INTERNATIONAL UNION OF GEOLOGICAL SCIENCES

ANNUAL REPORT 2002

IUGS

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Foreword

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

This second Annual Report of IUGS covers the time span between the 50th and the 51st Executive Committee meetings, held in Lower Hutt (New Zealand, February 2002) and in Windhoek (Namibia, February 2003), respectively. This has been a very productive period for the Union, in terms of both science development and outreach. Exciting new geoscience directions were proposed for the planned International Year of Planet Earth (page 6) and excellent geoscientific work was done both through the IGCP, the joint IUGS-UNESCO flagship programme, which celebrated its 30th anniversary, and through the IUGS Commissions, Task Groups and Initiatives. In 2002, the IUGS' house journal Episodes further improved, reaching a level of 0,941 on the Scientific Citation Index, confirming its relatively high position. Further, by welcoming Peru as its 115th adhering member, the Union's international relevance further increased and IUGS reached the widest geographical representation of all ICSU Unions.

In this period, the Union changed its face by introducing a new logo; this better reflects its readiness to support Earth-related issues in society. The concept behind the new logo is defined more fully on page 4 of this Report. New flyers and a joint exhibition booth, used together with the International Geological Congress, were introduced as well. Outreach was further improved by implementing almost all 32 recommendations made by the IUGS Strategic Planning Committee of 2000, including the provision of a new basis for cooperation with the geoscientific bodies working with IUGS as Affiliated Organisations (see page 5).

In short, 2002 has again been a dynamic year for the Union. This has been particularly true for the new Secretary-General, Dr. Werner Janoschek. He succeeded Prof. Attilio Boriani, who served the Union for eleven years, in three positions within the Executive Committee.

During the year, John Adam Reinemund, IUGS´ Treasurer from 1979 to 1989, passed away. An obituary is included in this report, on page 18.

Encouraged by the many positive comments on our first Annual Report, I hope that you will also enjoy reading this Report.Please note that a glossary of all the acronyms used in the text is appended at the very end of the report.

Why a New Logo?

After forty years of service, the Executive Committee considered it appropriate to replace IUGS' original logo of a hammer-pierced globe with a motif expressing the Union's concerns with the care and balanced use of the Earth. The prominent position of the hammer in the original logo was more and more often questioned, both inside and outside the geoscience community, as it was commonly associated with exploitation of our planet, rather than promoting a responsible use of its natural resources. That image of exploitation, however, is incorrect. During the past decade, the Union has paid much attention to both the use of the Earth's materials in relation to the environment and to man's interaction with the Earth's processes in relation to risks to society. Since 1990, the IUGS Commission on Geological Sciences for Environmental Planning has addressed such issues, through, for example, its highly successful Geo-Indicators and Medical Geology Initiatives and also through the International Working Group on Urban Geology. Furthermore, the IUGS Task Group on Fossil Fuels contributed much to a more effective and sustainable use of hydrocarbons, particularly in developing countries. Conceptual modifications along these lines also took place in the Union's Mineral Resources Sustainability Program and other Joint Programmes with UNESCO, such as IGCP and GARS; these are outlined later in the text.

As the Union developed a more society-oriented image, a trend strongly endorsed by the Strategic Planning Committee Report in 2000, the new Executive Committee tried to reflect this more clearly in its exposure. Developing a new logo was a logical step in that direction. Early in 2002, a logo-competition was held for members of the IUGS family. From the over one hundred proposals submitted, the Executive Committee selected the six it preferred most. These were successively discussed, compared and commented upon by three external professional designers. The winning logo simultaneously expresses both the wise use and the care of the Earth by the geoscientific community.

With this new logo, the Executive Committee hopes to promote a more balanced exposure of the work undertaken by the Union and to improve the performance of the geosciences in the service of society.

Advantages of IUGS Affiliation

All international, non-governmental, scientific, autonomous organisations may apply for affiliation with the Union. The advantages of such an affiliation to the Union are that this provides it with a wider significance and a more acknowledged position in the geoscientific world. Through its affiliated organisations, the Union indirectly represents the affiliate's membership in other arenas. In 2002, the Union has 36 affiliated organisations representing a very large combined professional membership from around the world. These range from large international professional organisations, to geological societies or specialist societies within the Earth sciences, to bodies undertaking educational work in the geosciences, often in the developing parts of the world. To become affiliated, an organisation must demonstrate that it has a relevance to the Earth sciences and has a significant (~25%) international membership, rather than being based in a single country.

A summary of the potential advantages for organisations which are affiliated to IUGS include:

Influence: Representation through IUGS in major international and supra-governmental bodies, such as ICSU, which is the umbrella organisation for all the international scientific unions. Through ICSU, via IUGS, the affiliated organisations can voice their opinions on major scientific and societal issues to other global bodies and supra-governmental organisations, such as the UN and UNESCO. For example, IUGS was asked to contribute to the statement prepared by ICSU for the World Summit on Sustainable Development in Johannesburg, 2002. Affiliated Organisations are invited to provide their views, which can then be communicated by the Union.

Affiliates may be represented in IUGS Commissions, Task Groups, Initiatives and Committees, for which the Terms of Reference often explicitly mention the preferential status of affiliated bodies.

Participation in Projects: Access to international projects, such as those in ICSU's annual Grant Programme, is open only to ICSU Unions and ICSU member countries. In the past few years, IUGS' affiliated organisations have participated in or initiated such projects; for example, the "Dark Nature – Rapid Natural Changes and Human Response", is a multi-body project coordinated by INQUA which was submitted to ICSU through IUGS and which received an US $ 100,000 grant in 2003. Affiliation also brings access to the US $ 50,000 annual IUGS Grant Programme which is open to members of the IUGS family, including its affiliated organisations. Further, affiliated organisations may participate in the major science programme being planned for the International Year of Planet Earth (see below).

Financial: Affiliated organisations are eligible to apply for financial support for their activities, and some of them rely strongly on such support. Grants may be given to an affiliate to support work of an educational nature in the developing world. However, money is not given to support secretarial facilities or to support travel to congresses. Members of affiliated organisations are also eligible to apply for travel grants to attend the quadrennial International Geological Congress, through the IUGS Hutchison Fund and the IGC Geohost programme.

Exposure: Affiliated organisations are invited to participate in the major Outreach Programme of the International Year of Planet Earth (www.esfs.org) through which the organisations attract significant exposure. They may also participate in the International Year's Outreach Programme Committee. Recent developments of the affiliated organisations are given exposure through the IUGS Annual Reports and they periodically get free publicity pages in Episodes and may announce their events in the IUGS Calendar of Events. Hotlinks through the IUGS website are established with all affiliated organisations. As affiliates of IUGS, organisations may strengthen their international profile and prestige. Affiliated organisations are preferentially invited to propose special symposia at the International Geological Congress.

Network and infrastructure: Affiliated organisation may profit from the IUGS networks for tapping relevant expertise to support review or consultation activities in their countries. They may use some of the services available at the IUGS Permanent Secretariat and have access to the IUGS Directory.

In summary, through affiliation, organisations become members of the worldwide IUGS family and this provides such organisations with an outreach beyond their own fields. Their representatives also have good opportunities to be actively involved in international geoscientific decision-making, with access to participation in major international science programmes. Through its affiliation, the organisation's voice and that of the geoscientific community at large will be heard in major, geopolitically significant events.

The International Year of Planet Earth

The joint ambition of IUGS and UNESCO to develop an International Year of Planet Earth was vigorously pursued in 2002. During a meeting in November of 2002, the Scientific Programme Committee, chaired by the former Chairman of the Scientific Board of IGCP, Edward Derbyshire, developed a set of selection criteria for 'major' science topics. These criteria state that topics must be global and holistic, have a human dimension and an outreach potential and involve developing countries. Late in January 2003, the Scientific Programme Committee met in Paris and discussed potential geoscience topics. In a two-day meeting, the texts of some 20 proposals were produced, as a basis for subsequent reduction to a shortlist of 6. An Outreach Programme Committee was also set up; its first task was to produce the first flyer on the International Year, which was published in January 2003.

The People's Republic of China has offered to propose the International Year of Planet Earth to the United Nations system. A meeting with the Chinese Ministry of Land & Resources, the body with prime responsibility for this action, was held in Beijing in November 2002 and plans were developed for the opening of the Year and for its implementation at the Chinese national level. The Management Team, consisting of Henk Schalke (chair), the leaders of the Scientific Programme and the Outreach Programme Committees (Edward Derbyshire), the President of IUGS and the Director of UNESCO's Earth Science Division (Wolfgang Eder) met several times to discuss strategy and progress. Meetings were also held with potential sponsors from industry and the first external financial support was provided by Shell International Limited. On many occasions, the leaders of both IUGS and UNESCO´s Earth Science Division took the opportunity to raise awareness of the International Year of Planet Earth, notably at the international level and several National Committees of Geosciences promoted the year at their national level. UNESCO and IUGS agreed that this initiative should extend over a three year period (2005-2007) and link-up with the forthcoming 50th commemoration of the International Geophysical Year and the International Polar Year, both planned for 2007/2008. With this in mind, the International Year has become a collaborative event, with the International Union of Geodesy and Geophysics (IUGG) and the International Geographical Union (IGU) being important partners.

For further information please check: www.esfs.com

IUGS – role, structure, membership

THE ROLE OF IUGS

The International Union of Geological Sciences, which was founded in 1961, represents all Earth scientists at the highest international level, as a member of the International Council of Science (ICSU; www.icsu.org) and as a close collaborator with UNESCO, through the latter's Earth Science Division (www.unesco.org). IUGS supports both fundamental research and applied aspects of the Earth sciences of both an international and interdisciplinary nature. This is done in part through a number of IUGS Commissions, Task Groups and Initiatives, detailed below, in part through the International Geosciences Program (IGCP), in collaboration with UNESCO and in part with ICSU and IUGS Affiliates.

Within ICSU, IUGS is the largest body, comprising 115 Adhering Members and two Associate Members, as well as some 36 Affiliated Organisations. IUGS maintains a non-political, and thus a non-governmental stance and is a non-profit making organisation. The Executive Committee of 10 persons, which together with a Permanent Secretariat based in Trondheim runs the Union on a day-to-day basis, aims to raise public awareness of the vital role the Earth sciences play in both the development and the conservation of natural resources and the environment. To improve this awareness, the Union is promoting an International Year of Planet Earth, from 2005-2007.

Raising the awareness of the role of IUGS within the geoscientific community is also a major aim of the present Executive Committee; many Earth scientists are unaware of the work IUGS undertakes, outside that run under the IGCP auspices or by the IUGS International Committee on Stratigraphy (ICS; see below). Efforts made to increase this awareness are described below

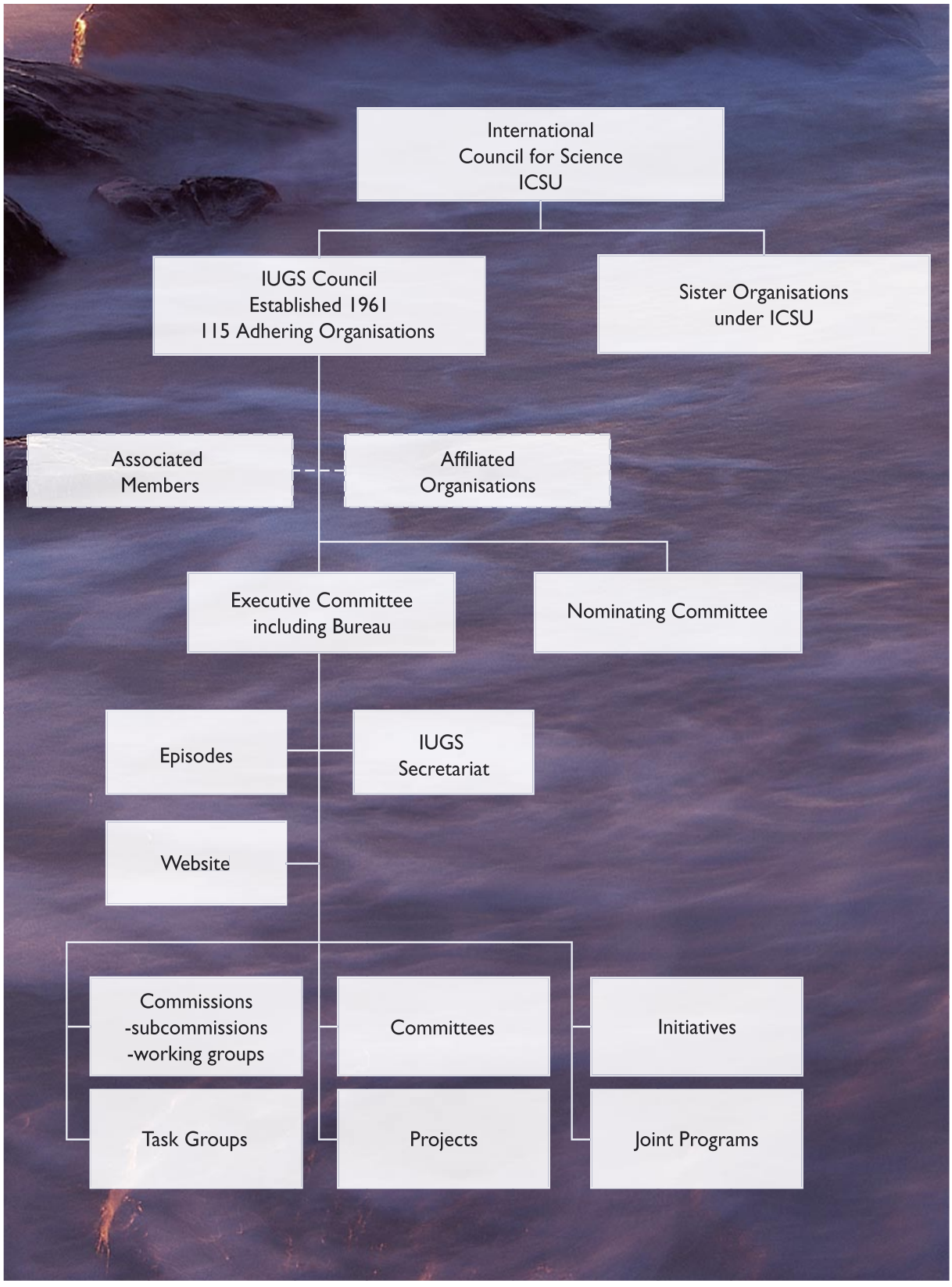
STRUCTURE OF IUGS

The representatives of the 115 Adhering Members (see below) constitute the IUGS Council, its highest body. This meets every four years, coincidentally with the International Geological Congress (IGC).

The Executive Committee comprises the Executive Officers of IUGS: (President, Secretary-General and Treasurer, who together form the Bureau, the Past-President, Vice-Presidents and Councillors. In the period of this Report, four Vice-Presidents retired and two Councillors were appointed, in compliance with the new IUGS Statutes, adopted at the IGC meeting in Rio de Janeiro, 2000.

The present Executive Committee (Appendix 1) will serve until the 32nd IGC meeting, in Florence, Italy, in August 2004, most having been elected during the Council Meeting at the 31st IGC in Rio de Janeiro, Brazil, in 2000. However, Attilio Boriani, who was elected Secretary-General, resigned in February 2002 and the Treasurer, Werner Janoschek, was elected as the new Secretary-General in February 2002, whilst remaining as Acting Treasurer. A new Treasurer, Antonio Brambati was elected towards the end of 2002.

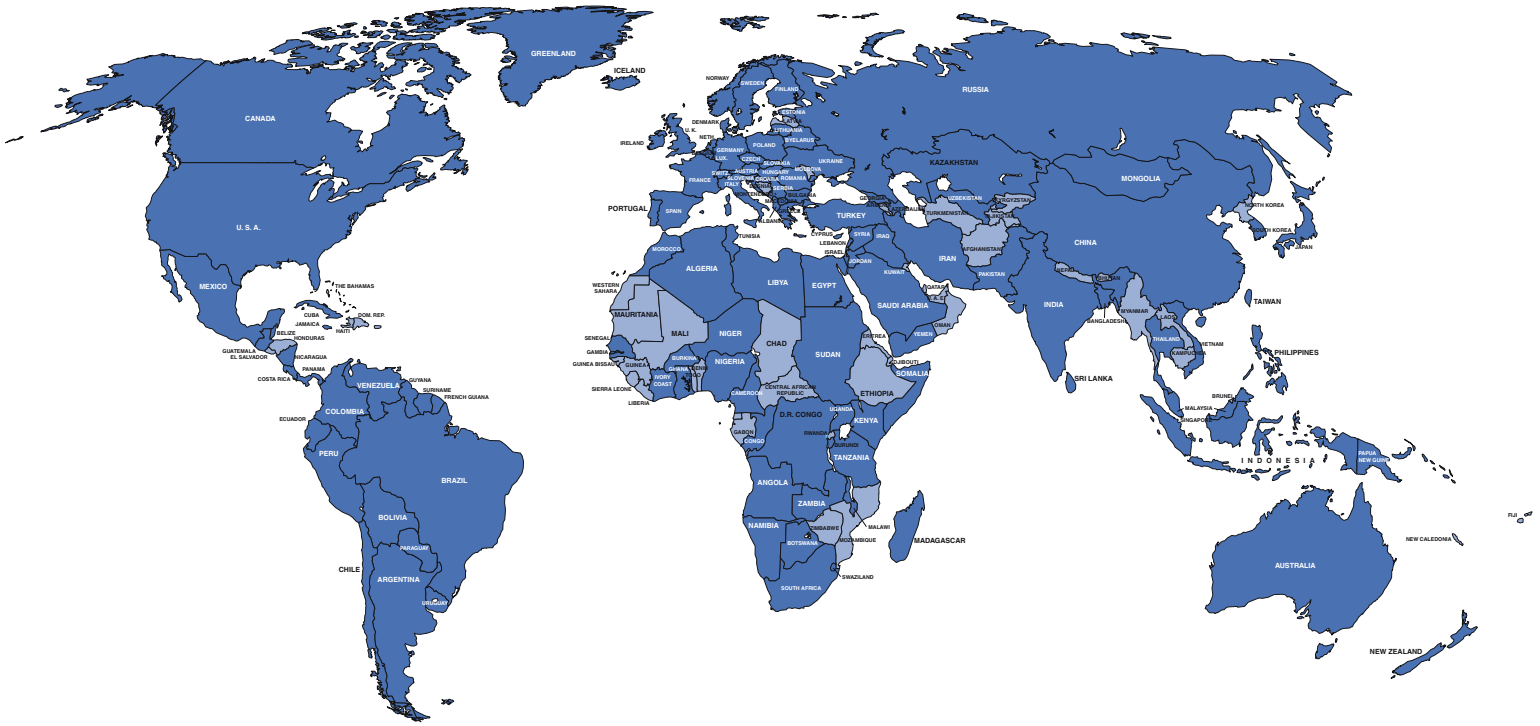
A Permanent Secretariat is maintained by courtesy of the Norwegian Government, in Trondheim, Norway, for the day-to-day operations of the IUGS (Appendix 1). The main documentary archives of IUGS are stored at the Permanent Secretariat. The postal address is given at the start of the report.


International
Council for Science
ICSU
IUGS Council
Established 1961
115 Adhering Organisations
Sister Organisations
under ICSU
Associated
Members
Affiliated
Organisations
Executive Committee
including Bureau
Nominating Committee
Episodes
IUGS
Secretariat
Website
Commissions
-subcommissions
-working groups
Committees
Initiatives
Task Groups
Projects
Joint Programs

The IUGS website (www.iugs.org) is run by John Aaron. A considerable body of information about IUGS, including links to its various scientific bodies and projects, may be obtained from this site, and also from Episodes, the IUGS journal (see www.episodes.org).

Executive and Bureau Meetings in 2001

The 50th Executive Committee meeting was held at Lower Hutt, New Zealand, between February 25th and March 1st. The meeting was superbly organised and hosted by the Geological Survey of New Zealand. A full list of Executive Committee and Bureau meetings held in 2002 is given in Appendix 1.



MEMBERSHIP OF THE IUGS

Currently, there are 115 Adhering Members of IUGS, with Peru, which rejoined in 2002, being the newest member. These countries comprise 70% of the world's nations, although only 74 % of the Adhering Members have an active status. A complete list of the Adhering Members, together with their membership category and status is given at the end of the Report, in Appendix 2. To become active again, an inactive Adhering Member must pay the outstanding Membership Fees for the last three years (the fees for 2001-2003 are given in Appendix 3). Only those Adhering Members with an active status can vote on IUGS matters.

Active representation of the Developing World is, unfortunately, lower within IUGS. The Executive Committee has started to think in detail about ways of bringing these parts of the geoscientific community back into the active, contributing part of IUGS. As part of this effort, the Executive Committee is looking at ways of financially assisting geoscientists from the developing world to become members of the Bureau.

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 $ 440 in 2002, after which it will be linked to the inflation rate in the USA.

The largest number (66) of Adhering Members lies within Category 1, with fewer members in the higher categories. There are no Adhering Members in Category 6, and only three in Category 8 (Japan, Russia and the USA).

The Australian Geological Survey Organisation and King Abdulaziz City for Science and Technology, Saudi Arabia are Associate Members of IUGS

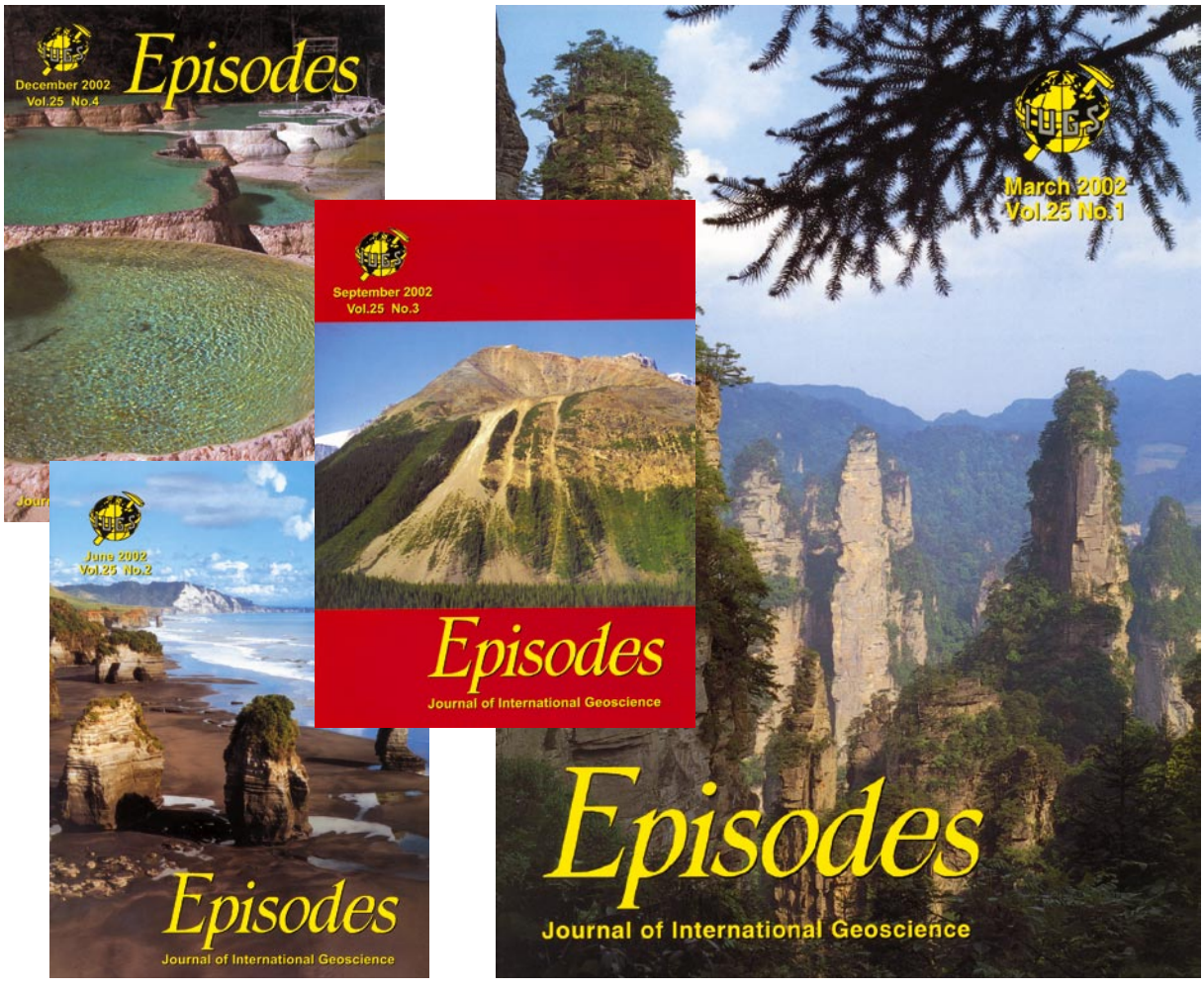
IUGS COMMITTEES

Nominating Committee

During 2002, the Nominating Committee was active in finding a suitable replacement for Werner Janoschek, who resigned from his position as Treasurer to become the new Secretary-General, following the resignation of Attilio Boriani. The Committee chose Prof. Antonio Brambati, of Trieste University, N. Italy, and this was ratified by electronic voting by the Adhering Members. Antonio Brambati started his duties as Treasurer at the beginning of 2003. The Nominating Committee comprises Robin Brett (Chairman, Past President), Wissam Al-Hashimi, Glenn Caldwell, Marta Mantovani, Isabelle Niang-Diop, Michael Schmidt-Thomé and Zhang Hongren.

Committee for Research Directions

This Committee, comprising Edward Derbyshire (Chairman), Maurizio Gaetani, James Teller, Gerhard Wörner, Victor Ramos, Ian Dalziel, Sylvi Haldorsen, Albrecht Hofmann and Christian Chopin, with the IUGS President and Secretary-General as ex-officio members, met for the first time in Paris, February 2002. The Committee´s brief is to establish important new areas of scientific research where IUGS could make a significant and lasting impact. The Committee submits its recommendations to the Executive Committee for perusal and implementation, if deemed suitable.



Publications Committee

The Publications Committee is charged with the responsibility of overseeing the material published by IUGS. This includes material produced by *Episodes*, the IUGS journal published in China, occasional books produced by IUGS bodies and also material presented on the Union's homepage (www.iugs.org). The Committee, which met in Washington, in August, comprises Antony Berger (Chairman), Fred Spilhaus,Victor Mocanu 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). At this meeting, it was decided that serious efforts should be made to improve the quality, number and visibility of the IUGS Special Publications series. To that end, Berger was charged with the responsibility of contacting a range of publishing houses to establish whether a collaborative venture would be possible. The results of this will be given in the Annual Report for 2003.

Ad hoc Review Committee

This Committee was set up by the Strategic Planning Committee to undertake regular reviews of the committees, commissions, task groups and initiatives run by the Union. The overall aim is that each body should be reviewed once during each term of the Executive Committee. Since each body being reviewed covers a different branch of the Earth sciences, each ARC has a different composition. This typically comprises a member of the Bureau, the leader of the group being reviewed and two or three independent experts in the particular field, who can give impartial advice on the body. In 2002, this process was started with a review of the Commission on Tectonics (COMTEC). After the review, it was decided that the existing commission should be closed down and a new commission, with new aims and personnel should be set up. This decision was approved by the Executive Committee at its meeting in Windhoek, 2002.

TREASURER`S REPORT

During the period covered by this Report, Werner Janoschek continued as acting-Treasurer, whilst the election for a new Treasurer was undertaken. The bulk of IUGS´s income derives from the annual Membership Fees paid by the Adhering Members and of various contributions to selected scientific endeavours by UNESCO, ICSU and the US. The programmes which benefit from IUGS funding are its own bodies (Committees, Commissions, Task Groups, Initiatives and also GARS, MRSP and, especially, IGCP). Support to some of the IUGS Affiliated Organisations is also given, in particular when the work undertaken is of an educational nature and is done in the less developed parts of the world, with the collaboration of the national citizens.

Although funding for travel to the Executive Committee Meetings by EC members is also provided for by IUGS, the President, the Secretary-General (and his assistant), the Treasurer and the Permanent Secretariat are all provided for by their national governments or science funding organisations and do not impose any financial burden on the Union. Further, the host country, New Zealand in 2002, typically provides a considerable amount of direct or indirect financial assistance. A detailed financial statement is given in Appendices 4 & 5 and more information can be obtained from the financial report published in the March 2002 edition of Episodes, volume 25.

Scientific Activities of IUGS

The Commissions, Task Groups, Joint Programmes and Initiatives of IUGS are the main `hands-on´ areas of scientific research undertaken by the Union. The IGCP programme, run collaboratively with UNESCO, and the GARS and MRSP (formerly DMP) projects co-sponsored with UNESCO are more `hands-off´ research, in which the Union approves the project and ensures that work is carried out, but provides no direct input into the programme. IUGS provides main scientific support to the quadrennial International Geological Congress (IGC).

IUGS Commissions

Commissions are the largest bodies that IUGS maintains under its own wing. Typically, a Commission will last for two to three EC terms (8-12 years) before being either closed down or entirely reformulated. Under the new rules proposed by the Strategic Planning Committee, a review of Commissions is undertaken at least once every four years. In 2002, the Commission on Tectonics (COMTEC) was evaluated and it was decided to abolish the commission and to develop a new body with another mission and new leadership.

Commission on Geological Sciences for Environmental Planning (COGEOENVIRONMENT)

COGEOENVIRONMENT (http://www.sgu.se/hotell/cogeo/) aims to increase the public awareness of the important role that the Earth sciences can and should take in all management and planning which might affect the environment. This is done by both trying to increase the understanding of planners and decision makers of the value of the geosciences in planning and by increasing the interest of geoscientists in taking part in such activities. Scientific work on forecasting potential ecological and human disasters forms a critical part of the Commissions work; two successful initiatives within the group were hived off in 2002, to form separate bodies within the IUGS family (International Working Group on Environmental Geoindicators, and the International Working Group on Medical Geology).

The Commission is led by Colin Simpson (simpsons@webone.com.au), with Imasiku Nyambe (inyambe@mines.unta.zm) as Vice-President and Joy Pereira (joy@pkrisc.cc.ukm.my) as Secretary-General. The Commission has a team of 10 further officers and over 200 Corresponding Members from 82 countries, with several Supporting Members and Corporate Members.

COGEOENVIRONMENT maintains an International Working Group on Urban Geology (IWGUG), lead by Brian Marker (brian.marker@odpm.gsi.gov.uk) covering natural disasters and potential for further development in urban areas and an International Working Group on Geology and Ecosystems (led by Igor Zekster (zekster@aqua.laser.ru). In addition, Working Groups on Geoscience for Land Use and on International Borders – Geoenvironmental Concerns are under development.

International Commission on the History of Geological Sciences (INHIGEO)

Manuel S. Pinto (mpinto@geo.ua.pt) and David R. Oldroyd (d.oldroyd@unsw.edu.au) continued as President and Secretary of this very active Commission with its elected membership of 169, from 41 countries; 14 new members were elected in 2002, with representatives elected from Belarus, Denmark, Lithuania and Uzbekistan for the first time. The Commission, which is affiliated with the International Union of the History and Philosophy of Sciences, produced a Newsletter for 2001 (N° 35) containing articles and conference reports.

The Commission´s main achievement in 2002 was staging a major conference in Paris on the work of the polymathic French palaeontologist Alcide d'Orbigny. This was associated with a new exhibition on d'Orbigny at the Muséum National d´Histoire Naturelle, with field trips in France and Bolivia, where he did much work. INHIGEO is responsible for the `Classic Papers´ series in *Episodes* in which critically important papers in the Earth Sciences are reviewed and assessed. In 2002, three articles were published: "The Origin of Continents" (Alfred Wegener), by Bernhard Fritscher and "Uranium & Geology" (John Joly), by Patrick Wyse-Jackson.

International Commission on Stratigraphy (ICS)

The International Commission on Stratigrpahy (http://www.stratigraphy.org) is the largest and oldest Commission within IUGS, having been founded prior to IUGS. Felix Gradstein (felix.gradstein@geologi.uio.no) and James Ogg (jogg@ purdue.edu) continued to lead the Commission as Chairman and Secretary, respectively. The Commission is particularly concerned with the establishment of global stratotype sections and points (GSSP´s) as boundaries between chronostratigraphic units but also promotes and coordinates long-term international cooperation in a number of other related stratigraphic topics.

The complete stratigraphic range of Earth history is covered by the 14 Subcommissions on Stratigraphy.

These determine where to fix the GSSPs defining the boundaries between the Series and Stages that comprise the stratigraphic column. Most of the 157 page Annual Report by the Commission covered the work undertaken by these Subcommissions. In 2002, the base of the Cenomanian Stage (Late Cretaceous), the base of the Paibian Stage (Late Cambrian) and the base of the Ypresian Stage (base Eocene Series) were ratified by the IUGS Executive Committee. A list of GSSPs ratified, together with the reference to their official published description is given in Appendix 6. The new Working Group on Stratigraphic Information Systems (SIS) has made a major contribution to the material available at the ICS website. An updated, downloadable (.pdf) version of the ICS Stratigraphic chart is available at the website.

ICS is closely involved in the CHRONOS project (www.eas.purdue.edu/chronos/), a multi-million dollar, 6-year developmental programme being considered by the USA NSF. The aim is to create a global network of databases of Earth System history. This would develop and link Life-through-Time, Climate-through-Time, Radiometric Ages, Palaeomagnetics, and the standard Geological Time Scale.

In June, the heads of all the Subcommissions held a critical meeting at Urbino, Italy, to discuss the long term future of ICS, after the completion of the GSSPs, planned for 2008. This meeting was regarded as very successful and will be repeated every two years.

Commission on Systematics in Petrology (CSP)

The Commission on Systematics in Petrology (http://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) published the 2nd edition of *A Classification of Igneous Rocks and Glossary of Terms. Recommendation of the IUGS Subcommission on the Systematics of Igneous Rocks*. The Subcommission on the Systematics of Metamorphic Rocks finalised its core paper `How to name a metamorphic rock´ and five other sections; these are available on the website (SSMR; http://www.bgs.ac.uk/SCMR). The Subcommission on Databases in Petrology has been active and successful up to now, but it has difficulties to continue the development of the petrologic databases. The Subcommission not only manages the global petrologic data, but it also establishes the principles of the petrologic databases. For this, the SDBP will propose in the future a new commission to establish the standard of geological databases and the usage in the countries of IUGS. The commission should cover all geological branches, including also problems in mapping and systematics to generalize the exchange of all kinds of information.

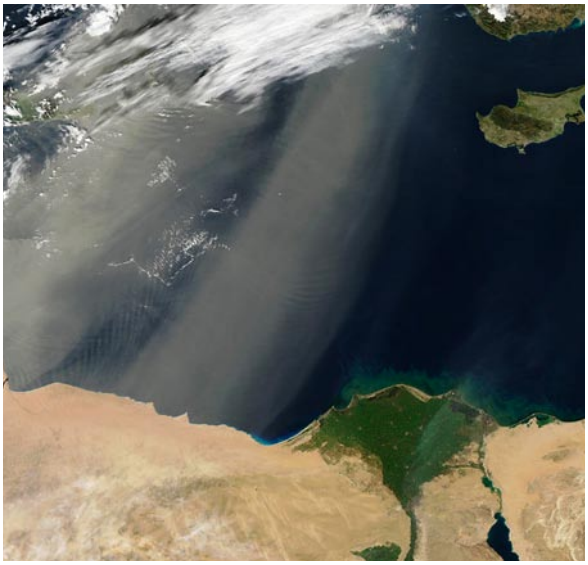
Commission on the Management and Application of Geoscience Information (CGI)

After the retirement of several leading members, plans are well forward in reforming the Commission; in October the Commission was formally re-activated. Formerly known as COGEOINFO, the 'new' Commission will be known as CGI (http://www.bgs.ac.uk/cgi_web/welcome.html). The terms of reference were reviewed and refreshed and new officers were appointed for the period up to the next International Geological Congress in Florence 2004. Kristine Asch (Chairwoman; BGR) and Ian Jackson (Secretary; BGS), with Max Fernandez (RMCA, Belgium) remains from the old COGEOINFO as Treasurer. The Commission is developing good contacts with affiliates and wants to get S. America/Latin America and Asia into the group, to give it a wider coverage. Work began immediately on a new work-plan and a website was made.

IUGS Initiatives

International Working Group on Environmental Geoindicators (GEOIN)

This Initiative (http://www.geoindicators.org) became independent from COGEOENVIRONMENT during 2002. The group, which is led by a management board comprising Antony Berger, Jonas Satkunas, together with David Liverman (Geol Survey Newfoundland) and John Ridgeway (BGS). The Initiative´s main work is to promote awareness of the numerous high-resolution short-term measures (<100 years) which can be used to assess changes in the environment, which are significant enough to warrant environmental monitoring and reporting. Essentially, rapid natural changes are those which occur catastrophically or more slowly, but are still measurable on a lifetime or project planning scale. They can be used to assess the impact of projects and to form a baseline survey before major projects (mining, forestry, and construction) are begun. Most of the indicators deal with changes on the 0.1 to 100 km scale although some, like relative sea level and volcanic unrest, have regional dimensions.



The geoindicators were developed from the full range of Earth sciences. Some, such as seismicity, groundwater quality, and coral chemistry, are complex and costly to measure whilst others are easy to apply, especially using satellite technology. Geoindicators can also give paleoenvironmental data, leading to the baselines against which human-induced and natural stresses can be compared.

Twenty-seven geoindicators have been described in a checklist format that represents a 'menu' of core landscape indicators. These should be combined with other indicators (biological, climatic, even socio-economic) to construct a full picture of environmental condition and the stresses on ecosystems originating from both natural and human sources. Each geoindicator is described using a framework of sixteen different descriptors (Appendix 7). The geoindicators list of 1996 comprises the following features: Coral chemistry and growth patterns; Desert surface crusts and fissures; Dune formation and reactivation; Dust storm magnitude, duration and frequency; Frozen ground activity; Glacier fluctuations; Groundwater quality; Groundwater chemistry in the unsaturated zone; Groundwater level; Karst activity; Lake levels and salinity; Relative sea level; Sediment sequence and composition; Seismicity; Shoreline position and morphology; Slope failure (landslides); Soil and sediment erosion; Soil quality; Stream flow; Stream channel morphology; Stream sediment storage and load; Subsurface temperature regime; Surface displacement; Surface water quality, Volcanic unrest, Wetlands extent, structure and hydrology; Wind erosion.

International Working Group on Medical Geology

This group (http://home.swipnet.se/medicalgeology/) is also an outgrowth of COGEOENVIRONMENT, forming a separate body in 2002 after a directive from the Executive Committee, with the full support of COGEOENVIRONMENT. Medical Geology is an interesting opportunity for the geosciences to interface with medicine/healthcare and to have a major impact on human welfare. The long term vision of the group is to build a Foundation for a Global Medical Geology Network – to improve the health of millions of people around the world. This is being done through short courses, a website and the distribution of information products, to encourage regional and national participants to become better informed about geomedical problems. So far, there are 400 affiliates from 60 countries, with Olle Selinus and Bob Finkelman as co-directors, and 2 geoscience and 2 medical councillors. A great many short courses have been run by the Initiative and in 2002, they were held in Chile, Russia, China/Japan. The number grows each year and often there is a request for the course to be repeated; it has been held three times in New Zealand. The Initiative is also regularly asked to host Medical Geology sessions at medical congresses around the world. Several products are online – a 900 page textbook is to be published in 2003, by Academic Press. A monograph based on a seminar held in Uppsala

in 2000, is about to be published and a short course CD is in preparation. An arsenic field kit has been developed for use in China – to help people avoid burning arsenic-rich coal, reflecting the practical aims of the group. Also, non-technical texts are coming out, trying to reach the general public.

IUGS Task Groups

Task Groups deal with topics needing immediate action or short-term studies.

Task Group on Global Geochemical Baselines

One of the important, but often not readily visible effects of the increasing use of the Earth´s surface, through rising urbanisation and industrialisation, is the alteration of its chemical composition. This has lead to worldwide concern about the knock-on effects this will have on human health. To assess the possible changes in the surface and groundwater chemistry, a baseline for comparisons is needed – essentially a measure against which variations can be checked to see if the levels of pollutants is rising or decreasing; this is the role of the Task Group on Global Geochemical Baselines (http://www.bgs.ac.uk/iugs/home.html). The project started in 1988 as IGCP project 259 and, after a successor project (IGCP 360) became a collaborative project (TG-GBB) under the combined auspices of IUGS and the International Association of Geochemists and Cosmochemists (IAGC), to ensure the programme continued during the sampling and analytical phases. This Task Group is currently led by Jane Plant (j.plant@bgs.ac.uk) and David Smith (dsmith@usgs.gov).

During 2002, sampling was finished in a large part of India and pilot studies have been started in Columbia and Brazil. Further, geochemical mapping issues were discussed in Mexico. About 80% of the USA has now been sampled for stream sediments on a 17x17 km grid. A floodplain atlas of China was prepared for publication later this year.

Although the project is concerned with natural contaminants coming from abuse of the environment, it has been suggested by the World Health Organisation that the samples collected should be re-analysed to determine the levels of man-made pollutants (hormones, Viagra, anti-depressants etc.) within the Earth´s surface environment.

Task Group on Fossil Fuels

This Task Group (http://www.geointelligence.org) gives assistance in the development and environmentally sustainable exploitation of fossil fuel deposits by less-developed countries in the absence of a major player in the industry acting as a consultant. This is done in part through a very comprehensive web-site which covers all aspects of developing fossil fuel resources. Courses on the use of the website are also held. Currently, the website has specific examples of the work undertaken by the Task Group in Chad and the Cameroon. Further, through its work, the Task Group has been able to soften otherwise tense political situations at areas where resources cross over political boundaries. The Task Group is led by Richard Sinding-Larsen (richard.sinding-larsen@geo.ntnu.no).

Task Group on Geochronological Decay Constants

The goal of this Task Group is to formulate new, specific recommendations for isotopic decay constants, isotopic abundances, and uncertainties. The decay constants that have been in use in the geological community for the last 26 years were endorsed and recommended by the IUGS (Steiger & Jäger, 1977). However, recent analytical improvements have exposed potential problems with the 1977 recommendations. The nuclides considered initially are the same as those studied by Steiger & Jäger, plus ^{147}Sm, ^{176}Lu, and ^{187}Re, which only recently have gained wide application. Once this first goal has been achieved, other nuclides may be considered. Critical to the success of the work of the Task Group, is that its members are viewed by the entire scientific community as accomplished, recognized practitioners, rather than consumers, of radioisotope geochemistry and geochronology.

Task Group on Public Affairs

This group (http://www.agiweb.org/gap/iugs/) was established in 2001 under the leadership of David Applegate, with 23 representative from around the world, in recognition of the fact that although international collaboration is a standard procedure amongst geoscientists, public policy remains largely confined to within national borders. The Task Group, therefore, aims to share information on geoscience related public policy activities around the globe, focussing on the common challenges faced by geoscientists in many countries. In 2002, the Task Group published an article about itself, describing its role, in Episodes 25, part 2. The Task Group also coordinates the development of position statements for ICSU. The website will soon link to position statements produced by other geoscientific organisations.

IUGS Collaborative projects

International Geological Correlation Programme (IGCP)

The International Geological Correlation Programme (www.unesco.org/science/earthsciences/igcp/index.htm - and soon to be renamed the International Geoscience Programme) was jointly initiated in 1972 by IUGS and UNESCO, to provide funding for promoting research in the Earth Sciences. The Scientific Board, which decides on which projects should be supported, is divided into four parts:

Working Group 1 – *Stratigraphy, Palaeontology, Sedimentology and Fossil Fuels;*

Working Group 2 – *Quaternary, Environmental and Engineering Geosciences;*

Working Group 3 – *Mineral Deposits, Petrology, Volcanology, Geochemistry;*

Working Group 4 – *Geophysics, Tectonics and Structural Geology.*

Each working group has four representatives and these, together with the Chairman, Edward Derbyshire comprise the selection panel. The President and Secretary-General of IUGS are ex-officio members of the board. In 2002, the total budget for IGCP comprised US $ 160,099; some of this is sent to projects directly from UNESCO and the rest are paid via IUGS. This acts as seed money for the projects; since the IGCP status enables projects to more readily obtain funding from other sources, UNESCO has estimated that the total sum expended within the IGCP projects is many times greater than the seed money.

A complete list of projects supported in 2002 is given in Appendix 8. Currently, 13 of the 37 projects funded are decentralised. A further three projects are running on `extended term´, after the project has finished but without further IGCP funding. Again, the IGCP status helps such projects to attract more money and this is often used to develop a successor project or to grow into a larger organisation. Project details and application forms can be downloaded from the IGCP homepage.

Geological Applications of Remote Sensing (GARS)

The central aims of GARS are to demonstrate the use of advanced remote sensing techniques for the solution of key geological questions and to ensure the transfer of information and technology through co-operative research in the field in combination with educational programmes. In 2002, GARS developed into a worldwide network, with affiliated organisations in Asia, Europe and America. The project, which is led by Stuart Marsh (BGS) is sponsored by both UNESCO and IUGS. In 2002, UNESCO heavily supported GARS activities within the framework of the Integrated Global Observation Strategy (IGOS) Geohazards Theme Ad Hoc Working Group. A number of presentations were held by GARS members, covering a wide range of issues, including human security and improving water resource management. GARS is now seen as an integral part of IGOS (http://igospartners.org); its main activity for 2002-2003 is the preparation of the IGOS geohazard Theme Report that will influence the selection of space-born sensors to be launched in the years to come. It will also enhance, optimalize and strengthen the terrestrial networks for geohazard observation. The IGOS Theme Study is a unique opportunity for the geoscientific community to cooperate with the space agencies on the study of natural hazards.

Mineral Resources Sustainability Programme (MRSP; ex Deposit Modelling Programme)

MRSP (http://www.unesco.org/science/earthsciences/dmp/) is a joint UNESCO-IUGS programme which aims to advance geoscientific knowledge and expertise in mineral deposit modelling for use in exploration, resource and environmental assessment, and for the development of resources. It also facilitates the transfer of such knowledge and expertise to developing countries and assists in training geoscientists from developing regions so that they can carry out exploration and resource and environmental assessment in their home countries. The Programme is currently led by Kathleen Johnson (kjohnson @usgs.gov), with a Steering Committee comprising 14 members from or-

ganizations in various nations. MRSP undertook two major activities in 2002. First, a significant conceptual revision, in which the aims of the project were enlarged to include both geoenvironmental models as applied to mineral deposits and of sustainability. This revision was prompted by IUGS and UNESCO. Second, a workshop was presented in conjunction with the 11th quadrennial IAGOD Symposium and Geocongress 2002. The MRSP-sponsored workshop, "Mineral Deposits, Data, and Models for Sustainable Development," was held in Windhoek, Namibia, in July. Participants came from industry, academia, and governmental organizations in South Africa, Namibia, Italy, the USA, and Canada. The goal of the workshop was to investigate availability of data and tools with which to conduct a long-term project to quantify mineral resources of southern Africa. MRSP also continued to participate in an international effort spearheaded by the US Forest Service to establish criteria and indicators for global mineral resource sustainability.

Scientific Committee on the Lithosphere (SCL; International Lithosphere Programme (ILP))

This programme (http://www.sclilp.org) seeks to elucidate the nature, dynamics, origin and evolution of the lithosphere, through international, interdisciplinary collaboration. The Programme, which involves several hundred scientists from over 60 countries, is led by Asahiko Taira (ataira@jamstec.go.jp) and Kaye Shedlock (kshedloc@nsf.gov) as President and Secretary-General respectively. In 2002, several board members resigned after long terms of office; some have been replaced, although several vacancies remain to be filled. Six projects came to their conclusion in 2002 and two new projects were started, giving a total of four active projects (Global Impact Studies; Processes and Dynamics in the Formation and Exhumation of Ultrahigh-pressure Metamorphic Terrains; Global Earthquake Potential; Methane Hydrate - Global Distribution and Geological Processes). Six Coordinating Committees are also active; Cooperative Earth Sciences in the Andes and the Himalayas; Europrobe; Continental Scientific Drilling; International Commission for the Earth Sciences in Africa (ICESA); Committee on Interdisciplinary Lithosphere Surveys (COILS) and Lithospheric Evolution of Gondwana East from Interdisciplinary Deep Surveys (LEGENDS).

Obituary

JOHN REINEMUND (1919- 2002)

John Adam Reinemund, IUGS´ Treasurer from 1979 to 1989, passed away on December 8, 2002, at his home in Myrtle Beach, South Carolina, USA. He is survived by Ruth Rees Reinemund, his wife of 59 years.

John graduated from Augustana College in 1940 and in 1941 had focused his interest on a doctorate project at the University of Chicago when World War II interrupted those plans. In 1942, he received an appointment with the U.S. Geological Survey, working with their strategic minerals investigations, and then, in 1944, John joined a USGS team preparing sound-ranging and buoyancy charts for submarine operations in the Pacific. During 1945-46, he served 18 months in the US Army, before returning to the USGS to map coalfields – originally in North Carolina and then in Korea for his first overseas assignment. At the end of 1949, John was appointed Deputy Chief of the Eastern Field Investigation Section of the USGS Fuels Branch. After returning to the University of Chicago for graduate work, he established the first Fuels Geology laboratory to conduct analytical and research activities in support of all Fuels Branch operations at Denver.

From August 1956 to July 1964, John served as Principal Geologic Advisor to the Government of Pakistan and as Chief of a multifaceted USGS team. This demonstration of his exceptional scientific and administrative abilities led the USGS in 1964 to appoint him as Chief of the Foreign Geology Branch. In 1967, Augustana College awarded John an Honorary Doctor of Humane Letters, in recognition of his achievements in international scientific, technical, and educational assistance to emerging nations. Reorganization of the USGS in 1970 resulted in the founding of the Office of International Geology, with John as its Chief, a position he held until his retirement in 1984. Thus for 20 years John devoted his energy to developing world-wide international programmes in the Earth sciences through technical assistance, scientist exchanges, local and regional symposia, research projects, and professional development. John placed much emphasis on personal contacts and this undoubtedly contributed to the high prestige with which the USGS is now regarded abroad.

To recognize his contributions in furthering international geological research and in promoting collaboration between government, industry and academia, especially in developing countries, John received the Meritorious Service Award from the U.S. Department of Interior in 1977, and, in 1980, the Distinguished Service Award, its highest honour. He also received the 2001 American Association of Petroleum Geologists' Human Needs Award, and in 2003 was the posthumous recipient of the first International Division Distinguished Career Award of the Geological Society of America.

(*Summarized from the obituary written by George Gryc and Maurice J. Terman.*)

Organisations Affiliated with IUGS

IUGS seeks to maintain close links with other geological organisations through its affiliated organisations. These provide expertise to the Union and can disseminate information coming from IUGS to individual geologists rapidly. The advantages of the affiliated status for such organisations are outlined at the beginning of the report. Currently, there are 36 affiliated organisations, with the International Geological Education Organisation (IGEO) being the latest. Several other organisations have shown an interest in becoming affiliated in the next few years.

Organisations Affiliated with IUGS

American Association of Petroleum Geologists (AAPG)

The Association (http://www.aapg.org) was founded in 1917 when the petroleum industry was in its infancy and has subsequently grown to be the largest such association in the world, with ~30,000 members world-wide; student numbers are up by 50% in the 2001-2002 period and twenty new student chapters were started; AAPG is working with two other organisations affiliated to IUGS: GSA and SEG to design a Virtual Student Expo on the internet. The aims of the Association are to advance the geosciences in relation to oil, gas and related materials resources; to promote the development of the technology to extract such resources; to disseminate the information learned; to inspire a high professional standard amongst its members; to assist the public in recognising properly trained and professional geologists and to promote the interests of its members. In the period 2001-2002, AAPG concentrated efforts on letting its members know what services the Association offered. Amongst these are the digital archives of all the AAPG Bulletins, from 1917 onwards, which are freely available to all members. Other material is still being added to the digital library. Further, AAPG is working with seven other associations and societies to form a world-wide geoscience publishing aggregate. In 2002, AAPG sponsored two Prospect and Property Expositions, one of them in London, at the Institute of Petroleum´s Annual Meeting. The first summit on teaching Petroleum Geology was held in March 2002, at the Annual Meeting; this has led to the production of an AAPG CR-rom on teaching petroleum geology. AAPG is also developing a travelling short course to help bring teachers up to date with the latest curriculum, exercises and philosophy in the industry. Further details of AAPG´s extensive activities can be found in the President´s report, at (http://www.aapg.org/business/annual/pres.html).

American Geological Institute (AGI)

The American Geological Institute (http://www.agiweb.org), is a non-profit federation of 42 geoscientific and professional associations reflecting over 100,000 members. AGI, which was founded in 1948, serves as a voice of shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources and interaction with the environment. The Earth Science Week in 2002 marked the fifth year of this annual event, which is hosted by AGI as a service to the public and the geoscience community. The week was established to give students and citizens new opportunities to discover Earth sciences and to encourage stewardship of the Earth. It highlights the important contributions that Earth and environmental sciences make to society and invites the public to become engaged in current scientific exploration. Further, AGI finished its middle and high school Earth science curricula projects; these have been adopted in 41 American states, so far. In September, AGI signed a co-operative agreement that will make the USGS Global GIS database readily available to the education sector and the general public in the form of a DVD World Atlas. AGI publishes *Geotimes*, a monthly geo-news magazine, which has significantly increased its circulation since a major overhaul in 2000 (www.geotimes.org); the magazine is now available at a growing number of newsstands and bookstores. The GeoRef database, established by AGI in 1966, which is the most comprehensive database in the geosciences, with more than 2.4 million references, grew by 82,000 references in 2002. AGI also runs the Earth Science World Imagebank, which contains a very wide range of photographic images available for educational use.

American Geophysical Union (AGU)

The American Geophysical Union (http://www.agu.org), nurtures a world-wide community of 41,000 geoscientists that advance the understanding of the Earth and it space environment for the benefit of humanity. The Union is keen to draw together national and regional and international societies in co-operative activities that will advance the geophysical sciences and to increase public support for geophysical research. The Union is divided into 10 sections (Atmospheric Sciences; Biogeosciences; Geodesy; Geomagnetism and Paleomagnetism; Hydrology; Ocean Sciences; Planetary Sciences; Space Physics and Aeronomy; Tectonophysics; Volcanology, Geochemistry and Petrology) as well as having focus groups addressing detailed topics. In 2002, AGU´s journals (including the *Journal of Geophysical Research and*

Water Resources Research) became fully on-line and many teething problems had to be dealt with; however, by the end of the year, production in most journals was close to the pre-electronic turnaround times. The Union also runs the electronic journal *G^3 Geochemistry Geophysics Geosystems*, together with the Geochemical Society. During 2002, AGU collaborated with the European Geophysical Society and the European Geophysical Union and the European Union of Geosciences in a very successful mega-meeting in Nice, France. Smaller conferences were held at several localities around the world (New Zealand, Greece, Finland and the USA).

Arab Geologists Association (AGA)

The Arab Geologists Association (AGA) promotes the study of geology and the welfare of geologists in the Arab world. The Association, which represents some 25,000 Earth scientists either through individual or organisational/society membership, is a non-governmental organization covering 11 Arabic countries from northern Africa and the Middle East. The Association represents the Arab world in International Commissions and supports conferences and commissions of Arab interest. AGA is still maintaining its contacts inside Iraq, despite current circumstances. AGA continued its efforts in promoting the IUGS image in Arab countries and, because of its involvement in the 32nd IGC Mediterranean Consortium; the Association is publicizing the 32nd IGC throughout the Arab world.

Association Internationale Pour l´Etude des Argiles (AIPEA)

The aim of AIPEA (http://www.agr.kuleuven.ac.be/intorg/aipea/aipea.htm) is to promote clay research and technology throughout the world and to foster international cooperation in these fields. These goals are being achieved by sponsoring international clay conferences; stimulating young scientists working in the clay mineralogy field and by stimulating communications between clay researchers and clay technologists. The group, which is led by Elen Roaldset and Robert Schoonheydt, as President and Secretary-General, respectively, has a large number of affiliated clay societies and runs two committees, on Nomenclature and on Teaching.

Association of European Geological Societies (AEGS)

The prime purpose of this Association (http://www.uni-essen.de/geologie/aegs.htm) is to strengthen the links between geological societies in Europe. This is achieved by biannual meetings of the societies, held since 1975 (MAEGS – Meeting of the Association of Geological Societies), although the Executive Committee of the Association meets every year. Currently, there are 30 members, from 29 countries (two societies from the UK), including Russia and many former `Eastern European´ countries. The last MAEGS was held in 2001 and the next is planned for 2003, in Hanover Germany, with a theme of *"Geosciences and the European Water Framework Directive"*. The EC board was strengthened in 2002 with new members from Germany, Greece and Italy.

Association of Exploration Geochemists (AEG)

This Association (http://www.aeg.org), founded in 1970, is an international body which 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 Association, which has ~600 members, publishes the journal *GEOCHEMISTRY: Exploration, Environment, Analysis*, and a monthly a newsletter, *EXPLORE*, a digital format bibliography of geochemically oriented papers. A biennial International Geochemical Exploration Symposia is held (next one is in Dublin, 2003, with field trips to S. Greenland, Spain and Ireland), as well as specialist meetings and workshops. Further, AEG will co-sponsor the 6th International Symposium on Environmental Geochemistry, In Edinburgh, Scotland. In 2002, a workshop was sponsored on *"Exploration Technology: Discovery through Innovation"*. The Association also produces, with Elsevier, the *Handbook of Exploration Geochemistry*, a series of volumes offered to members at substantially discounted rates.

Association of Geoscientists for International Development (AGID)

The Association (http://agid.igc.usp.br/) encourages communication between all individuals, societies, agencies and corporations with an interest in the application of geosciences to sustainable development and further encourages and promotes activities in geoscientific fields which are related to the needs of developing countries. In recent times, it has been questioned whether AGID has fulfilled its role, in the face of the growing number of NGOs active in this field. Accordingly, the constitution is being rewritten to change the role of AGID somewhat, making it more decentralised and more regionalised, extending its network into previously neglected areas. This will be voted on at the IGC meeting in 2004. In 2002, *Geoscience and Development*, AGID's journal was printed in and distributed from Bangladesh and the newsletter AGID *Update*, was distributed at the end of the year. A workshop on *"Geoenvironmental Hazards and Disasters in Africa"* was held in Kenya and supported by UNESCO. AGID's Book and Journal Exchange programme (http://www.turnstone.ca/agidcat.htm) received US $ 30,000 from BHP Billington of Australia, allowing delivery of many books and journal runs, especially to the Mongolian Technical University. In the past five years, over 3,500 books and 800 complete volumes of journals have been distributed to the developing world through this programme.

Carpathian-Balkan Geological Association (CBGA)

The Association promotes fundamental and applied geological research in the Carpathian-Balkan realm, much done in association with IGCP and partly also with the Geology Section of the Central European Initiative (CEI), Section Geology. The Association publishes a number of journals, including Geologica Carpatica, and organizes a biannual Congress; the most recent was held in Bratislava, in 2002. The next is scheduled for 2004.

Circum-Pacific Council for Energy and Mineral Resources (CPCEMR)

This is a non-profit making body of geoscientists and engineers (http://www.circum-pacificcouncil.org/) founded in 1972 to encourage the investigation, assessment and sustainable utilization of Earth resources in the Pacific region. The Council seeks to increase knowledge of all matters pertaining to the Earth sciences in the Pacific region. It encourages collaboration amongst the Earth science community and disseminates information through maps, publications, workshops and symposia. The council is run by an international board of representatives from Pacific Rim countries. In 2002, CPCEMR concentrated on workshops to follow up on the very successful meeting of the *"Crowding the Rim"* project, held in 2001. The tools developed by the project include a digital data base (HAZPAC) on hazards, demographies and infrastructures, a game simulation (RIMSIM) illustrating both the ripple effects of disasters and the importance of collaborative problem solving amongst nations and an Educational Module for secondary school students, the future decision makers. These tools are now available (www.crowdingtherim.org). RIMSIM has been translated into Spanish and Chinese.

Commission for the Geological Map of the World (CGMW)

This Commission (http://www.ccgm.org), which was originally founded in 1881, produces 1:5 million or smaller scale Earth science maps of both the continental and oceanic regionsof the world. National Geological Surveys are statutory members of the Commission, although other organisations may join as Associated Members. Much of CGMW´s income has to be raised through the sale of their maps and because of this, in 2002, a new marketing policy was implemented, with an emphasis on products relevant to the general public educational sector. Five new maps were released: The Seismotectonic Map of the World at a 1:25,000,000 and 1:50,000.000 scales; The International Metallogenic Map of Africa at a 1:5,000,000 scale; The Eastern Asia Geological Hazards Map at a 1:7,700,000 scale. The previously published maps The Geological Map of the World and Maps of the Environment of the World during the last two Climatic Extremes were re-issued at smaller scales (1:50,000,000 instead of the original 1:25,000,000), for educational purposes. This new emphasis resulted in markedly higher sales – up by 160% from 2000. Two mapping projects launched for the 32nd IGC are proceeding well – The Geodynamic Map of the Mediterranean and The Metamorphic and Structural Map of the Alps (from Corsica to Vienna).

European Association of Science Editors (EASE)
The Association (http://www.ease.org.uk) 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, which has c. 900 members from 55 countries, many outside Europe (14%), is a non-governmental and non-profit-making scientific and educational body. Although a European organisation, EASE cooperates actively with other editors´ associations in N. America, Europe and elsewhere. The Association held its first Annual General Meeting as a limited company in Barcelona, in February 2002 and had a joint meeting with the Association of Earth Science Editors in September, Halifax, Canada. EASE publishes *European Science Editing* and held four-day courses on Scientific Writing in Warsaw and in St Petersburg.

European Mineralogical Union (EMU)
The Union (http://www.univie.ac.at/Mineralogie/EMU/) is an international organisation dedicated to furthering European cooperation in the mineralogical sciences (mineralogy, petrology and geochemistry). EMU members are national scientific societies from European countries, including Russia, with only one member per country allowed; these societies pay the membership fees. EMU sponsors and organises symposia at two European meetings – *Experimental Mineralogy, Petrology and Geochemistry* (EMPG) and the *European Union of Geosciences* (EUG), held every two years. On a wider scale, EMU collaborates closely with the International Mineralogical Union (IMA) on several projects. The 4th volume of the EMU *Notes in Mineralogy* series, titled *Energy Modelling in Minerals*, was published at the end of the year, based on its fourth school of mineralogy. EMU helped 20 institutional libraries facing serious financial difficulties by donating free subscription of the *European Journal of Mineralogy*.

Geochemical Society (GS)
The Society (http://gs.wustl.edu/) is a non-profit making organisation founded to encourage the application of chemistry to the solution of geological and cosmological problems. Membership (c.1,500 individuals from over 45 countries) is international and diverse in background, encompassing such fields as organic geochemistry, high- and low-temperature geochemistry, petrology, meteoritics, fluid-rock interaction, and isotope geochemistry. The Society jointly sponsors the annual Goldschmidt Conference, the last being the 12th at Davos, Switzerland; US $ 10,000 was made available for sponsoring students to this event. It also presents several major awards (Goldschmidt, Patterson, Clarke and Triebs awards) and publishes several specialist journals, including *Geochimica et Cosmochimica Acta, The Geochemical News* and, together with the Mineralogical Society of America, *Reviews in Mineralogy and Geochemistry* and a book series. The Society maintains extensive on-line archives at its homepage and also publishes the online journal *G^3 Geochemistry Geophysics,Geosystems*, together with the American Geophysical Union.

Geological Society of Africa (GSAf)
The Geological Society of Africa (http://www.elsevier.nl/locate/gsa) supports all geological enterprises within the African continent, by helping countries to develop both their natural and their human resources, whilst maintaining the environment. The continent is divided into five regions, each with a Vice-President and a Councillor, who together form the Council, together with a President, Secretary-General, Assistant Secretary - General and a Treasurer. Support comes from IUGS, as well as from several non-African Geological Survey and mining companies. Further, aid for conferences etc. has been obtained from several international agencies. In 2002, the Society successfully held its 19th Colloquium of African Geology, at El Jedidah, Morocco, sponsored Zambian and Zimbabwean geologists to attend the 11th IAGOD symposium in Windhoek, provided grants and materials to support the workshop on *GeoEnvironmental Hazards and Disasters in Africa*, in Nairobi, co-sponsored the first Open Conference on of the Association of African Women Geologists in Cape Town and assisted in publishing *The Second International Conference on the Geology of Africa* from a meeting in Assiut, Egypt in 2001, and published its regular newsletter *Africa Geonews*.

Geological Society of America (GSA)

The Society (http://www.geosociety.org) advances the geosciences in the service of mankind and enhances the professional growth of its members. Membership grew to over 17,000, with many new members being students. GSA introduced its new logo, which is thought to better reflect the more broad based and interdisciplinary nature of the geosciences, although the old seal logo is still used in some cases. In 2002, a major development was the formation of a partnership with AAPG and SEG, later joined by four other societies, to develop a geoscience society electronic journal aggregate. A multi-society steering committee has been instituted to develop and run the aggregate. The possibility of setting up a Virtual Student Expo, where students who are seeking employment can post a short presentation (video/PowerPoint), which employers can look at is also being looked at; this is also a cooperative venture, together with AAPG, SEG and the Society of Petroleum Geologists. The printing arm of the society continues to do well, with submissions to *Geology* up by 30% and with 14 books were published in 2002. The Society also publishes both the *Bulletin of the Geological Society of America* and *GSA Times*. The Bulletin has been electronically archived back to 1988 and an online submission and review system has been instituted. The Research Grants Program awarded US $ 450,000 to 243 graduate students; the money comes from the GSA foundation and the US NSF.

International Association of Engineering Geology and the Environment (IAEG)

The Association's (http://www.civil.ntua.gr/IAEG.html) philosophy is entrained in its statutes: "Engineering Geology is devoted to the investigation, study and solution of the 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". The Association, which was founded in 1964, is a worldwide scientific society with more than 5,500 members in 66 National Groups (associations, corporations, or societies which represent the interests of Engineering Geology in their countries or groups of countries) and in individual memberships. IAEG has a special membership fee for colleagues from developing countries, through their National Groups. The aims of the Association are to promote and encourage the advancement of Engineering Geology through technological activities and research, to improve teaching and training in Engineering Geology and to collect, evaluate and disseminate the results of engineering geological activities on a worldwide basis. The Association publishes *The Bulletin of Engineering Geology and the Environment* and runs nine Commissions on a range of topics including Engineering Geology Maps, Landslides, Engineering Geology and Waste Disposal and Protecting Ancient monuments and Archaeological Sites. Further, the Association is developing a Joint Technical Committee in conjunction with ISSMGE and ISRM (both IUGS affiliated organisations). In 2002, the Association held its annual Congress in Durban, South Africa in which the IUGS President held a speech.

International Association of Geomorphologists (IAG)

The Association (http://www.geomorph.org) was founded in 1989 to develop international collaboration in geomorphology. Membership is through a national adhering body of which there are nearly 60 at present. IAG fulfils its aims through the establishment of working groups on topics such as *Arid Regions, Bedrock Rivers*, and *Volcanoes*, the organisation of conferences, publication activities and information exchange. In 2002, IAG sponsored a conference on *Climate Changes, Active Tectonics and Related Geomorphic Effects in High Mountain Belts*, in Addis Ababa and a symposium on the *Relationships between Man and Mountain Environments in terms of Geomorphological Hazards and Human Impact in Europe*, at Dornbirn, Austria. The 6th International Conference on Geomorphology will take place in Zaragoza, Spain in 2005. In 2002, the IAG President was elected as member of the Scientific Programme Committee of the International Year of Planet Earth.

International Association of Geochemistry and Cosmochemistry (IAGC)

The Association (http://www.cevl.msu.edu/~long/IAGC/) was established in 1967 as a non-profit scien-

tific society and has become one of the pre-eminent international geochemical and cosmochemical organizations over the past twenty-five years. The principal objective of the association 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 type 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. The Association publishes *Applied Geochemistry*, this being significantly enlarged from previous years, and a newsletter. In 2002, IAGC sponsored the *6th International Symposium on the Earth´s Surface* (Hawaii), and *Water Quality and Conservation for Sustainable Development* (India) and a session entitled *6th IAGC Symposium on Sources, Transport a, Fate and Toxicology of Trace Metals in the Environment* at the GSA Denver meeting.

International Association of Hydrogeologists (IAH)

This is a scientific and educational organisation (http://www.iah.org/) whose aims are to promote research into and understanding of the proper management and protection of groundwater for the common good throughout the world. IAH has over 3,600 members in 135 countries. The Association publishes the *Hydrogeology Journal* and distributes an electronic newsletter (*Groundwater eNews*) three times a year. Seven Commissions are run by the Association, covering all aspects of developing, maintaining and restoring water resources. In 2002, the international IAH congress was held in Mar del Plata, Argentina, in association with the Latin American Association for Groundwater Hydrology. A special meeting was also held in Stana de Vale, Romania; this was used by IAH to discuss in depth its future in the next ten years; the plan proposed was adopted at the congress later in the year.

International Association of Mathematical Geologists (IAMG)

This Association (http://www.iamg.org/), with 564 members (how many countries), 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 organisations. The Association also runs a Student Grants Program which 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; three awards were made in 2002. The Association publishes *Computers & Geosciences* (now on-line), *Mathematical Geology* and *Natural Resources Research*. In 2002, IAMG co-sponsored conferences in conjunction with the NATO Advanced Study Institute, the American Statistical Institution and the International Statistical Institute, in Kaliningrad, Russia. A distinguished lecturer programme was established,. The Annual conference was held in Berlin, Germany, with over 200 attendees from 49 countries.

International Association of Sedimentologists (IAS)

The International Association of Sedimentologists (http://www.blackwellpublishing.com/uk/society/ias/), founded in 1952, has over 2,120 members from 97 countries. The Association promotes the study of sedimentology by publications, discussion and comparison of research results, by encouraging the interchange of research through international collaboration and by favouring integration with other disciplines. The Association held the 16th International Sedimentological Congress in Johannesburg, S. Africa, with c. 350 representatives from 49 countries. Conferences and workshops were also sponsored in Bulgaria, Hong Kong, Argentina and the USA. The IAS published its journal *Sedimentology* and a Newsletter. The IAS runs a Friendship scheme, offering free membership

to students in less developed countries; 165 individuals and 36 libraries benefited from the scheme in 2002. A new grant scheme awarded US $ 1000 to 20 young researchers in developing countries.

International Association on the Genesis of Ore Deposits (IAGOD)

The Association (http://www.geology.cz/host/iagod/htm/) promotes international cooperation in the study of the genesis of ore deposits and participates closely with other international bodies in the field of ore deposits research in a wide range of international programmes. At present, there are more than 750 geologists, representing 68 countries, involved with IAGOD's work. The Association brings these scientists together in its seven commissions and three working groups. These cover such fields as T*ectonics of Ore Deposits, Industrial Minerals and Rocks, Placer Deposits* and *Ores & Metamorphism*. In 2002, IAGOD co-organised the *11th Quadrennial IAGOD Symposium and Geocongress*, in Namibia, with ~450 participants. A meeting was also organised in the Czech Republic on *Uranium Deposits; from their Genesis to their Environmental Aspects*. IAGOD published a 56 page newsletter and produced digital versions of the *Gold Mineralization Map of the Southern Urals* and of *Mineral Deposits Map of Central Asia*.

International Centre for Training and Exchanges in the Geosciences (CIFEG)

The Centre International pour la Formation et les Echanges Géologique (http://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).

International Federation of Palynological Societies (IFPS)

The Federation (http://www.geo.arizona.edu/palynology/ ifps.html) advances knowledge in palynology and related subjects by promoting and co-ordinating international co-operation and meetings between scientists of all regions and countries Twenty palynological organisations from around the world form the membership and pay a subscription based on the number of members in each society. The IFPS newsletter, *PALYNOS* is published twice a year, in June and December; in 2002, it was decided that this would be electronically distributed. The money saved will be used to support young delegates attending the 11th International Palynological Congress in 2003. The homepage contains an on-line world list of palynologists.

International Geoscience Education Organization (IGEO)

The Organisation (http://www.cosm.sc.edu/cse/igeo.html) promotes education in the geosciences at all levels, works for the enhancement of quality in the international provision of geoscience education and encourages all developments that raise public awareness of the geosciences, in particular amongst younger people. In 2002, the Organisation continued with a questionnaire amongst members to determine the state of geoscience education worldwide.

International Mineralogical Association (IMA)

The Association (http://wwwobs.univ-bpclermont.fr/ima/) comprises 38 mineralogical societies or groups (one per country) with a limited number of individual memberships. The Association promotes intercourse among mineralogists of all nations by organising meetings, excursions etc., by sponsoring or publishing relevant literature and by organising conferences. The Associations participates in activities with other international mineralogical groups and maintains a number of commissions, committees and working groups which report on specified subjects. In 2002, IMA held its 18th General Meeting in Edinburgh, Scotland.

International Palaeontological Association (IPA)

The Association (http://ipa.geo.ukans.edu/), with c. 1200 members and 19 corporate member organisations, aims to promote and coordinate international cooperation in palaeontology and to encourage the integration and synthesis of all palaeontological knowledge. The 1st

International Palaeontological Congress, co-sponsored by IPA, was held in Australia, in 2002, with 450 attendees from 38 countries; the 2nd Congress will be held in Beijing, 2006. In 2002, IPA gave sponsorship to conferences on *Bioevents*, in Spain and the *Environmental and Biological Impact of the end Ordovician Glaciation*. The Association publishes the specialist journal *Lethaia*. The new homepage contains a link to fossil collections of the world, to a directory of palaeontologists and to a PalaeoLink database.

International Permafrost Association (IPA)

The Association (http://www.geodata.soton.ac.uk/ipa/), founded in 1983, fosters the dissemination of information about permafrost and promotes cooperation among persons and bodies which are active in the field, in both applied and theoretical ways. Membership is through national/multinational organisations (23 bodies) and on an individual basis where no national body exists. In 2002, both the Global Geocryological Database steering committee and the Cryosols working group held meetings in the USA. The *Circumpolar Active Layer Monitoring* (CALM) held a workshop in the USA and the 3rd workshop of the *International Arctic Coastal Dynamics* (IASC) programme was held in Norway. The Association supports conferences and prepares maps, glossaries and bibliographies and has six working and three task groups covering a range of topics. Considerable collaboration is undertaken with a very wide range of international bodies.

International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)

The aim of the Society (http://www.issmge.org) 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. Membership is held through the 75 member societies. The Society has a number of Task Forces which cover the functioning of the society and some 25 Technical Committees which address a wide range of geotechnical problems, including the environment, heritage, offshore problems and landslides as well as more theoretical subjects. The Technical Committee on Landslides is a joint venture with ISRM and IAEG, both of which are affiliated to IUGS. The Society is making strong efforts to expand it sphere of interest in the Arabic and Asian parts of the world.

International Society for Rock Mechanics (ISRM)

The aims of the Society (http://www.isrm.net) are to encourage international collaboration and exchange of ideas, to encourage teaching, research and the advancement of knowledge of rock mechanics and to promote high professional standards, so that civil, mining and petroleum engineering become safer, more economical and less disruptive to the environment. This is done through encouraging the development and activities of national groups, holding international congresses, sponsoring symposia at congresses, collaborating with similar organisations, running commissions to study and report on matters of concern to the society. The Society maintains close links with IAEG and ISSMGE. In 2002, they held the International Symposium EUROCK 2002 in Madeira, Portugal and other regional symposia and published the ISRM News Journal.

International Union for Quaternary Research (INQUA)

The Union (http://www.inqua.tcd.ie), which was founded in 1928, seeks to improve understanding of environmental change during the last c. 2,5 million years of the Earth history through interdisciplinary research. The Union runs several Commissions, including those investigating neotectonics, palaeoclimates, human evolution and coastal erosion. INQUA is currently undertaking a major review of its structure. The Union comprises 44 national as well as regional Members, combining many thousands of scientists, mostly from Europe. The Union publishes a newsletter: *Quaternary Perspectives* and the journal *Quaternary International*.

Meteoritical Society (MetSoc)

The Society (http://www.meteoriticalsociety.org), which was founded in 1933, promotes research and education in planetary

sciences, with an emphasis on studies of meteorites and other extraterrestrial materials that further our understanding of the origin of the solar system. The society has c. 950 members in 37 countries. The Society publishes its own journal, *Meteoritics and Planetary Sciences* and also the *Meteoritical Bulletin*, which this year described 1154 new meteorites, mostly from Antarctica. The Society also publishes *Geochimica et Cosmochimica Acta*, together with the Geochemical Society, also affiliated to IUGS. In 2002, the Society held its annual meeting in Los Angeles; support was given to 22 students from eight countries to attend.

Society for Geology Applied to Mineral Deposits (SGA)

The Society (http://www.e-sga.org/sga.html), which was founded in 1965 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. The Society organises scientific meetings, including co-sponsoring the 11th IAGOD Symposium, and publishes the journal *Mineralium Deposita* and *SGA news*. The Society has over 1,000 members in some 70 countries.

Society for Sedimentary Geologists (SEPM)

The Society's (http://www.sepm.org) mission is to disseminate scientific information about sedimentary geology to the global community, to further its use and understanding. Membership ranges across the academic, research, energy and environmental areas. The work of the Society is done through scientific publications, supporting research conferences, symposia, short courses and field trips. The Society has ~4,300 members. The Annual Meeting in 2002 was held in Houston, Texas, together with AAPG. The Society publishes the *Journal of Sedimentary Research*, and *PALAIOS*. SEPM is collaborating with several other organisations, including AAPG and GSA in founding a geoscience on-line journal.

Society of Economic Geologists (SEG)

The Society (http://www.segweb.org), established in 1920, is an international non-profit organization dedicated to fostering the science of economic geology and its application to mineral exploration, mining and other industries. This is undertaken by sponsoring and encouraging the investigation of mineral deposits and resources, disseminating the results of such work (through filed trips, short courses and workshops) and by promoting a high ethical standard within the profession The Society supports its members by publishing several journals, including *Reviews in Economic Geology*, and a Special Publications series (N° 3 *Ore Reserve Estimates in the Real World*) and by running conferences and short courses. There are about 3,500 members, from 80 countries, with many student chapters.

Appendices

IUGS – Executive Members and Meetings

EXECUTIVE COMMITTEE OFFICERS OF THE IUGS

President	Prof. E. F. J. de Mulder	Aug. 2000 – Aug. 2004	demulder@wxs.nl
Secretary-General	Dr. W. R. Janoschek	Feb. 2002 – Aug. 2004	wjanoschek@geolba.ac.at
Past-Secretary-General	Prof. L. Boriani	Feb. 2002 – Feb. 2003	attilio.boriani@unimi.it
Treasurer	Dr. W. R. Janoschek	Aug. 2000 – Feb. 2003	wjanoschek@geolba.ac.at
Treasurer	Prof. A. Brambati	Feb. 2003 – Aug. 2004	brambati@univ.trieste.it
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	pbobrows@NRCan.gc.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
Councillor	Prof. J.-P. Cadet	Aug. 2002 – Aug. 2006	jean-paul.cadet@lgs.jussieu.fr
Councillor	Prof. A. C. Riccardi	Aug. 2002 – Aug. 2006	riccardi@museo.fcnym.unlp.edu.ar

PERMANENT SECRETARIAT (2002)

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

EXECUTIVE COMMITTEE AND BUREAU MEETINGS, FEBRUARY 2002-FEBRUARY 2003

50th Executive Committee, Lower Hutt, New Zealand	February 25 – March 1, 2002
Bureau, Lower Hutt, New Zealand	February 28
Bureau, Reykjavik, Iceland	June 24 - 25
Bureau, Agra, India	December 14 - 15
Bureau, Paris, France	February 1, 2003
51st Executive Committee, Windhoek, Namibia	February 24 – 28
Bureau, Windhoek, Namibia.	February 27

IUGS Adhering Members

WITH THEIR MEMBERSHIP CATEGORY AND STATUS (28 FEB 2002)

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

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

Categories of IUGS Membership

AND MEMBERSHIP FEE

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	1,680	2,940	5,040	8,400	14,700	29,400

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	1,760	3,080	5,280	8,800	15,400	30,800

Categories of Membership for 2003

Category	1	2	3	4	5	6	7	8
Units	1	2	4	7	12	20	35	70
Value in US $	450	900	1,800	3,150	5,400	8,990	15,730	31,460

IUGS Financial Situation and Statement

INCOME/EXPENSES IN 2002 (US DOLLARS)

	RECEIVED			TOTAL
	for due <2002	for 2002	for due >2002	
INCOME				
Membership dues	**31,935.00**	**187,360.43**		**219,295.43**
Adhering Members	*31,935.00*	*180,760.43*		
Associates		*6,600.00*		
IGCP Programme	**21,599.00**	**138,500.00**		**160,099.00**
UNESCO	*21,599.00*	*63,500.00*		
US Contribution		*75,000.00*		
Other Programmes	**23,000.00**	**7,700.00**		**30,700.00**
UNESCO	23,000.00	7,700.00		
ICSU				
Interests		**12,524.70**		**12,524.70**
Other Income		**19,135.84**		**19,135.84**
INCOME	**76,534.00**	**365,220.97**		**441,754.97**

	PAID			TOTAL
	for due <2002	for 2002	for due >2002	
EXPENSES				
IGCP Projects	**1,500.00**	**175,000.00**		**176,500.00**
UNESCO	*1,500.00*	*75,000.00*		
US Contribution		*75,000.00*		
IUGS		*25,000.00*		
Other UNESCO Programmes		**7,000.00**		**7,000.00**
DMP (Deposit Modelling)				
GARS (Remote Sensing)		*7,000.00*		
Dissemination *Episodes*				
ICSU Programmes		**15,000.00**		**15,000.00**
Environmental Change		*15,000.00*		
ICSU Commission on Lithosphere		**20,000.00**		**20,000.00**
Affiliates		**17,500.00**		**17,500.00**
IUGS Commissions, Task Groups	**25,000.00**	**77,969.23**		**102,969.23**
Committees, New Initiatives				
Commissions	*20,000.00*	*57,000.00*		
Task Groups				
Committees		*15,969.23*		
New Initiatives	5,000.00	5,000.00		
Internat. Year of Planet Earth		**25,000.00**		**25,000.00**
Strategic Plan Implementation				
Hutchison Fund Awards				
Contributions	**2,000.00**	**11,547.00**		**13,547.00**
Contributions ICSU	2,000.00	9,297.00		
Office Expenses		*2,250*		
Other Expenses		**37,464.58**		**37,464.58**
Routine meetings		*35,187.73*		
Nominating Committee Meeting				
Bank Rates, Loss on Exchange		*2,276.85*		
Miscellaneous Expenses				
IUGS *Episodes* 2000		**23,000.00**		**23,000.00**
Contingency				
EXPENSES	**28,500.00**	**409,480.81**		**437,980.81**

Excess of Income over Expenses	3,774.16
ACCUMULATED BALANCE	
On 31st January 2001 (d° 31 December 2002)	843,316.67
On 31st December 2002	832,791.92
Variation	-10,524.75

IUGS Allocations in 2002

COMMISSIONS/NEW INITIATIVES/TASK GROUPS/COMMITTEES FOR 2002		
COMMISSIONS		**77,000.00**
COGEOENVIRONMENT (for 2001 & 2002)	30,000.00	
CGI (formerly COGEOINFO)	8,000.00	
ICS	34,000.00	
INHIGEO	3,000.00	
GSGP	2,000.00	
WORKING GROUPS		
Geochemical Baselines US $ 1,500 (but not paid in 2002)		
Fossil Fuels US $ 3,500 (but not paid in 2002)		
INITIATIVES		**10,000.00**
GEOINDICATORS (2001 + 2002)	10,000.00	
COMMITTEES		**16,000.00**
Publications Committee	8,900.00	
Finances (Task Group of Strategic Action Plan)	4,400.00	
ARC of COMTEC	2,700.00	
INTERNATIONAL YEAR OF PLANET EARTH	25,000.00	**25,000.00**

IUGS AFFILIATED ORGANISATIONS		
AFFILIATED ORGANISATIONS		**17,500.00**
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)	4,000.00	
IAMG	2,000.00	
IFPS	1,000.00	
IGEO	1,000.00	
IMA (for 2001)	5,000.00	

ICS – IUGS Ratified

GLOBAL BOUNDARY STRATOTYPE SECTIONS AND POINTS (GSSP)

St – stage; Se – series; Sy – system

Stage (base of)	Stratotype Section	*Episodes*	Volume
PHANEROZOIC			
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. Ypresian St, Eocene Se		Ratified 2003	
9. Danian St, Paleogene Sy, Cainozoic	El Kef, Tunisia	Ratified 1999	
Cretaceous			
10. Maastrichtian St	Tercis, Landes France	24 (4)	2001
11.Cenomanian St	Mnt. Risou, France	Ratified 2002	
Jurassic			
12. Bajocian St	Cabo Mondego, Portugal	20 (1)	1997
13. Aalenian St	Fuentelsalz, Spain	24 (3)	2001
14. Sinemurian St	Quantox Head, Somerset, U.K.	25 (1)	2002
Triassic			
15. Induan St, Triassic Sy, Mesozoic	Meishan, Zhejiang, China	24 (2)	2001
Permian			
16. Capitanian St	Stratotype Canyon, Texas, USA	Ratified2001	
17. Wordian St	Stratotype Canyon, Texas, USA	Ratified 2001	
18. Roadian St, Guadalupian Se, M. Permian	Stratotype Canyon, Texas, USA	Ratified 2001	
19. Asselian St, Cisuralian Se, Permian Sy	Aidaralash Creek, Kazahkstan	21 (1)	1998
Carboniferous			
20. Bashkirian St, Pennsylvanian Ss, U. Carboniferous	Arrow Canyon, Nevada, USA	22 (4)	1999
21. Tournasian St, Mississippian Ss, Carboniferous Sy	La Serre, France	14 (4)	1991
Devonian			
22. Famennian St	Coumiac, France	8 (2)	1985
23. Frasnian St, U. Devonian Se	Col du Puech, France	14 (2)	1991
24. Givetian St	Irdane, Morocco	18 (3)	1995
25. Eifelian St, M. Devonian Se	Wetteldorf, Germany	8 (2)	1985
26. Emsian St	Zinzilban Gorge, Uzbekistan	20 (4)	1997
27. Pragian St	Praha Holyne, Czech Rep.	12 (2)	1989
28. Lochkovian St, L. Devonian Se, Devonian Sy	Klonk, Barrandean, Czech Rep.		
Silurian			
29. Pridoli Se	Pozary, Barrandean, Czech Rep.	8 (2)	1985
30. Ludfordian St,	Sunnyhill, Wales	8 (2)	1985
31. Gorstian St, Ludlow Se	Pitch Coppice, Wales	8 (2)	1985
32. Homerian St,	Whitwell Coppice, Wales	3	1982
33. Sheinwoodian St, Wenlock Se	Hughley Brook, Wales	3	1982
34. Telychian St,	Cefn Cerig, Wales	8 (2)	1985
35. Aeronian St,	Trefawr forestry road, Wales	8 (2)	1985
36. Rhuddanian St, Llandovery Se, Silurian Sy	Dob's Linn, Moffat, Scotland	8 (2)	1985

St – stage; Se – series; Sy – system

Stage (base of)	Stratotype Section	*Episodes*	Volume
PHANEROZOIC			
Ordovician			
37. Base 5th stage (still not yet named)	Fågelsång, Scane, S. Sweden	Ratified 2002	
38. Darriwillian St, M. Ordovician	Huangnitang, China	19 (3)	1997
39. Base 2nd stage (still not yet named)	Diabasbrottet, Västerg., S. Sweden	Ratified 2002	
40. Tremadocian St, Ordovician Sy	Green Point, Newfoundland, Canada	24 (1)	2001
Cambrian			
41. Paibian St, Furongian Se	Paibi, NW Hunan, China	Ratified 2003	
42. Nemakitian-Daldynian St, Cambrian Sy, Palaeozoic E.	Fortune Head, Canada	17 (2)	1994
		19 (3)	1996
PROTEROZOIC			
43. Divided by absolute ages into 3 Eras, with 10 Systems		14 (2)	1991
ARCHAEAN			
44. Divided by absolute ages into 4 Eras		14 (2)	1991

Summary of the Geoindicator Checklist

NAME:	applied to individual geoindicators.
BRIEF DESCRIPTION:	What is the geoindicator, and how does it express geological processes and phenomena?
SIGNIFICANCE:	Why is it important to monitor this geoindicator? How are changes in it liable to affect human settlements, agriculture, forestry, environmental health, and other economic and societal sectors?
HUMAN OR NATURAL CAUSE:	Can this geoindicator be used to distinguish natural from anthropogenic change, and if so how?
ENVIRONMENT WHERE APPLICABLE:	In what general landscape settings would this geoindicator be used?
TYPES OF MONITORING SITES:	Where specifically should this geoindicator be measured?
SPATIAL SCALE:	At what scale would this geoindicator normally be monitored in the field, and to which larger scale, in general terms, can it be readily aggregated?
METHOD OF MEASUREMENT:	How is this indicator measured in the field?
FREQUENCY OF MEASUREMENT:	How often should this geoindicator be monitored in the field, so as to establish a proper time series and baseline trend?
LIMITATIONS OF DATA AND MONITORING:	What important difficulties are there in measuring field or laboratory data on and applying this indicator?
APPLICATIONS TO PAST AND FUTURE:	How can this geoindicator be applied to paleoenvironmental analysis, and what predictive potential has it?
POSSIBLE THRESHOLDS:	What thresholds or limits are there across which drastic environmental change or threats to human health and biodiversity may occur?
KEY REFERENCES:	Listed here for further reference are a few, readily obtainable, practical manuals, or citations to key scientific/technical publications on this geoindicator.
OTHER SOURCES OF INFORMATION:	National agencies, scientific programs and projects or specific international organizations from which further information, data sets and expertise may be available.
RELATED ENVIRONMENTAL AND GEOLOGICAL ISSUES	
OVERALL ASSESSMENT	Importance for environmental monitoring and sustainability.

IGCP Projects – 2002

(IUGS-UNESCO CO-SPONSORED)

1. 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

2. 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/

3. 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

4. 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

5. 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

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

7. IGCP project 429 Organics in Major Environmental Issues
J. Pasava (Czech Republic), J. Jenik (Czech Republic)
1998-2002
http://www.min.tu-clausthal.de/www/sga/news6/art6.html

8. 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

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

10. 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

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

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

13. 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

14. 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

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

16. 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

17. 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

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

19. 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/

20. 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

21. IGCP project 463 **Upper Creataceous marine red beds**
C. Wang (China), M. Sarti (Italy), R.W. Scott (United States), L.F. Jansa (Canada)
2002-2006

22. 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

23. IGCP project 467 **Triassic Time**
M. J. Orchard (Canada)
2002-2006

24. IGCP project 473 **GIS Metallogeny of Central Asia**
R. Seltmann (UK)
2002-2006

DECENTRALISED PROJECTS

25. 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

26. 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

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

28. 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

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

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

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

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

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

34. 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

35. 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

36.IGCP project 470 **The 600 Ma Pan-African belt of Central Africa**
F. Toteu (Cameroon)
2002-2006

37. IGCP project 471 **Evolution of western Gondwana during the Late Palaeozoic**
C.O. Limarino (Argentina), L.A. Buaotois (Argentina)
2002-2006

PROJECTS ON EXTENDED TIME (AN UNFINANCED EXTRA YEAR):

38.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

39.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

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

Acronyms Used by IUGS

AAPG	American Association of Petroleum Geologists
AEG	Association of Exploration Geochemists
AEGS	Association of European Geological Societies
AGA	Arab Geologists Association
AGI	American Geological Institute
AGID	Association of Geoscientists for International Development
AGU	American Geophysical Union
AIPEA	Association Internationale Pour l´Etude des Argiles
BGS	British Geological Survey
CGI	Commission on the Management and Application of Geoscience Information
CGMW	Commission for the Geological Map of the World
CHRONOS	Interactive Chronostratigraphy and Stratigraphic Databases
CIFEG	International Centre for Training and Exchanges in the Geosciences
COGEOENVIRONMENT	Commission on Geological Sciences for Environmental Planning
COGEOINFO	old acronym for CGI
COILS	Committee on Interdisciplinary Lithosphere Surveys
COMTEC	Commission for Tectonics (currently being reformulated)
CPCEMR	Circum-Pacific Council for Energy and Mineral Resources
CRD	Committee for Research Directions
CSP	Commission on Systematics in Petrology
DMP	Deposit Modelling Programme (now called MRSP)
EASE	European Association of Science Editors
EMU	European Mineralogical Union
esfs	Earth Sciences for Society (International Year of Planet Earth tag-line)
GARS	Geological Applications of Remote Sensing
GEOIN	International Working Group on Environmental Geoindicators
GS	Geochemical Society
GSA	Geological Society of America
GSAf	Geological Society of Africa
GSSP	Global Boundary Stratotype Section and Point
IAEG	International Association of Engineering Geology and the Environment
IAG	International Association of Geomorphologists
IAGC	International Association of Geochemistry and Cosmochemistry
IAGOP	International Association on the Genesis of Ore Deposits
IAH	International Association of Hydrogeologists
IAMG	International Association of Mathematical Geologists
IAS	International Association of Sedimentologists
ICESA	International Commission for the Earth Sciences in Africa
ICS	International Commission on Stratigraphy
ICSU	International Council for Science
IFPS	International Federation of Palynological Societies
IGC	International Geological Correlation Programme
IGCP	International Geoscience Programme
IGEO	International Geoscience Education Organization

IGU	International Geographical Union
ILP	International Lithosphere Programme (run by SCL)
IMA	International Mineralogical Association
INHIGEO	International Commission on the History of Geological Sciences
INQUA	International Union for Quaternary Research
IPA	International Palaeontological Association
IPA	International Permafrost Association
ISRM	International Society for Rock Mechanics
ISSMGE	International Society of Soil Mechanics and Geotechnical Engineering
IUGG	International Union of Geodesy & Geophysics
IUGS	International Union of Geological Sciences
LEGENDS	Lithospheric Evolution of Gondwana East from Interdisciplinary Deep Surveys
MAEGS	Meeting of the Association of Geological Societies
MetSoc	Meteoritical Society
MRSP	Mineral Resources Sustainability Programme (formerly DMP)
NSF	National Science Foundation (of the USA)
SCL	Scientific Committee on the Lithosphere (organising committee of ILP)
SDBP	Subcommission on Databases in Petrology
SEG	Society of Economic Geologists
SEPM	Society for Sedimentary Geologists
SGA	Society for Geology Applied to Mineral Deposits
SIS	Stratigraphic Information Systems
SSIR	Subcommission on the Systematics of Igneous Rocks
SSMR	Subcommission on the Systematics of Metamorphic Rocks
TGFF	Task Group on Fossil Fuels
TGGGB	Task Group on Global Geochemical Baselines
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USGS	United States Geological Survey

Design: DOBBEL J Reklamebyrå AS