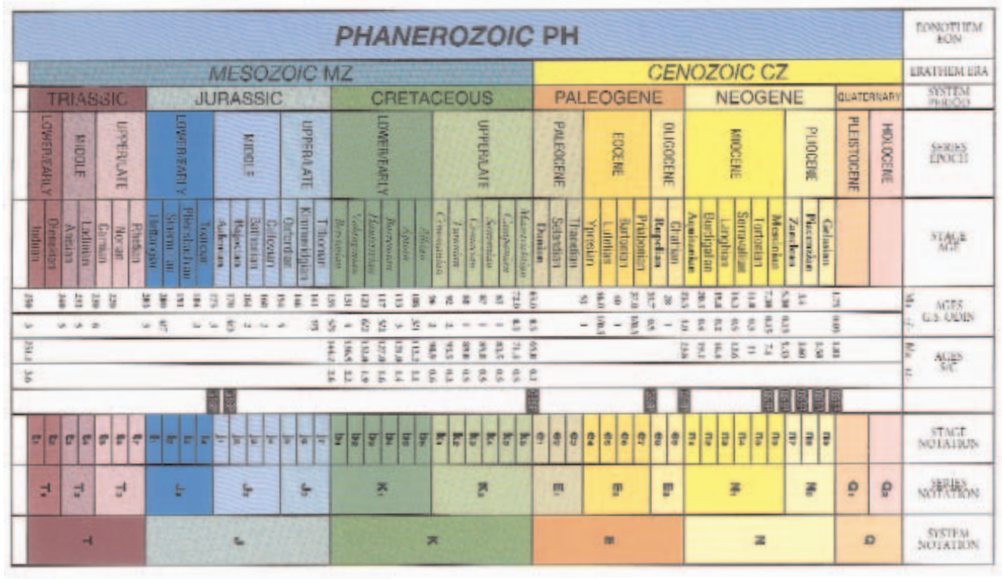
The Commission has 14 Subcommissions on Stratigraphy, covering the complete range of Earth history, as well as a Subcommission on Geochronology and on Stratigraphic Classification. The Stratigraphic Subcommissions fix the boundaries (with Global Stratotype Sections and Points; GSSPs) between the Series and Stages that comprise the stratigraphic column. To date, 38 boundaries have been fixed. In 2001, the base of the Cenomanian was approved by ICS and submitted to IUGS for ratification and the base of the upper stage of the Lower Ordovician and the base of the Upper Ordovician Series were submitted to ICS for voting. These were all ratified in 2002 by IUGS at the 50th Executive Committee meeting. Five other GSSPs are in an advanced stage of preparation. A complete lists of GSSPs, together with the reference to their official published description is given in Appendix 6.

At their request, the Subcommissions on Gondwana and on the Precambrian and the Committee on Quantitative Stratigraphy were dissolved. Note, however, that the Subcommission on the Terminal Proterozoic is still active. A new Subcommission, on Stratigraphic Informa-tion Systems, has been proposed.

### Commission on Systematics in Petrology (CSP)

The Commission on Systematics in Petrology (www.unifrei berg.de/minpet/ IUGS-CSP.html), which is chaired by Giuliano Bellieni (giuliano@dmp.unipd.it) aims to standardise the classification of igneous, metamorphic and sedimentary rocks and to produce a comprehensive rock nomenclature that will ease communication between geoscientists.

The Subcommission on the Systematics of Igneous Rocks (SSIR) is chaired by Mike le Bas. This Subcommission has prepared the revised, 2nd edition of *A Classification of Igneous Rocks and Glossary of Terms. Recommendation of the IUGS Subcommission on the Systematics of Igneous Rocks* for publication. The Sub-




commission on the Systematics of Metamorphic Rocks (SSMR; http//:www.bgs.ac.uk/SCMR) is chaired by Douglas Fettes and the Subcommission on Data Bases for Petrology is chaired by José Brändle. A Subcommission on Systematics in Sedimentary Rocks is currently being reformed under the guidance of Niichi Nishiwake (Nara, Japan; niichi@mkc.zaq.ne.jp)

**Commission on Tectonics (COMTEC)**
The Commission, chaired by Tom Blenkinsop (Thomas.Blenkinsop@jcu.edu.au), promotes world-wide high quality research in structural geology and tectonics.

The Subcommission on Tectonic and Surface Process Interaction (SOTSPI) is aimed at reducing vulnerability of communities to natural hazards. The Subcommission on the Rheology of Rocks is a joint USA and Argentine project in the Sierra Pampenas, involving the training of Argentineans in modern structural techniques and isotopic methods.

**Commission on the Management and Application of Geoscience Information (COGEOINFO)**
After the retirement of several leading members, plans are in progress to reform the Commission. Further details can be obtained from the IUGS Secretary General. A particular interest of the new Commission will be the development and evaluation of a set of international standards in the Geo-Information realm.

**IUGS Task Groups**
Task Groups (formerly called Working Groups) deal with topics needing immediate action or short-term studies.

**Task Group on Global Geochemical Baselines**
This combined IUGS and International Association of Geochemists and Cosmochemists (IAGC) Task Group, led by Jane Plant (j.plant@bgs.ac.uk) and David Smith (dsmith@usgs.gov) is preparing a global database of the concentration and distribution of chemical elements and species in the Earth's near-surface environment. The data will eventually be presented in maps, to be used as a baseline against which the impact of human and/or natural events can be recognised and measured.

In 2001, major progress was made in India, where funding has been obtained for sampling in about one tenth of the country, and in the member countries of the Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia (CCOP; see below), where plans to make an inventory of existing geochemical data in SE. Asian countries, rather than re-sampling the area, are being developed.

Sampling has been completed in all European countries and analyses are due to be completed by the end of the year. Data compilation and management, supported by the Association of Geological Surveys of European Union Countries (EuroGeosurveys; http://www.eurogeosurveys.org) and the Forum of European Geological Surveys of all European Countries (FOREGS; http://www.pgi.waw.pl/foregs/), are already under discussion. Preliminary maps of the European geochemical data have been prepared.

**Task Group on Fossil Fuels**
The aim of the Task Group, which is led by Richard Sinding-Larsen (richard.sinding-larsen@geo.ntnu.no), is to promote research and provide information on the efficient, economic and environmentally sustainable exploitation of fossil fuels. In 2001, the Group developed and deployed a geointelligence website (www.geointelligence.org) to assists workers in obtaining important information concerning fossil fuels. Such a facility is particularly important for developing countries and groups outside the major industry players.

**Task Group on Geochronological Decay Constants**
The re-evaluation and re-assessment of isotopic decay constants, abundances and uncertainties, critical for all isotopic and geochronological work, is the objective of the Working Group, led by Igor Villa (igor@geo.unibe.ch) together with Paul Renne (prenne@bgc.org).

The main achievement in 2001 was raising the first wave of consciousness of the project and the initiation of new experiments related to the project, which is aiming to present its conclusions at the 2004 IGC meeting in Florence, Italy.

**IUGS Collaborative projects**
**International Geological Correlation Program (IGCP)**
The International Geological Correlation Program (www.unesco.org/science/earthsciences/igcp/index.htm) is a research programme jointly launched in 1972 by IUGS and UNESCO and thus is celebrating its 30th anniversary. The name will be revised in 2002 to the International Geoscience Programme, but the old acronym and logo, IGCP, will be retained.



The IGCP is governed by a Scientific Board of 16 established experts, split into four thematic Working Groups. The Board is chaired by Edward Derbyshire. Two ex-officio members from IUGS (the President and Secretary General) support this team. The Secretariat of the IGCP is based at the Earth Science Division of UNESCO, with all financial transactions passing through the Treasurer of the IUGS. The annual budget for 2001 from UNESCO/IUGS was US $ 284,900. This acts as seed money, from which the total IGCP budget may rise by over 100 times through leverage funding from additional sources, obtained separately by the projects.

IGCP facilitates international cooperation among geoscientists and enhances collaboration, through joint research work, meetings and workshops. IGCP maintains active links with related research fields, such as hydrology, ecology and marine, atmospheric and biological sciences. Currently, IGCP operates in about 150 countries and involves several thousand geoscientists.

The projects are focussed on large-scale geological problems, requiring international and inter-disciplinary investigation. In 2001, 37 projects were funded (see Appendix 7). Normally projects last for five years but in some cases they can be continued for one year more, on `extended term´. Project details and application forms can be downloaded from the IGCP homepage.

**Geological Applications of Remote Sensing (GARS)**
The GARS programme was founded as a collaborative project of UNESCO and the IUGS in 1983 to promote the use of and dissemination of results of advanced remote sensing techniques in the study of geological structures and geodynamic processes. The programme (http://www.unesco.org/science/earthsciences/gars/) is currently led by Dietrich Bannert (dietrich.bannert@dgr.de), with Robert Missotten of UNESCO (r.missotten@unesco.org) as Secretary.

The main project currently is the GARS-ASIA PROJECT (1995-2001) concerning the identification of mudflows (lahars) through integration of passive and active sensor data. This is mainly carried out on Mt Pinatubo, as a consequence of its 1991 eruption. The

recognition of older lahars is an important factor in the evaluation of the risk of new lahar flow developments.

**Deposit Modelling Programme (DMP)**
This joint UNESCO-IUGS programme was also founded in 1983 to promote advanced techniques in mineral resource assessment and exploration with a view to assisting the sustainability of developing countries. The Programme (http://www.unesco.org/science/earth-sciences/ dmp/) is currently led by Kathleen Johnson (kjohnson @usgs.gov), with Robert Missotten of UNESCO (r.missotten@unesco.org) the Secretary. DMP organised a very successful field workshop on *Sediment-hosted lead-zinc sulphide deposits in the northwestern Indian Shield*, in India, in December 2001.

**International Lithosphere Programme (ILP (SCL))**
This Programme (http://www.gfz-potsdam.de/pb4/ilp/), which was instituted in 1980, seeks to elucidate the nature, dynamics, origin and evolution of the lithosphere, with special attention to the continents and their margins. The Programme, which is funded by IUGS, IUGG, UNESCO and ICSU, is guided by the Scientific Committee on the Lithosphere (SCL), established by ICSU, with Asahiko Taira (ataira@ori.u-tokyo.ac.jp) as current Chairman and Kate Shedlock (shedlock@gld-vxa.cr.usgs.gov) the Secretary General.

**Scientific Committee on Problems in the Environment (SCOPE)**
Scientific Committee on Problems in the Environment (www.icsu-scope.org) is an ICSU led organisation of which IUGS is an active member. SCOPE is an interdisciplinary body of scientists which focuses on global issues of the environment and operates at the interface between scientific and decision making levels. Most member countries are from the less-developed parts of the world, with a large and varied range of supporting international organisations, including IUGS. SCOPE runs a number of projects, ranging from ecosystem changes, to radioactivity at nuclear sites, to land-ocean nutrient fluxes. IUGS is represented in SCOPE by Edward Derbyshire (100666.1577@compuserve.com).



# Organisations Affiliated with the IUGS

***36 geoscientific organisations are affiliated with IUGS, nearly all of which are professional organisations related to the geosciences. A major benefit for the larger Affiliates is that they are represented in ICSU and may, therefore, obtain funding from ICSU for project proposals forwarded through IUGS. For the smaller Affiliates, especially those working in the developing world, the funding, which may be obtained from IUGS, can act as seed money in obtaining additional funding. Further, because IUGS requires a minimum of 25% foreign membership in essentially national societies before they can become members, the IUGS Affiliate status is a clear reflection of the international nature of an organisation.***

# Organisations Affiliated with the IUGS



3**American Association of Petroleum Geologists (AAPG)**
The American Association of Petroleum Geologists (www.aapg.org) is one of the largest IUGS affiliates, with 30,165 members from 116 different countries. The Association fosters geoscientific research, the development of Earth Science related technology and a high standard of professional conduct. The Annual Meeting was held in Denver, Colorado with 7,122 attendees and the International Regional Conference and Exhibition was held in July in St. Petersburg, Russia with some 600 attendees from 25 countries. Six volumes were published by the AAPG, including «*Geological Perspectives of Global Climate Change*» and «*Risk Analysis and Management of Petroleum Exploration Ventures*». A new membership service called APPEX (AAPG Prospect and Property Exposition) was launched in August in Houston, Texas, with over 1,200 attendees. APPEX featured both domestic and international prospects and properties. The Association publishes the *Bulletin of the American Association of Petroleum Geologists as well as the AAPG Explorer.*

**American Geological Institute (AGI)**
The American Geological Institute (www.agiweb.org/) is a non-profit federation of 39 Member Societies, reflecting over 150,000 members. AGI provides information services to geoscientists, especially through its GeoRef database, covering some 4,500 journals from 100 countries in 35 languages, plays a major role in developing geoscientific curricula for schools in the USA and seeks to increase public awareness of the role of geosciences in the use of resources and the protection of the environment. Through its Government Affairs Program, AGI acts as an important link between the US federal government and the geoscientific community, ensuring that the views of the AGI members are heard and that the relevant geoscientific data reaches policy-makers. AGI publishes *Geotimes*, a monthly geo-news magazine.

**American Geophysical Union (AGU)**
The American Geophysical Union (www.agu.org), which represents 41,000 scientists from 117 countries, is a leader in the progressively more interdisciplinary and international research in the geosciences and is one of the IUGS´ largest Affiliates. The Union is concerned with the worldwide geoscientific study of the Earth and its environs, the dissemination of results from such studies and the promotion of co-operation and research in geophysics and related scientific branches. In 2001, all current issues of AGU journals (including *Journal of Geophysical Research, Water Resources Research* and the weekly *Eos*) were made available on HTML XML format by December 31; since then, papers have been published electronically when ready on a daily basis and collected periodically for a print edition. Additionally, back issues are available in electronic form (approx. 150,000 pages). The Union also publishes the online journal *G3 Geochemistry Geophysics Geosystems*, together with the Geochemical Society. Over 9000 scientists registered at the AGU Fall Meeting in San Francisco, in December.

**Arab Geologists Association (AGA)**
The Arab Geologists Association (AGA) is a non-governmental geological organization currently representing 11 Arabic countries from northern Africa and the Middle East. The Association, which represents some 25,000 Earth scientists either through individual or organisational/society membership, promotes the study of geology and the welfare of geologists in the Arab world. The Association represents the Arab world in International Commissions and supports conferences and commissions of Arab interest. AGA participated in the 7th Jordanian Conference held in Amman in April 2001 and in the 1st National Geological Conference in Iraq. AGA worked on the organisation of the 3rd Arab Symposium on Geological Correlation between Arab countries.

**Association Internationale Pour l´Etude des Argiles**
The International Association for the Study of Clays (www.agr.kuleuven.aglc.be/intorg/aipea/aipea.htm), which is currently seeking stronger industrial links, promotes clay research and technology, as well as international co-operation in the clay sciences. This is achieved through sponsoring conferences, stimulating and rewarding young scientists and promoting communications between clay researchers and technologists. The Association has a large number of affiliated national clay organisations.

**Association of European Geological Societies**
This is an umbrella organisation (www.uni-essen.de/geologie/aegs.htm) for fostering and maintaining stronger links between 31 Geological Societies in Europe, with several members from the former Soviet area, including Russia. This is done through regular meetings of representatives of the member Societies. In 2001, the Executive Committee of AEGS was strengthened, with representatives from Austria, Denmark, Estonia and Italy joining. The biannual meeting (MAEGS-12) was held in September, in Krakow, Poland, with over 100 participants from 16 countries. In celebration of the 25th anniversary of AEGS (1975 – 2000), a Chronicle of AEGS had been published.

**Association of Exploration Geochemists**
This Association (http://www.networxhosting.com/aeg/index.html), which specialises in exploration and applied geochemistry, with about 900 members, encourages all activities that further the profession, including sponsoring research, the exchange of information, publishing scientific material and sponsoring conferences. AEG sponsored the 20th International Geochemical Exploration Symposium (IGES), *"Geochemistry and Exploration: 2001 and Beyond"*, in Chile, with technical sessions, workshops and field trips. The Association sponsors the publication of the journal *Geochemistry: Exploration, Environment, Analysis* in partnership with the Geological Society of London, and publishes a monthly newsletter, *EXPLORE*, containing timely articles on both exploration and environmental geochemistry topics. The Association produces special publications and conducts short courses on topics of concern in the fields of exploration and environmental geochemistry.

**Association of Geoscientists for International Development**
The Association (http://agid.igc.usp.br/) encourages communication between all those with an interest in the application of geoscience to sustainable development and encourages/promotes geoscientific activities related to the needs of developing countries. The Association publishes the *S. and W. Asia Geoscience Newsletter*. In May 2001, a seminar/workshop on *'Challenges of Water Resources Management in Developing Countries'* was held in Visakhapapatnam, India and a Geoscience Education workshop was also held in India, with UNESCO. A record number of geoscience volumes were received by the AGID Canada Book and Journal Exchange programme (http://www.turnstone.ca/agidcat.htm), for donation to developing countries.

**Carpathian-Balkan Geologists Association**
The Association promotes fundamental and applied geological research in the Carpathian-Balkan realm, much in association with IGCP, but also partly with the Geology Section of the Central European Initiative (CEI). The Association, which has 15 member countries, organise a quadrennial Congress (the last took place in Sept. 2002, in Bratislava). *Geologica Carpathica* is the main journal of the Association.

**Circum-Pacific Council for Energy and Mineral Resources**
This is a non-profit making body of geoscientists and engineers (www.circum-pacificcouncil.org/), which promotes and develops research/collaboration between industry, academia and governments in the sustainable utilization of the natural resources in the Pacific region. 60 organisations, from around the world, are members. In 2001, the *Crowding the Rim* programme was initiated, covering the potential for catastrophes in the area, with a meeting at Stanford University. The CPCEMR publishes books and maps covering the Pacific and adjacent Arctic and Antarctic regions, in conjunction with the USGS. The Circum-Pacific Map Project was completed in 2001, to the extent that no additional maps will be compiled; 62 maps have been completed, most of which will be available on CD-ROM. Also, the Geospatial Data Project was completed (with CCOP), having demonstrated the procedures and practical applications of using digital data for geological studies in the East Asian countries.

**Commission for the Geological Map of the World (CGMW)**
This Commission promotes and publishes small-scale (1:5 million or smaller) maps synthesising the geology of both continental and oceanic areas of the world. The Commission is supported by 42 countries, as well as several non-governmental agencies. Specialist maps, covering tectonics, metallogeny, metamorphism, hydrology and palaeoclimates are available, as well as normal geological maps of different continents. Many are now presented in digital form (see http://perso.club-internet.fr/ccgm/ for details), including the interactive version of the 2nd edition of the *Geological Map of the World* (in Geokiosk®). Recent publications include *Tethys Palaeoenvironmental Maps,* with 21 maps of various time-slices and an accompanying book, and a booklet with a CD entitled *The Changing Face of the Earth. The Splitting of the Pangea and Continental Drift during the last 250 Ma,* with 10 maps. A number of projects are in press; these are also listed in the homepage.

**European Association of Science Editors**
The Association (www.ease.org.uk) is a non-governmental and non-profit-making scientific and educational body, with 934 members from 53 countries; 25% of EASE members come from outside Europe, despite the Association's name. EASE promotes the improvement of communication in science by providing efficient methods of cooperation between editors and further assists in the efficient publication of science. EASE publishes a bulletin, *European Science Editing*, and runs courses in scientific writing in E. European countries. A joint seminar was held with the Association of Learned and Professional Society Publishers, in London, on peer review; *Best-practice Guidelines* will be available in 2002. A joint workshop was held for journal editors, in October 2001.

**European Mineralogical Union**
The Union (www.univie.ac.at/Mineralogie/EMU/) furthers European cooperation in the mineralogical sciences, both basic and applied. Membership is only open to national scientific societies from European countries; the 26 countries represented include Russia. The Union sponsors symposia in two meetings (*Experimental Mineralogy, Petrology and Geochemistry and The European Union of Geosciences)* and assists in publication of the *European Journal of Mineralogy*. EMU organised its third school, *Mixing in Silicate and Oxide Systems* at Lübeck, Germany. From this, the 3rd volume of the EMU *Notes in Mineralogy* series has been published titled *Solid Solutions in Silicate and Oxide Systems*. EMU helped 20 institutional libraries facing serious financial difficulties by donating free subscription of the *European Journal of Mineralogy*.

**Geochemical Society**
The Society encourages the application of chemical methods and techniques in solving geochemical and cosmochemical problems. Membership covers all aspects of geochemistry, including high and low temperature studies, meteorites and isotope geochemistry, with one specialist group, the Organic Geochemistry Division. The Society jointly sponsors the annual Goldschmidt Conference, publishes several specialist journals, including *Geochimica et Cosmochimica Acta, The Geochemical News and Reviews in Geochemistry* and book series and maintains extensive on-line archives at its homepage (http://gs.wustl.edu/). The Society also publishes the online journal *G3 Geochemistry Geophysics Geosystems*, together with the American Geophysical Union.

**Geological Society of Africa**
The Geological Society of Africa (http://www.elsevier.nl/locate/gsa) promotes all aspects of the geosciences in Africa, assists African nations develop their natural and human resources and is concerned with environmental preservation. The Society, which is affiliated with many national Geological Societies, sponsors regional (5 regions have been defined) and international conferences and workshops, often in conjunction with external support. The IUGS President attended the last Triennial International Conference, in Yaounde, Cameroon. A Regional Conference on *East African Geology* took place in Uganda. The Society provided financial support to the 2nd East and Southern Africa Regional Workshop in Geomedicine and Geoindicators in Lusaka June 25 - July 1, 2001. A Geomedicine course on *Metals, Health and the Environment* was also held. The Society furthered the establishment of the Mozambique Geological-Mining Association and a similar association in Sudan. The Society's newsletter *Africa Geonews* was published and inserted in the *Journal of African Earth Sciences* (JAES). Currently, the Society is updating the book `*The Geology of Africa*´. This report should properly also include mention of both the widespread civil strife and the AIDS pandemic that afflict many parts of Africa. The adverse impact these factors continue to have on social and economic development generally and, in turn, on societies such as GSAf, is significant.

**Geological Society of America**
The mission of the Society is to advance the geosciences in the service of mankind and to enhance the professional growth of its members. The Society, which has a very large membership, runs a very important publishing arm, sponsors both regional, national and international geological conferences and has funds available for travel and research grants. The Society is divided into 6 regional Sections and 14 specialist Divisions covering the whole range of the geosciences. Details can be found on the very comprehensive homepage (www.geosociety.org). The Society publishes the *Bulletin of the Geological Society of America, Geology, GSA Times* and an extensive series of special publications, too numerous to be detailed here.

**International Association of Engineering Geology and the Environment**
The Association (www.civil.ntua.gr/IAEG.html) promotes engineering geology through technological activities and research, fosters teaching in the relevant disciplines and collects, evaluates and disseminates engineering geology results. Membership (5,208 members) of the Association is usually through a national or regional group (59), with institutions, companies and organizations being Associate Members. The Association runs several specialist Commissions, covering problems such as mapping, landslides, waste disposal and conservation. The IAEG journal, the *Bulletin of Engineering Geology*, and its newsletter were successfully published and a range of international conferences were sponsored, including the *International Symposium on Engineering Geological Problems of Urban Areas, Aggregate 2001-Environment and Economy, the 1st International Conference on Sustainable Development in Karst Regions, the 3rd Asian Symposium on Engineering Geology and the Environment and the 14th Southeast Asian Geotechnical Conference*.

**International Association of Geomorphologists**
The Association (www.geomorph.org), which is based on 58 affiliated national adhering bodies, promotes geomorphology through international collaboration and dissemination of geomorphological data. The IAG runs working groups on specialist topics, such as arid regions, geoarchaeology, large rivers and volcanoes and also organises conferences. The Association sponsored the *Vth International Conference on Geomorphology* in Tokyo, attended by 646 delegates from 64 countries.

**International Association of Geochemistry and Cosmochemistry**
The Association (www.cevl.msu.edu/~long/IAGC/) fosters geochemistry and cosmochemistry through conferences, sponsoring scientific geochemical publications of a type not covered by existing bodies and by appointing working groups to study specialist problems. These groups cover a wide range of topics, including applied and theoretical geochemistry. The Association publishes the journal *Applied Geochemistry*.

**International Association of Hydrogeologists**
This Association (www.iah.org/) promotes research into the proper management and protection of groundwater and publishes the *Hydrogeology Journal*. The Association, which has ~3,500 members in 135 countries, runs a number of Commissions and Working Groups covering all aspects of developing, maintaining and restoring water resources. The 2001 IAH congress in Munich, *New Methods of Characterising Groundwater Flow*, had over 450 attendees and the conference proceedings run to 1,300 pages, in two volumes. Additionally, a special conference publication *Tracer Studies in the Unsaturated Zone and Groundwater (Investigations 1996-2001)* was prepared.

**International Association of Mathematical Geologists**
The Association (www.iamg.org/), with 564 members, strives to promote international cooperation in the application and use of mathematics in geoscientific research and technology. This is achieved through meetings, publications, financial sponsoring of students and a range of publications, including *Computers & Geosciences, Mathematical Geology and Natural Resources Research*. A compilation of all computer programs published during the first 25 years of *Computers & Geosciences* was completed. The organization held its annual conference in Mexico, with 264 attendees from 35 countries and sponsored the session *Extreme Value Distributions in Geology* at the 53rd *International Statistical Institute* in South Korea. The IAMG Student Grants Program Committee was formed; US $ 2,000 is available, partly through the generosity of the Mathematical Geologists of the United States. The IAMG Lecture Series Committee was established to present the latest mathematical thoughts on critical topics. An important component will be the transfer of knowledge to nations outside of the North American-European orbit.

**International Association of Sedimentologists**
The International Association of Sedimentologists (www.blacksci.co. uk/uk/society/ias/default.htm.), with 2,120 members from 97 countries, promotes the study of sedimentology and the interchange of research, especially where international collaboration is needed. The IAS held the 21st Meeting of Sedimentology in Switzerland, with 470 participants from 52 countries, and it co-sponsored conferences and workshops in Indonesia, Argentina, Slovakia, and the USA. The IAS published its journal *Sedimentology* and two Special Publications *Volcaniclastic sedimentation and Sediment transport* and a field guide *Almeria Region, Spain*. The IAS

runs a Friendship scheme, offering free membership to students in less developed countries; 163 individuals and 36 libraries benefit from the scheme.

**International Association of Structural and Tectonic Geologists**
The Association encourages communication between structural and tectonic geologists. This is done through a newsletter and the publication of a Membership Directorate. The Association has worked with a number of national structural groups, helping many of them to become established. The homepage is at www.jiscmail.ac.uk/lists/geo-tectonics.html.

**International Association on the Genesis of Ore Deposits**
The Association, which has 850 members and 13 national groups, promotes international cooperation in the study of the genesis of ore deposits, by organising conferences and through six Commissions and four Working Groups, covering a range of topics (see www.nhm.ac.uk/mineralogy/seltmann/IAGOD/).
Several working groups convened sessions at the Joint 6th Biennial SGA-SEG Annual Meeting *Mineral Deposits at the Beginning of the 21st Century* in Poland. IAGOD also co-sponsored the XVI ECROFI conference held in Portugal. IAGOD published the 68-page IAGOD Newsletter 2000/2001, the volume *Palaeozoic geodynamics and gold deposits in the Kyrgyz Tien Shan* in the IAGOD Guidebook series and the monograph *Ore-Bearing Granites of Russia and Adjacent Countries*. IAGOD's map series now includes *Gold Mineralization map of the Southern Urals*, Scale 1:1,000,000, *Mineral deposits map of Central Asia*, Scale 1:1,500,000 and *Metallogenic map of Kyrgyzstan*, Scale 1:1.000,000. The Russian Far East IAGOD Group published the book *Ore Deposits of Continental Margins, Issue 2*.

**International Centre for Training and Exchanges in the Geosciences**
The Centre International pour la Formation et les Echanges Géologique (www.cifeg.org) supports the exchange of geological information (resources, hydrology, environmental, risk management) across the world. It has major projects operating in Africa and SE Asia (Pan-African and Southeast Asian Network for a Geological Information System - PANGIS & SANGIS). In 2001, CIFEG arranged a workshop in Addis Ababa on *Water resources in East African Rift Valley* and a training course on mining feasibility and the 1st Regional Technical SANGIS Workshop.

**International Federation of Palynological Societies**
The IFPS (http://www.geo.arizona.edu/palynology/ifps.html) is a federation of 24 palynological organisations from around the world, representing over 5000 palynologists. Its goals are to advance knowledge in palynology and associated topics by promoting international collaboration and meetings between palynologists, including the quadrennial International Palynological Congress. The IFPS Newsletter, *PALYNOS* is published twice a year, in June and December.

**International Geoscience Education Organization**
The Organisation, which became affiliated to IUGS this year, promotes education in the geosciences at all levels, seeks to improve the availability of such education and aims to promote the awareness of the geosciences, especially amongst younger people. Details can be found at the Organization's homepage http://www.cosm.sc.edu/cse/igeo.html. The Organization publishes a regular newsletter and in 2001 implemented a questionnaire amongst members to outline the state of geoscience education worldwide. The survey returns are currently being analysed.

**International Mineralogical Association**
The Association (http://server.dst.unipi.it//ima/) furthers international cooperation in all aspects of mineralogy by sponsoring meetings and field trips, by collaborating with similar organisations and by maintaining nine commissions and five working groups, together covering most aspects of mineral sciences. The Association is made up of no more than one mineralogical society from a country and a number of individual members. The IMA Council organized its annual meeting in Strasbourg during the EUG Congress (April 2001). IMA produced a two-volume proceedings *Applied Mineralogy in Research, Economy, Technology, Ecology, and Culture*. The IMA Commission on Classification of Minerals (CCM) prepared three fundamental books *Strunz Mineralogical Tables, Classification of Minerals* and *Classification of natural oxides*. The Association sponsored the symposium *Mineralogical Crystallography*. 39 new mineral species were approved by the Association in 2001.



**International Palaeontological Association**
The Association, with 1200 members and 22 corporate member organisations, promotes international cooperation in all aspects of palaeozoology and palaeobotany. This is achieved through conferences, publications and collaboration with like-minded organisations. Support was provided for the 3rd International Conference on *Trilobites and their Relatives*, in the UK with 120 attendees from 20 countries. Plans were finalised for the 1st International Palaeontological Congress, in Australia, in 2002. A new IPA web-site (http://ipa.geo.ukans.edu/) was put on-line, with two on-line data-bases, *Directory of Palaeontologists of the World and Directory of Fossil Collections of the World*. The Association publishes the specialist journal *Lethaia*.

**International Permafrost Association**
The Association (http://www.geodata.soton.ac.uk/ipa/) fosters and disseminates permafrost science. Membership is through national/multinational organisations (23 bodies) and on an individual basis. The Association supports conferences and prepares maps, glossaries and bibliographies and has six working and three task groups covering a range of topics, including permafrost engineering, rock glacier dynamics and isotope & geochemistry of permafrost. The 1st European Conference on Permafrost was convened in Rome in March, with over 120 attendees; several other conferences were also sponsored. The International Arctic Science Committee funded the IPA Coastal Erosion Subgroup to conduct workshops to develop and implement plans for the five-year circum-arctic Arctic Coastal Dynamics program (http://www.awi-potsdam.de/www-pot/geo/acd.html). The Working Group on Global Change and Climate completed work on the Arctic and Antarctic chapter of the *Third Assessment Report of the Intergovernmental Panel on Climate Change*.

**International Society of Soil Mechanics and Geotechnical Engineering**
The Society promotes the advancement and dissemination of the knowledge of geotechnics and its engineering and environmental applications through conferences, technical committees and its 71 member societies, representing 16,500 members. The Society, which has 23 corporate sponsors, supports thirty Technical Committees, covering a very wide range of topics; several new Task Forces were established in 2001. Details are available on the homepage, at www.issmge.org. A touring lecture was arranged for Lagos, Nigeria, with a series of lectures on *Geotechnical Site Characterisation and Soil Improvement*. An Internet based Geotechnical Services Directory was created to allow activities to be publicised.

**International Society for Rock Mechanics**
This Society (www-ext.lnec.pt/ISRM/welcome.html) has a membership of 6000, with 200 Corporate Members and 43 affiliated National Groups. The Society encourages teaching and research in rock mechanics and also promotes high professional standards to improve the safety, economy and environmental effects of engineering works. The Society sponsors meetings and maintains several Commissions, including those on Education, Information Technology, Fragmentation by Blasting and Application of Geophysics to Rock Engineering. The Society held the *2nd Asian Rock Mechanics Symposium* in China, as well as several regional symposia.

**International Union for Quaternary Research**
The Union (http//inqua.nlh.no) comprises 44 national or regional Members, combining many thousands of scientists. The Union aims to encourage inter-disciplinary studies of all Quaternary problems and facilitates and coordinates collaborative work by sponsoring meetings and commissions. Currently there are twelve Commissions, including those on Loess, Neotectonics, Tephrology and on Palaeoclimate. There is also a Working Group on Palaeogeographic Atlases. In 2001, 10 new scientific projects were started with funding from INQUA. The commissions arranged around 15 meetings in 2001. Some of the meetings have been held in co-operation with other organisations. Two issues of *Quaternary Perspectives* were published, as was the journal *Quaternary International*.

**Meteoritical Society**
The Society promotes the study of extraterrestrial materials (including meteorites, lunar samples, comets, cosmic dust, planets) and their history and their impacts on Earth. The Society has c. 950 members from 33 countries, with a wide range of interests. The homepage at (www.uark.edu/campus.resources/metsoc/index1.htm) gives further details. The annual meeting in Rome had 560 attendees and the Society's own journal, *Meteoritics and Planetary Science*, was published monthly for the first time. The Society also publishes *Geochimica et Cosmochimica Acat*, together with the Geochemical Society.

**Society for Geology Applied to Mineral Deposits**
The Society (www.min.tu-clausthal.de/www/sga/sga.html) with ~ about 1000 members, promotes the science of mineral deposit geology by organising major conferences, field trips and workshops and by the publication of the scientific journals *Mineralium Deposita* and *SGA News*. Both individual and corporate Membership exists. The Society organised the 6th Biennial SGA Meeting jointly organized with the Society of Economic Geologists, in Poland. A special GEODE/SGA symposium *The Timing and Location of Major Ore Deposits in an Evolving Orogen* was organised at EUG XI, France, *A Hydrothermal Odyssey* in Australia and the *4th International Archaean Symposium* also in Australia.

**Society for Sedimentary Geologists**
The Society is dedicated to the dissemination of scientific data on sedimentology and allied branches of the Earth sciences. The Society supports its members by publishing several journals and Special Publications and by running conferences and short courses. There are about 5,000 members, from 23 countries. Members may join one of the eight Regional Sections. Further information is on the homepage at www.sepm.org.

**Society of Economic Geologists**
The Society (www.segweb.org), with a membership of 3,600 from 77 countries, aims to advance geology through the study of mineral deposits and resources and the application to resource appraisal and extraction. The Society disseminates relevant information through publications, meetings, field trips, short courses, workshops and lectures. The Society participated in many activites, including the SME annual meeting in Denver. SEG also partnered PDAC to run a short course *Structural Controls on Ore Genesis*, with 136 participants and sponsored the NUNA conference on *Funding for mineral deposits research*, both in Canada. SEG sponsored the meeting *A Hydrothermal Odyssey* in Australia and co-sponsored the 6th Biennial Meeting of the Society for Application of Geology to Ore Deposits in Poland, *Mineral Deposits at the Beginning of the 21st Century*. SEG supported the 4th *International Archaean Symposium* in Australia. The Society publishes *Reviews in Economic Geology*, a *Guidebook* series, a *Special Publication* series, and the quarterly *SEG Newsletter*. The journals *Economic Geology and Economic Geology Monograph* are published by the Society since merging with the Economic Geology Publishing Company, Inc. All publications fall within the purview of a newly formed Publications Board.

**Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia (CCOP)**
At present, CCOP it is *not* an affiliate of IUGS, but in December 2001, the IUGS President signed a Memorandum of Understanding with CCOP. Currently, ways of bringing the two organisations closer together, to allow the development of collaborative projects are being discussed. CCOP (www.ccop.or.th) is an intergovernmental organization, with 11 member countries and 14 supporting countries (the latter mostly non-SE Asian) and several international organisations specialising in regional geoscientific programs aiming at coastal and offshore geoscientific research programs, regional map compilation, human resource development and the transfer of technology. CCOP has four projects; COASTPLAN, looking at integrated coastal zone management; Digital Compilation of Geoscientific Maps (DCGM); Petroleum Policy and Management project (PPM) and Resource Evaluation and Planning (REP).

# IUGS – ????

## EXECUTIVE COMMITTEE OFFICERS OF THE IUGS (AT FEB 28th 2002)

| | | | |
|---|---|---|---|
| President | Prof. E.F.J. de Mulder | Aug. 2000 – Aug. 2004 | demulder@wxs.nl |
| Secretary General | Prof. A. Boriani | Feb. 2000 – Feb. 2002 | attilio.boriani@unimi.it |
| Secretary General | Dr. W.R. Janoschek | Feb. 2002 – Aug. 2004 | wjanoschek@cc.geolba.ac.at |
| Treasurer | Dr. W.R. Janoschek | Feb. 2000 – Feb. 2003 | wjanoschek@cc.geolba.ac.at |
| Past President | Dr. R. Brett | Aug. 2000 – Aug. 2004 | rbrett@usgs.gov |
| Vice-President | Dr. W. S. Al-Hashimi | Aug. 1998 – Aug. 2002 | wissam@uruklink.net |
| Vice President | Dr. I. G. Speden | Aug. 1998 – Aug. 2002 | i.speden@gns.cri.nz |
| Vice President | Dr. G. Gaál | Aug. 1998 – Aug. 2002 | gabor.gaal@gsf.fi |
| Vice President | Prof I.O. Nyambok | Aug. 1998 – Aug. 2002 | inyambok@uonbi.ac.ke |
| Vice President | Prof. P.T. Bobrowsky | Aug. 2000 – Aug. 2004 | Peter.Bobrwosky@gens7.gov.bc.ca |
| Vice President | Prof. T. Sato | Aug. 2000 – Aug. 2004 | sato-tad@fgi.or.jp |
| Councillor | Prof. J. Plant | Aug. 2000 – Aug. 2004 | j.plant@bgs.ac.uk |
| Councillor | Prof. H.K. Gupta | Aug. 2000 – Aug. 2004 | dodsec@dod.delhi.nic.in |

## PERMANENT SECRETARIAT

| | |
|---|---|
| Ms. H. Refsdal | (iugs.secretariat@ngu.no) |
| Ms. A. Liinamaa-Dehls | (Anne.Dehls@ngu.no) |
| ???????????????? | ????????????????) |
| ???????????????????????????? | ???????????????? |

## EXECUTIVE COMMITTEE AND BUREAU MEETINGS, AUGUST 2000-FEBRUARY 2002

| | |
|---|---|
| 47th Executive Committee, Rio de Janeiro, Brazil | August 14, 2000 |
| Bureau, Rio de Janeiro, Brazil | August 15, 2000 |
| Bureau, Milano, Italy | October 6-7, 2000 |
| Bureau, Catania, Italy | December 15, 2000 |
| Bureau, Paris, France | February 2, 2001 |
| 48th Executive Committee, Hyderabad, India | February 24–March 2, 2001 |
| Bureau, Hyderabad, India | |
| Bureau, Vienna, Austria | March 23, 2001 |
| Bureau, Washington D. C., USA | July 14-15, 2001 |
| 49th Executive Committee, Yichang, China | September 24,– 28, 2001 |
| Bureau, Yichang, China | September 27, 2001 |
| Bureau, Trondheim, Norway | December 8– 9, 2001 |
| Bureau, Paris, France | February 2, 2002 |
| 50th Executive Committee, Lower Hutt, New Zealand | February 25–March 1, 2002 |
| Bureau, Lower Hutt, New Zealand | |



# IUGS Adhering Members

## WITH THEIR MEMBERSHIP CATEGORY AND STATUS (FEB 28th 2002)

a – active; i – inactive; ( ) – new Member Country

| Country | Stat. | Cat. | Country | Stat. | Cat. | Country | Stat. | Cat. |
|---|---|---|---|---|---|---|---|---|
| Albania | a | 1 | Greece | a | 2 | Papua New Guinea | a | 1 |
| Algeria | a | 1 | Guatemala | i | 1 | Paraguay | i | 1 |
| Angola | a | 1 | Guyana | a | 1 | *(Peru* | *a* | *1)* |
| Argentina | a | 3 | Hungary | a | 3 | Philippines | i | 1 |
| Australia | a | 5 | Iceland | a | 1 | Poland | a | 2 |
| Austria | a | 3 | India | a | 5 | Portugal | a | 2 |
| Azerbaijan | a | 1 | Indonesia | a | 1 | Romania | a | 3 |
| Bangladesh | a | 1 | Iran | a | 3 | Russia | a | 8 |
| Belarus | a | 1 | Iraq | a | 2 | Saudi Arabia | a | 4 |
| Belgium | a | 3 | Ireland | a | 2 | Senegal | i | 1 |
| Belize | i | 1 | Israel | a | 2 | Slovak Republic | a | 2 |
| Bolivia | a | 1 | Italy | a | 7 | Slovenia | a | 1 |
| Botswana | a | 2 | Ivory Coast | i | 1 | Somalia | i | 1 |
| Brazil | a | 4 | Jamaica | a | 1 | South Africa | a | 4 |
| Bulgaria | a | 2 | Japan | a | 8 | Spain | a | 4 |
| Burkina Faso | i | 1 | Jordan | i | 1 | Sri Lanka | a | 1 |
| Burundi | i | 1 | Kazakhstan | a | 3 | Sudan | a | 1 |
| Cameroon | i | 1 | Kenya | a | 1 | Surinam | i | 1 |
| Canada | a | 5 | Korea (PDR) | i | 1 | Swaziland | a | 1 |
| Chile | a | 1 | Korea (ROK) | a | 2 | Sweden | a | 3 |
| China, P. R. | a | 7 | Lebanon | a | 1 | Switzerland | a | 4 |
| Colombia | a | 1 | Libya | i | 1 | Syria | i | 1 |
| Congo | i | 1 | Lithuania | a | 1 | Taipei | a | 3 |
| Costa Rica | i | 1 | Luxembourg | a | 1 | Tanzania | i | 1 |
| Croatia | a | 1 | Madagascar | i | 1 | Thailand | a | 1 |
| Cuba | i | 1 | Malawi | a | 1 | Tunisia | a | 1 |
| Cyprus | a | 1 | Malaysia | a | 1 | Turkey | a | 3 |
| Czech Republic | a | 2 | Mexico | a | 2 | Uganda | i | 1 |
| Denmark | a | 3 | Mongolia | a | 1 | Ukraine | i | 3 |
| Ecuador | a | 1 | Morocco | a | 2 | United Kingdom | a | 7 |
| Egypt | a | 2 | Namibia | a | 1 | Uruguay | a | 1 |
| Estonia | a | 1 | Netherlands | a | 4 | USA | a | 8 |
| Finland | a | 3 | New Zealand | a | 3 | Uzbekistan | a | 2 |
| France | a | 7 | Nicaragua | i | 1 | Venezuela | a | 1 |
| Gambia, Rep. of | a | 1 | Niger | i | 1 | Vietnam, Soc. Rep. | a | 1 |
| Georgia | i | 1 | Nigeria | i | 1 | Yemen | a | 1 |
| Germany | a | 7 | Norway | a | 3 | Yugoslavia | a | 2 |
| Ghana | i | 1 | Pakistan | i | 2 | Zambia | i | 1 |
| | | | Panama | a | 1 | | | |

# Categories of IUGS Membership

**AND MEMBERSHIP FEE**

**Categories of Membership for 2000**

| Category | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Units | 1 | 2 | 4 | 7 | 12 | 20 | 35 | 70 |
| Value in US $ | 400 | 800 | 1600 | 2800 | 4800 | 8000 | 14000 | 28000 |

**Categories of Membership for 2001**

| Category | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Units | 1 | 2 | 4 | 7 | 12 | 20 | 35 | 70 |
| Value in US $ | 420 | 840 | 1680 | 2940 | 5040 | 8400 | 14700 | 29400 |

**Categories of Membership for 2002**

| Category | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Units | 1 | 2 | 4 | 7 | 12 | 20 | 35 | 70 |
| Value in US $ | 440 | 880 | 1760 | 3080 | 5280 | 8800 | 15400 | 30800 |



# IUGS Financial Situation and Statement

**INCOME/EXPENSES IN 2001 (US DOLLARS)**

| | RECEIVED | | | TOTAL |
|---|---|---|---|---|
| | for due <2001 | for 2001 | for due >2001 | |
| **INCOME** | | | | |
| **Membership dues** | **24,067,33** | **218,579.12** | | **242,646.45** |
| Adhering Members | *24,067,33* | *212,279.12* | | |
| Associates | | *6,300.00* | | |
| **IGCP Programme** | **11,800.00** | **154,600.00** | | **166,400.00** |
| UNESCO | *11,800.00* | *79,600.00* | | |
| US Contribution | | *75,000.00* | | |
| **Other Programmes** | | **18,000.00** | | **18,000.00** |
| UNESCO | | *3,000.00* | | |
| ICSU | | *15,000.00* | | |
| **Interests** | | **31,952.70** | | **31,952.70** |
| **Other Income** | | **6,468.47** | | **6,468.47** |
| **INCOME** | **35,867.33** | **429,600.29** | | **465,467.62** |

| | PAID | | | TOTAL |
|---|---|---|---|---|
| | for due <2001 | for 2001 | for due >2001 | |
| **EXPENSES** | | | | |
| **IGCP Projects** | **8,600.00** | **182,500.00** | | **191,100.00** |
| UNESCO | *8,600.00* | *93,500.00* | | |
| US Contribution | | *69,000.00* | | |
| IUGS | | *20,000.00* | | |
| **Other UNESCO Programmes** | | **26,000.00** | | **26,000.00** |
| DMP (Deposit Modelling) | | *15,000.00* | | |
| GARS (Remote Sensing) | | *8,000.00* | | |
| Dissemination *Episodes* | | *3,000.00* | | |
| **ICSU Programmes** | | **10,000.00** | | **10,000.00** |
| Environmental Change | | *10,000.00* | | |
| **ICSU Commission on Lithosphere** | | **20,000.00** | | **20,000.00** |
| **Affiliates** | | **7,500.00** | | **7,500.00** |
| **IUGS Commissions, Task Groups** | | **74,496.80** | | **74,496.80** |
| **Committees, New Initiatives** | | | | |
| Commissions | | *53,000.00* | | |
| Task Groups | | *8,000.00* | | |
| Committees | | *3,496.80* | | |
| New Initiatives | | *10,000.00* | | |
| **Internat. Year of Planet Earth** | | **5,500.00** | | **5,500.00** |
| **Strategic Plan Implementation** | **2,173.56** | **150.00** | | **2,323.56** |
| **Hutchison Fund Awards** | | | | |
| **Contributions** | | **9,789.72** | | **9,789.72** |
| Contributions ICSU | | *9,205.00* | | |
| Office Expenses | | *584.72* | | |
| **Other Expenses** | | **41,748.15** | **1,276.04** | **43,024.19** |
| Routine meetings | | *34,230.68* | *1,276.04* | |
| Nominating Committee Meeting | | | | |
| Bank Rates, Loss on Exchange | | *4,860.28* | | |
| Miscellaneous Expenses | | *2,657.19* | | |
| **IUGS *Episodes* 2000** | | **23,000.00** | | **23,000.00** |
| **Contingency** | | | | |
| **EXPENSES** | **10,773.56** | **400,684.67** | **1,276.04** | **412,734,27** |

| | |
|---|---|
| Excess of Income over Expenses | 52,733.34 |
| **ACCUMULATED BALANCE** | |
| On 31st January 2001 (d° 31 December 2000) | 816,391.88 |
| On 31st December 2001 | 843,316.67 |
| Variation | 26,924.79 |

# IUGS ??????????

## COMMISSIONS/NEW INITIATIVES/TASK GROUPS/COMMITTEES FOR 2001

| | | |
|---|---|---|
| **COMMISSIONS** | | **53,000.00** |
| COGEOENVIRONMENT | 10,000.00 | |
| COGEOINFO | 1,000.00 | |
| COMTEC | 2,000.00 | |
| ICS | 35,000.00 | |
| INHIGEO | 3,000.00 | |
| GSGP | 2,000.00 | |
| **WORKING GROUPS** | | **8,000.00** |
| Geosites | 3,000.00 | |
| Fossil Fuels | 5,000.00 | |
| **COMMITTEES** | | **3,500.00** |
| Committee for Publications | 3,500.00 | |
| **NEW INITIATIVES** | | **15,500.00** |
| CHANGES | 10,000.00 | |
| IYPE (International Year of Planet Earth) | 5,500.00 | |

## IUGS AFFILIATES

| | | |
|---|---|---|
| **AFFILIATES** | | **7,500.00** |
| AGA (Arab Geologists Association) | 1,000.00 | |
| AGID (Ass. of Geoscientists for Internat. Development | 1,000.00 | |
| CGMW (Comm. Geol. Map of World) | 2,500.00 | |
| GSAf (Geological Society of Africa) | 3,000.00 | |



# ICS – IUGS Ratified

## GLOBAL BOUNDARY STRATOTYPE SECTIONS AND POINTS (GSSP)

St – stage; Se – series; Sy – system

| Stage (base of) | Stratotype Section | *Episodes* | Volume | |
|---|---|---|---|---|
| **Neogene** | | | | |
| 1. Calabrian St, Pleistocene Se | Vrica, Calabria, Italy | 8 | (2) | 1985 |
| 2. Gelasian St, U. Pliocene | Monte San Nicola, Sicily, Italy | 21 | (2) | 1998 |
| 3. Piacenzian St, M. Pliocene | Punta Piccola, Sicily, Italy | 21 | (2) | 1998 |
| 4. Zanclean St, Pliocene Se | Eraclea Minoa, Sicily, Italy | 23 | (3) | 2000 |
| 5. Messinian | Oued Akrech, Morocco | 23 | (3) | 2000 |
| 6. Aquitanian St, Miocene Se, Neogene Sy | Lemme-Carrosio, Italy | 20 | (1) | 1997 |
| **Paleogene** | | | | |
| 7. Rupelian St, Oligocene Se | Massignano, NE Italy | 16 | (3) | 1993 |
| 8. Danian St, Paleogene Sy, Cenozoic | El Kef, Tunisia | Ratified 1999 | | |
| **Cretaceous** | | | | |
| 9. Maastrichtian St | Tercis, Landes France | Not in *Episodes* | | |
| 10. Cenomanian St | Mnt. Risou, France | To be ratified 2002 | | |
| **Jurassic** | | | | |
| 11. Bajocian St | Cabo Mondego, Portugal | 20 | (1) | 1997 |
| 12. Aalenian St | Fuentelsalz, Spain | **24** | **(3)** | **2001** |
| 13. Sinemurian St | Quantox Head, Somerset, U.K. | Ratified 2000 | | |
| **Triassic** | | | | |
| 14. Induan St, Triassic Sy, Mesozoic | Meishan, Zhejiang, China | **24** | **(2)** | **2001** |
| **Permian** | | | | |
| 15. Capitanian St | Stratotype Canyon, Texas, USA | **Ratified 2001** | | |
| 16. Wordian St | Stratotype Canyon, Texas, USA | **Ratified 2001** | | |
| 17. Roadian St, Guadalupian Se, M. Permian | Stratotype Canyon, Texas, USA | **Ratified 2001** | | |
| 18. Asselian St, Cisuralian Se, Permian Sy | Aidaralash Creek, Kazahkstan | 21 | (1) | 1998 |
| **Carboniferous** | | | | |
| 19. Pennsylvanian Se, U. Carboniferous | Arrow Canyon, Nevada, USA | 22 | (4) | 1999 |
| 20. Tournasian St, Mississippian Se, Carboniferous Sy | La Serre, France | 14 | (4) | 1991 |
| **Devonian** | | | | |
| 21. Famennian St | Coumiac, France | 8 | (2) | 1985 |
| 22. Frasnian St, U. Devonian | Col du Puech, France | 14 | (2) | 1991 |
| 23. Givetian St | Irdane, Morocco | 18 | (3) | 1995 |
| 24. Eifelian St, M. Devonian | Wetteldorf, Germany | 8 | (2) | 1985 |
| 25. Emsian St | Zinzilban Gorge, Uzbekistan | 20 | (4) | 1997 |
| 26. Pragian St | Praha Holyne, Czech Rep. | 12 | (2) | 1989 |
| 27. Lochkovian St, Devonian Sy | Klonk, Barrandean, Czech Rep. | | | |
| **Silurian** | | | | |
| 28. Pridoli Se | Pozary, Barrandean, Czech Rep. | 8 | (2) | 1985 |
| 29. Ludfordian St, U. Ludlow Se | Sunnyhill, Wales | 8 | (2) | 1985 |
| 30. Gorstian St, L. Ludlow Se, U. Silurian | Pitch Coppice, Wales | 8 | (2) | 1985 |
| 31. Homerian St, U. Wenlock Se | Whitwell Coppice, Wales | 3 | | 1982 |
| 32. Sheinwoodian St, L. Wenlock Se | Hughley Brook, Wales | 3 | | 1982 |
| 33. Telychian St, U. Llandovery Se | Cefn Cerig, Wales | 8 | (2) | 1985 |
| 34. Aeronian St, M. Llandovery Se | Trefawr forestry road, Wales | 8 | (2) | 1985 |
| 35. Rhuddanian St, L. Llandovery Se, Silurian Sy | Dob's Linn, Moffat, Scotland | 8 | (2) | 1985 |
| **Ordovician** | | | | |
| 36. Darriwillian St, M. Ordovician | Huangnitang, China | 19 | (3) | 1997 |
| 37. Tremadocian St, Ordovician Sy | Green Point, Newfndlnd, Canada | **24** | **(1)** | **2001** |
| **Cambrian** | | | | |
| 38. Nemakitian-Daldynian St, Cambrian Sy, Palaeozoic. | Fortune Head, Canada | 17 | (2) | 1994 |
| | | 19 | (3) | 1996 |

# IGCP Projects – 2001



**(IUGS-UNESCO CO-SPONSORED)**

**1. IGCP project 373 – Correlation, Anatomy and Magmatic-Hydrothermal Evolution of Ore-Bearing Felsic Igneous Systems in Eurasia**
R. Seltmann (Germany), R. Grauch (U.S.A.), A.A. Kremenetsky (Russia)
1997-2001
http://www.nhm.ac.uk/mineralogy/seltmann/IGCP/index.html

**2. IGCP project 408 – Rocks and Minerals at Great Depth and on the Surface**
F.P. Mitrofanov, D.M. Guberman (Russia), H.-J. Kuempel (Germany)
1998-2002
http://icdp.gfz-potsdam.de/html/kola/news.html

**3. IGCP project 410 – The Great Ordovician Biodiversification Event**
B.D. Webby (Australia), M.L. Droser (U.S.A.), F. Paris (France)
1997-2001.
http://www.es.mq.edu.au/MUCEP/igcp410 or http://www.hku.hk/earthsci/41199pubs.htm

**4. IGCP project 411 – Geodynamics of Gondwanaland-derived Terranes in E & S. Asia**
S. Hada (Japan), I. Metcalfe (Australia), J.H. Kim (Korea), Tran Van Tri (Vietnam), Jin Xiouchi (China)
1998-2002
http://plaza.snu.ac.kr/~geol/IGCP411/index2.html

**5. IGCP project 413 – Understanding Future Dryland Changes from Past Dynamics**
D. Thomas (U.K.), A.K. Singhvi (India)
1998-2002
http://www.shef.ac.uk/~igcp413

**6. IGCP project 414 – Seismic Ground Motion in Large Urban Areas**
G. F. Panza (Italy)
1997-2001

**7. IGCP project 415 – Glaciation and Reorganization of Asias´s Drainage America**
J. T. Teller (Canada), R. Vaikmae (Estonia)
1997-2001

**8. IGCP project 418 – Kibraran Events in Southwestern Africa**
R.M. Key (Botswana), R.B. Mapeo (Botswana)
1997-2001

**9. IGCP project 419 – Foreland Basins of the Neoproterozoic Belts in Central-to-Southern Africa and South America**
M. Wendorff (Botswana), P.L. Binda (Canada)
1998-2002

**10. IGCP project 420 – Continental Growth in the Phanerozoic: Evidence from Central Asia**
Bor-ming Jahn (France), N. Dobretsov (Russia)
1998-2002
http://www.geosciences.univ-rennes1.fr/igcp420/

**11. IGCP project 421 – North Gondwanan Mid-Palaeozoic Biodynamics**
R. Feist (France), J.A. Talent (Australia)
1997-2001
http://www.es.mq.edu.au/MUCEP/

**12. IGCP project 425 – Landslide Hazard Assessment and Cultural Heritage**
K. Sassa (Japan), P. Canuti (Japan), P.Carreno (Peru)
1998-2002
http://landslide.dpri.kyoto-u.ac.jp/igcp

**13. IGCP project 426 – Granite Systems and Proterozoic Lithospheric Processes**
J. S. Bettencourt (Brazil) O. T. Rämö (Finland), W. R. Van Schmus (U.S.A.)
1998-2002

**14. IGCP project 427 – Ore-Forming Processes in Dynamic Magmatic Systems**
C.M. Lesher, S.-J. Barnes (Canada), H.M. Prichard (U.K.)
1998-2002
http://www.laurentian.ca/www/geology/IGCP/IGCP427.htm

**15. IGCP project 428 – Climate and Boreholes**
V. Cermák (Czech Republic), H. N. Pollack (U.S.A.), C. Clauser (Germany)
1998-2002

**16. IGCP project 429 – Organics in Major Environmental Issues**
J. Pa?ava (Czech Republic), J. Jenik (Czech Republic)
1998-2002
http://www.min.tu-clausthal.de/www/sga/news6/art6.html

**17. IGCP project 430 – Mantle Dynamics and Natural Hazards**
M. F.J. Flower (USA), V. I. Mocanu (Romania), R. M. Russo (USA), Nguyen Trong Yem (Viet Nam)
1999-2003 *(On Hold)*
http://ns.gg.unibuc.ro/igcp430

**18. IGCP project 431 – African Pollen Database**
A.M. Lezine (France), A. Sowunmi (Nigeria)
1998-2002
http://medias.meteo.fr/apd/

**19. IGCP project 432 – Contourites, Bottom Currents and Palaeocirculation**
D. A. V. Stow (United Kingdom)
1998-2001

**20. IGCP project 433 – Caribbean Plate Tectonics**
Manuel A. Iturralde-Vinent (Cuba), Edward G. Lidiak (U.S.A.)
2000-2004
http://www.ig.utexas.edu./CaribPlate/caribmeetings.html

**21. IGCP project 434 – Land-Ocean Interactions during the Cretaceous in Asia**
H. Hirano (Japan)
1999-2003

**22. IGCP project 436– Pacific Gondwana Margin**
R.J. Pankhurst, (UK), J.D. Bradshaw (New Zealand), L. Spalletti (Argentina)
1999-2003

**23. IGCP project 437– Coastal Environmental Change during Sea-Level Highstands**
C.V. Murray-Wallace (Australia)
1999-2003

**24. IGCP project 440– Rodinia Assembly and Breakup**
S. Bogdanova (Sweden), H. Kampunzu (Botswana)
1999-2003
http://www.tsrc.uwa.edu.au/

**25. IGCP project 442– Raw Materials of Neolithic Artefacts**
D. Hovorka (Slovak Republic), G. Trnka (Austria)
1999-2002 *(On Hold)*
http://www.ace.hu/ace-home/igcp442/igcp442.html

**26. IGCP project 443– Magnesite and Talc-Geological and Environmental Correlations**
M. Radvanec (Slovak Republic), W. Prochaska (Austria), A.C. Gondim (Brazil), C. Kequin (China)
2000-2004
http://www.gssr.sk/igcp443

**27. IGCP project 447– Proterozoic Molar-tooth Carbonates**
X. Meng (China), D.G.F. Long (Canada); R. Bourrouilh (France)
2001-2005

**28. IGCP project 448– World Correlation on Karst Ecosystem**
Yuan Daoxian (China)
2000-2004
http://www.gxnu.edu.cn/KDL/

**29. IGCP project 449– Global Correlation of late Cenozoic fluvial deposits**
D. Bridgland (U.K.)
2000-2004

**30. IGCP project 450– Proterozoic Sediment-Hosted Base Metal Deposits of Western Gondwana**
S. S. Iyer (Canada), A. Misi (Brazil), A.F. Kamona (Namibia), J. Cailteux (Democratic Republic of Congo)
2000-2004
http://www.ucalgary.ca/~iyer/igcp450/unesco/catalog.htm

**31. IGCP project 453– Modern and Ancient Orogens**
J. B. Murphy (Canada), J. D. Keppie (Mexico)
2000-2004
http://www-sst.unil.ch/igcp453/index.html

**32. IGCP project 454– Medical Geology**
O. Selinus (Sweden), P. Bobrowsky (Canada)
2000-2004
http://home.swipnet.se/medicalgeology



**33. IGCP project 455– Basement Volcanoes Interplay and Human Activities**
A. Tibaldi (Italy), M. Garcia (Spain), A.M. Lagmay (Philippines), V.V. Ponomareva (Russia)
2001-2005
http://www.geo.unimib.it/IGCP455.htm

**34. IGCP project 457– Seismic Hazard and Risk Assessment in North Africa**
D. Benouar (Algeria), G. Panza (Italy), A. El-Sayed Attia (Egypt), T. Benaissa (Morocco), M. Chadi (Tunisia), S. Abdennur (Libya)
2001-2005

**35. IGCP project 458– Triassic/Jurassic Boundary Events**
J. Palfy (Hungary); S.P.Hesselbo (U.K); C. McRoberts (U.S.A.)
2001-2005
http://www.pal.nhmus.hu/IGCP458/

**36. IGCP project 459– Carbon Cycle and Hydrology in the Palaeo-Terrestrial Environments**
J.L. Probst (France); L. François (Belgium); P.J. Depetris (Argentina); J. Mortatti (Brazil)
2001-2005
http://www.omp.obs-mip.fr/omp/umr5563/4equ/hg/IGCP459/second.html

**37. IGCP project 464– Continental Shelves during the Last Glacial Cycle: Knowledge and Applications**
F.L. Chiocci (Italy), A.R. Chivas (Australia)
2001-2005
http://tetide.geo.uniroma1.it/igcp464.