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Lisbon 2009

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Larry D. Woodfork
Chairman

International Year of Planet Earth: Welcome address from the Chairman of the Board of Directors of the International Year of Planet Earth

On behalf of the Board of Directors and Officers of the Corporation of the International Year of Planet Earth (IYPE), it is my pleasure to welcome you to the 2009 Planet Earth Lisbon Event (PEL 2009).

The success of any such major event depends on the efforts of many people – far too many to be cited individually in this message. Nevertheless, my sincere gratitude and admiration go out to all who have contributed their time, effort and expertise to making PEL 2009 a success and the publication of this booklet possible. However, it would be remiss of me if I failed to acknowledge the local planning, organizing, and steering committees whose efforts made this event possible. Our thanks go out to all of the speakers/presenters at PEL 2009 and the authors of the articles in this booklet as well as the organizations they represent. We also owe a debt of gratitude to Professor Edward Derbyshire, whose exceptional editorial skills and perseverance made possible the production of this booklet. Last, but not least, we are most grateful to our sponsors, partners, benefactors, and other financial contributors who provided the underpinning of this exciting, informative, and interesting event.

It will be a particular pleasure to meet the college and university students and younger professionals in attendance. I urge you to take advantage of your few days at PEL 2009. Don't be shy – approach the experts, speakers, and dignitaries present, introduce yourself, and engage them in

dialogue. Be assured that your interest and enthusiasm will be warmly received. From personal experience, I can assure you that contacts made at this meeting may well prove valuable to you later in your professional career. Much can be learned in the hallowed halls of academe – but much of interest and value is also available in other congregations, not least PEL 2009 – so, take full advantage of it!

PEL 2009 is another important milestone in the IYPE triennium (2007 – 2009). In October this year, the Geological Society of America's 2009 Annual Meeting adopted, for the third year running, a strong focus on IYPE themes. A week later, the Society of Exploration Geophysicists, at their 2009 Annual Meeting, had a similarly strong IYPE focus and, in December 2009, the American Geophysical Union will focus on IYPE activities and accomplishments at its 2009 Annual Fall Meeting. I cite these three USA-based meetings because I am personally familiar with them, but I know that similar IYPE-focused activities continue to take place in other venues in many nations around the globe during this final triennial year. One very significant example was the first-ever international Young Earth-Scientists (Y.E.S.) Congress held this past October in Beijing. For more details and information concerning the proceedings, please visit www.yearofplanetearth.org.

Finally, it is a pleasure to contemplate the many accomplishments of the IYPE over

the past three years. These have involved countless individuals in the 80 countries that have established an IYPE National Committee in order to advance the IYPE's aim to increase public awareness of the vast, but still underutilized (by public policy decision makers at all levels) potential of the geosciences, and to contribute further to making our planet and global society safer, healthier, more prosperous, and sustainable. Notwithstanding the undoubted fact that the IYPE triennium has made significant progress, much still remains to be done to make its slogan-subtitle "Earth Sciences for Society" a fully functioning global reality. In my view, there are many ways in which that ambition might be realized. The IYPE has laid the groundwork. It is now up to the global geoscience community to decide whether or not they want to build on that foundation and, if so, how that would be best accomplished.





United Nations Educational, Scientific and Cultural Organization

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is the only agency within the United Nations Organization that includes the word "science" in its name. Since its launch in 1945, UNESCO has been a supporter of science popularization. Huxley was instrumental in ensuring that science would constitute a fundamental part of the Organization's mandate. At the same time, it is important to recognize that UNESCO's approach to the promotion of international cooperation in science is firmly set in the broad context of peace, human rights and sustainable development.

The Natural Sciences

UNESCO's Natural Sciences Sector implements major international programmes in the freshwater, marine, ecological, Earth and basic sciences while, at the same time promoting national and regional science and technology policies and capacity building in the sciences, engineering and renewable energy. Emphasis is placed on the developing countries and on natural disaster prevention. Programmes are designed to respond to the international goals and challenges of climate change, gender equality, the eradication of poverty and sustainable development...

In this way, UNESCO acts as an advocate for science, as a platform for sharing ideas and setting standards as well as promoting dialogue between scientists and policy makers. UNESCO empowers and catalyses novel initiatives in the field of international cooperation in science, in particular through networks and activities that enhance capacity building.

Science programmes and activities are implemented through UNESCO Headquarters and the UNESCO Field Office network and through a network of associated centres in the field of water, renewable energy, science policy, biotechnology and the geosciences.

UNESCO's work in science is further advanced by the National Committees of the International and Intergovernmental Scientific Programmes (ISPs) including the:

International Hydrological Programme (IHP);
Intergovernmental Oceanographic Commission (IOC);
Man and the Biosphere Programme (MAB);
International Geosciences Programme (IGCP).

Finally, the National Commissions for UNESCO in over 200 Member-States and Associated Member States and affiliated bodies work to achieve UNESCO objectives in science.

The importance of the Earth sciences

UNESCO is the only UN Organization that deals with interdisciplinary research, training, education, and capacity-building in geology and geophysics through programmes in the Earth system sciences. Long-term involvement in the solid Earth sciences is important because geological knowledge is essential to the development of sustainable societies. It is an essential requirement for economic development, especially for countries in transition. Knowledge of the Earth's resources and the optimal ways of managing these in an environmentally sound way contributes to raising the living standards of human communities. Geology and geological processes determine the conditions of today's fauna and flora and the conditions in which we live. Geological knowledge allows us to identify viable resources, as well as renewable geological processes that may benefit or threaten society. Changes in the Earth's climate and of life on Earth



are preserved in the rock record and its past environmental lessons shed light on how best to deal with present and future challenges. The Earth's surface, including our habitable environment, is a product of, and is controlled by deep Earth processes. Throughout history, the development of human society has been intimately linked to the natural history and the resources of our planet. Stone, bronze, iron, gold, coal and oil are but a few of a long list of geological resources that have helped shape our society, leading to the Industrial Revolution. Entering into the 'silicon age' would not have been possible without geological research and the genius involved in its application.

UNESCO programmes in the Earth sciences

All programmes in UNESCO's Global Earth Observation Section aim to enhance education and capacity building in the geosciences and to popularize them while, at the same time, supporting global monitoring and identifying better management practices leading to improved sustainable development.

Through its 37 sponsored research and capacity-building cooperation projects, the **International Geoscience Programme (IGCP)** encourages and enhances interaction and networking between geoscientists and environmental and social scientists in solving fundamental geoscientific problems relevant to sustainable develop-



ment. Since its launch in 1972, the IGCP has progressively responded to changing global priorities, its current focus being concerned with sustainable use of mineral and hydrocarbon resources, global change and the evolution of life, the mitigation of hazards of geological origin, the water cycle and the Earth's interior.

Through the **Global Network of National Geoparks**, which comes under the umbrella of UNESCO, important national geological sites (63 in 19 countries) generate worldwide recognition and profit through the exchange of knowledge in the protection and promotion of geological heritage. A Geopark creates employment opportunities for the people who live in the vicinity, yielding economic benefit through sustainable tourism.

In cooperation with the Global Earth Observation System of Systems (GEOSS), UNESCO's **Geological Applications of Remote Sensing (GARS)** programme stimulates research and capacity-building worldwide in integrating advanced remote sensing and in situ observation technologies for an improved observation of the global changes on the Earth and for the mitigation of the negative impact of hazards of geological origin such as landslides, earthquakes and volcanoes.

UNESCO cooperates with geological survey organizations in the **OneGeology** project. Led by the British Geological Survey and benefitting from the support of over 100 national geological surveys, this programme created the first web-based

world geological map of the subsurface. Together with geological survey organisations and the Commission for the Geological Map of the World, UNESCO also aids in the preparation of geological and Earth resources maps of regions and continents to facilitate the planning of sustainable development of our planet's resources and for the development of transport infrastructures and human settlements.

UNESCO has recently launched an **Earth Science Education Initiative for Africa**. Its overall intention is to support the development of the next generation of Earth scientists in Africa, ensuring that they are equipped with the necessary tools, networks and perspectives in order to apply sound science to solving problems and benefiting from the challenges and opportunities of sustainable development. Opportunities in the Earth sciences are considerable, starting with traditional mineral extraction and extending into environmental management such as climate change adaptation, prevention of natural hazards, and ensuring access to clean drinking water.

The UN-declared **International Year of Planet Earth (IYPE)**, which has been active over a triennium (2007-2009), was co-founded by the International Union of Geological Sciences and UNESCO. The 'Year' aimed at ensuring greater and more effective use by society of the knowledge accumulated by the world's 400,000 Earth scientists, an aim expressed in the Year's subtitle, Earth Science for Society. Within

the IYPE framework, IGCP, Geoparks and OneGeology were major outreach endeavours of the Earth science community to increase awareness of the importance of the Earth sciences in the minds of policymakers, politicians and the general public, fostering sustainable development and promoting local, national, regional and international action.

UNESCO continually seeks to help integrate and provide common ground for these and other programmes. In the case of the triennial International Year of Planet Earth (IYPE), UNESCO contributed to the effective outreach programmes of the 'Year' in a variety of ways including the provision of special support for IYPE-related IGCP projects, reinforcing cooperation with the global Geoparks programme, encouraging the OneGeology mapping programme and launching the Africa initiative on Earth science education.

UNESCO is working with all actors involved in IYPE to ensure that "the Year" will leave a legacy for decades to come in significantly and durably strengthening major international Geo-Sciences research and outreach programmes that will improve our knowledge of the Earth system as our insurance policy for the preservation of our planet.

*Global Earth Observation Section
Division of Ecological and Earth Sciences
UNESCO*



Alberto C. Riccardi

President IUGS

Message from the International Union of Geological Sciences

I welcome this volume celebrating the Lisbon Event as the calendar of the triennial International Year of Planet Earth approaches its close. It is appropriate that, as the triennium of such a successful international Earth science-based programme comes to an end, we look beyond the beneficial outcome for Earth sciences and human society to the longer-term activity in the future development of the Earth sciences. It is increasingly being recognized that education and information are basic requirements for social, political and economic development and that education and geoscience knowledge and expertise, in particular, are of fundamental importance in building a safer, healthier and wealthier global society. Thus, any longer-term actions capable of building on the legacy of the International Year would do well to fill existing gaps in geoscience education and management so as to improve the distribution and application of such information around the world.

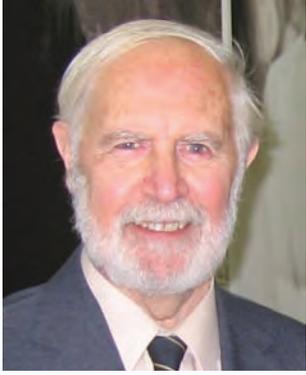
An essential starting point in this forward-looking process is the publication, now initiated by the International Year, of a set of state-of-the-art scientific books focused on ten issues of relevance to society, including deep Earth, groundwater, hazards, climate and human health, these and others highlighting the role and significance of the Earth sciences. However, the most important legacy related to the International Year of Planet Earth is likely to appear in some initiatives, now under way or to be launched in the near future, especially in the fields of education and information.

There is little doubt that one of the most important outcomes of the IYPE is the effect it has had on young people and, in particular, the advance in the appreciation of the societal relevance of all its fundamental ideas, principles and goals. This result is especially significant as the young people of today's World will be shaping the future of our society in the decades to come. The First World Young-Earth-Scientists (YES) Congress (25 - 28 October 2009, Beijing), under the patronage of UNESCO and with the support of IYPE and IUGS has been an important step in that direction. Its long-term aim is to build bridges among young people coming from the Earth sciences, politics, civil societies, organizations and associations from across the world, in order to define mutually possible long term common strategies on global high impact Earth science-related issues. Of special relevance is the intention that this initiative will result in a permanent world-wide network of young professionals, scientists and politicians, which will last long after 2009, and within which Young Earth Scientists will have the opportunity to play a mobilizing role.

Other initiatives, such as the OneGeology project, the African Forum on Sustainable Development (AFSD) and UNESCO Initiative for Earth Science Education in Africa, are relevant examples of activities where the IYPE is involved and surely will also have a lasting impact for Earth sciences and Society. In this regard the OneGeology project, with its integration of data in standard format within a dynamic

web portal, is an outstanding example. The IUGS already supports all of these initiatives and the interaction they already have or are likely to have in the near future with the Union's scientific bodies, such as the IUGS Commissions on Education, Training & Tech Transfer and on the Management & Application of Geoscience Information.

Finally, it must be said that these and other remarkable results would not have been possible without the generous, unselfish participation in the International Year of Planet Earth of the Earth sciences community as a whole.



Edward Derbyshire

Consultant Editor and
Goodwill Ambassador

The Lisbon Global Event: a celebration of past achievement and a glimpse of future promise

As the end of the International Year of Planet Earth's triennial activities draws near, it is fitting that two global events should provide the opportunity for all participants, including the patrons, officers, individual scientists, national committees, international and associate partners, sponsoring organizations, politicians, leaders in industry and commerce, and interested lay people, to take stock of the manifold activities of the past three years and to ponder upon ways and means of sustaining the outreach momentum and the prospect of strengthening the Earth sciences further in the years to come.

The first of these two events made possible by the President and Government of Portugal and realized by the energy and professionalism of the Portuguese National Committee for the International Year backed by generous support from sponsors and event partners brings together members of all groups at the Planet Earth Lisbon Event 2009. Within the impressive programme planned for 20 to 22 November are three core conference items: renewable energy, sustainable land and water management and 'planet Ocean', all to be considered in the context of sustainability. The meeting will be stimulated by the presence of many young scientists, including a meeting of the Young Earth Scientists (YES) and up to two students from each of the nations attending the Lisbon Event and sponsored by the International Year.

The second of the events will take place

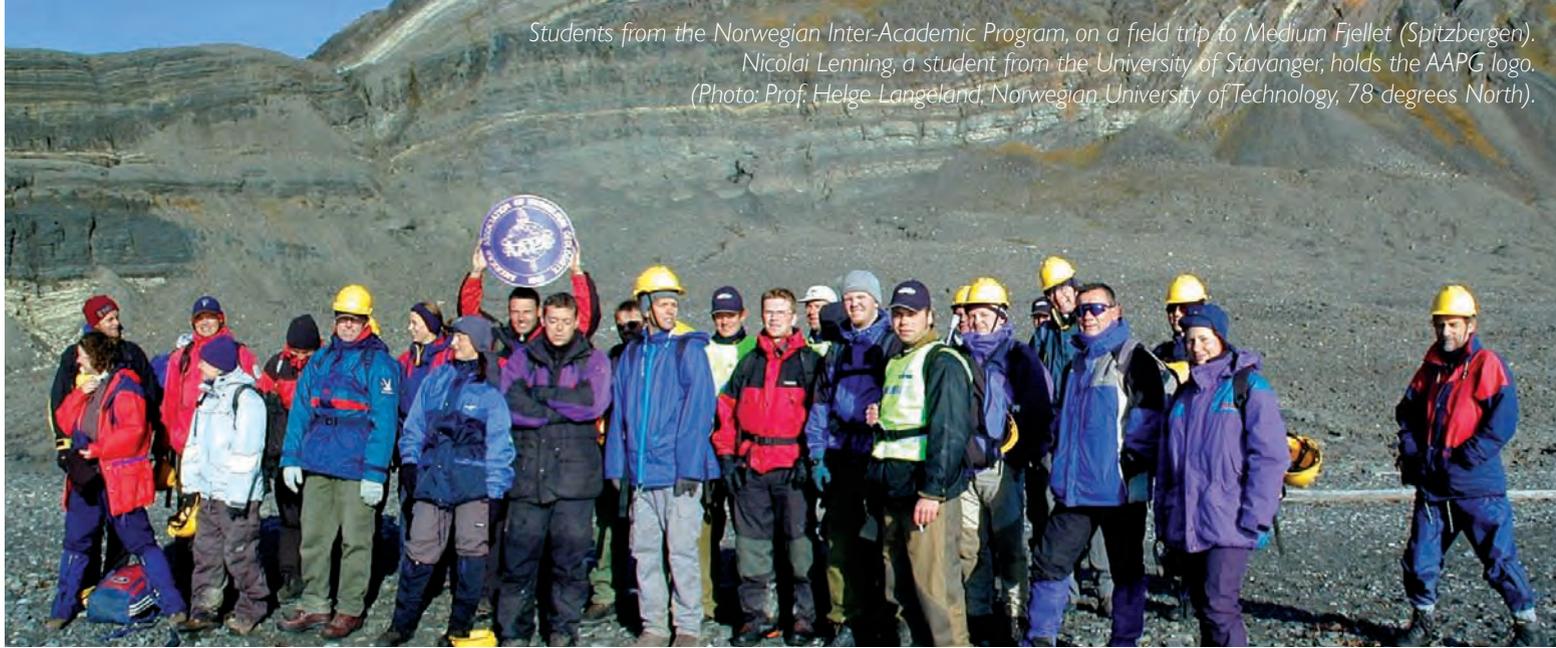
as an integral part of the annual Fall Meeting of the American Geophysical Union (AGU) to be held on 14-18 December in San Francisco, USA. The meeting will focus on the International Year of Planet Earth's achievements but particularly on its future potential, including a plenary discussion or 'Town Hall Meeting' to cast a long and hard look at ideas and proposals for future development of the science following the end of the triennium.

The Lisbon Event, of which this is the official publication, is a celebration of the Planet Earth triennium, its emphasis being on recent activities on the part of National Committees and the role and recent activity of our International Partner organizations. The reader will recognize the diversity, ingenuity and breadth of events described by 30 of the contributing National Committees, all having been specially devised to celebrate the International Year over the past 12 to 18 months. The articles by the Year's International Partners are equally diverse, although the focus in many of them is closer to some of our day-to-day concerns including socio-economic matters.

The concluding article in the publication looks at past achievements and offers a glimpse of future actions designed to lead to a more prominent and sustainable geoscience, one or two of these steps having already been taken. This succinct summary is deserving of a careful reading and thought prior to discussions in both Lisbon and San Francisco.

Thus, by emphasizing that National Committees are at the core of the International Year and so provide a source of promise for future progress in global Earth science, this brief volume provides some background not only to the Lisbon Event but to deliberations on the suitability and practicality of plans now being formed.





Students from the Norwegian Inter-Academic Program, on a field trip to Medium Fjellet (Spitzbergen). Nicolai Lenning, a student from the University of Stavanger, holds the AAPG logo. (Photo: Prof. Helge Langeland, Norwegian University of Technology, 78 degrees North).

American Association of Petroleum Geologists (AAPG)

The American Association of Petroleum Geologists (AAPG), an International Geological Association, is proud to be a Founding Partner of the International Year of Planet Earth (IYPE).

The purposes of AAPG remain the same as those professed by the founders of the Association in 1917. These are to advance the science of geology, especially as it relates to petroleum, natural gas, other subsurface fluids, and mineral resources;

- to promote the technology of exploring for, finding, and producing these materials in an economically and environmentally sound manner;
- to foster the spirit of scientific research throughout its membership;
- to disseminate information relating to the geology and the associated technology of petroleum, natural gas, other subsurface fluids, and mineral resources;
- to inspire and maintain a high standard of professional conduct on the part of its members; to provide the public with means to recognize adequately trained and professionally responsible geologists; and
- to advance the professional well-being of its members.

Membership in AAPG, the world's largest professional geological society with over 31,000 members and 106 affiliated societies, offers the professional geologist many features and benefits. Some of the benefits

are tangible; publications, conferences and lectures are accessible every day. Some other benefits may not be as apparent or noticed every day, but they are ever present and important. These include areas such as advocacy, networking, and being part of a professional community.

Membership rests on a strong foundation of tangible benefits from which members have every opportunity to choose, the "capstone" being the professionalism that comes with AAPG membership.

AAPG has the following Divisions: Division of Environmental Geosciences, Division of Professional Affairs, Energy and Minerals Division.

AAPG Geoscience knowledge databases include:

Online Bookstore: to purchase geoscience publications, highway maps, and more online. Products may be found by several methods to accommodate most needs.

Online Data and CDs: AAPG publications and Bulletin are available for searching and downloading ... or ... order a CD for your personal use.

Publications: Do you have a technical paper or research which you believe AAPG should consider publishing? Follow this path to find out how to submit your manuscript for review. Also included are guidelines for submission of documents which

will be used in the actual publication.

Library: the AAPG Foundation Energy Resources Library provides information and services to geoscientists and other members of the public. Through this valuable resource you can increase your research with reliable information.

Search and Discovery: An online digital publication brought to you by Datapages, Inc. a company owned by AAPG. Here you'll find technical papers that have never been in print. Recently released company papers as well as printed versions of oral and poster presentations given at meetings and conferences.

Meetings: Meetings and educational events are held throughout the year. Learn about AAPG sponsored meetings all over the world at both the local and international levels.

News, the AAPG Explorer is a monthly news publication focusing on the petroleum industry. It is mailed on the first of each month and a preview of highlighted articles can be read here about one week before mailing.

Education, providing quality education to the geoscience community is important to the AAPG. Click here to learn about Continuing Education Units (CEUs), courses, field trips, and lecture tours brought to you by the AAPG and the AAPG Foundation.

Gateways to ... help members of AAPG navigate the Internet we are collecting

Geo-view of Medium Fjellet, an outcrop of Permian age. The carbonate platform covered a large area of the Barents Sea and Spitzbergen region. Diabase intrusions are of Triassic age. This outcrop is subject to geo-mapping, interpretation, seismic response modeling and reservoir characterization as part of the integrated field trip for G&G and engineering students.



helpful URLs. This area is built by the members. As people find sites useful to them they are turned in to AAPG and added to these Gateways.

AAPG has members in more than 116 countries. The International Development office and the International Regions Committee exist to serve our worldwide membership. Six international regions have been designated to facilitate this service and involvement of AAPG professionals; these are Africa, Asia-Pacific, Canada, Europe, Latin America and Middle East.

Many of the benefits of AAPG membership are included in the annual dues, while others are subsidized or discounted programs, all offered to assist the members in charting their careers. This is the business behind the scenes of the AAPG.

Programs: here are several programs and services which are available to AAPG membership.

- Education, skills and career focus:
- Distinguished Instructor Series
- Distinguished Lecture Series
- Education Conferences - Fall and Winter
- Hedberg Research Conferences
- GeoTours / Field Seminars
- Insurance Program
- Student Chapter Program
- Imperial Barrel Award
- International Development Program

- Certification Program (through the Division of Professional Affairs)
- Visiting Geoscientists Program

The AAPG Foundation funds a Grants-in-Aid program to foster research in the geosciences. Grants are made to provide financial assistance to graduate students (currently enrolled in Masters or Ph.D. programs) whose thesis research has application to the search for and development of petroleum and energy-mineral resources, and/or to related environmental geology issues. Grants are based on merit, and in part, on the financial needs of the applicant. Although the focus of the program is the support of qualified candidates for Masters or equivalent degrees, qualified doctoral candidates are also encouraged to apply.

Since the General Assembly proclaimed the year 2008 to be the United Nations International Year of Planet Earth, AAPG has supported local and international initiatives to celebrate our Planet Earth.

Francisco Porturas
AAPG Representative to IYPE Board





**BANCO
ESPIRITO SANTO
ANGOLA**

**BANK
OF THE PLANET**

Banco Espírito Santo Angola: Bank of the Planet

A worldwide mission

Banco Espírito Santo Angola is not only known for its financial performance, but also for its hard work in corporate citizenship.

When BESA thinks about the various dimensions of sustainability, it views itself as an institution that is aware of the important issues related to the community and together unites our strengths and all available assistance to provide for healthy co-existence and a generally co-responsible attitude towards sustainable development.

In all its activities, BESA tries to establish a relationship with everyone - shareholders, employees, suppliers, customers and the community at large. This is done in a respectable, ethical, transparent and involving manner. This not only enhances confidence that, in this way, we will achieve the desired economic performance; it is done in a way that minimizes any impact at social and environmental level, among the community in which we operate.

Since 2007, BESA has worked with the UN High Commissioner for Refugees in supporting the return and re-integration of Angolan refugees, as well as refugees from other African countries. For several years, it has sponsored the implementation of a Portuguese Language Teaching Programme for thousands of people, both adults and children.

In partnership with the Angolan Government, BESA is also playing a part in organizing the African Forum for Sustainable Development, to take place in Luanda, Angola, in 2010. With the support of the United Nations, and held every two years, the Forum aims to discuss the best solutions to Africa's environmental problems.

The various research studies published each year in Angola and others by prestigious institutions from all over the globe attest to Banco Espírito Santo Angola's prestige and financial soundness. Aside from its banking sector performance, BESA is notable for its activity in social responsibility.

The BESAcultura project is unique in its dedication to launching initiatives which validate Angolan cultural roots, expressed through contemporary art. In 2009, BESA will hold a photography competition for the second time, this being an eagerly awaited initiative. BESA foto2009 is being organized in partnership with World Press Photo (WPP), the prestigious and world recognized organization. The aim is to promote rising new artists and to take Angolan photographs and culture beyond Angola's borders.

During the Planet Earth Lisbon Event, BESA and WPP will present the exhibition "BESA Bank of the Planet". Five selected African photographers from Angola, Tanzania, Kenya, Ghana and Zimbabwe will present various exhibits on the subject of Planet Earth. After the event, the exhibition will circulate through all Angola's provinces.

Because education is one of the most important factors affecting sustainable development, BESA supports projects that develop educational initiatives aimed at enriching the skills and knowledge of Angolans in general as well as all internal customers.

For Banco Espírito Santo Angola to seek to meet the needs of the present without compromising those of future generations is "A worldwide mission".

Governments, international institutions and enterprises have to work together to find our way out of current social and environmental problems and learn to live sustainably.

This is the most important challenge for mankind and "A worldwide mission". With this motto, BESA reinforces its leadership position in the Angolan financial market while, at the same time, staking its claim as a frontrunner in offering the market high quality products and services and as an entity fostering and disseminating Angolan culture and, above all, sustainable development.



IYPE, American Geological Institute, and the Global Geoscience Community

The American Geological Institute (AGI) is proud to be the first International Founding Partner of the International Year of Planet Earth from the United States. From the beginning, AGI has believed that the mission of IYPE mirrors one of AGI's key missions to increase public understanding of the vital role the geosciences play in society. Many of AGI's programs, first developed for domestic use, have grown to be used and adapted internationally. Through AGI's partnership with IYPE, these programs and connections continue to expand the role of the geosciences worldwide.

Earth science education is at the heart of both IYPE's and AGI's mission. Public outreach and traditional educational methods are critical for both organizations to highlight the importance of the geosciences to society. Several of AGI's education programs which began as smaller-scale local initiatives have now been transformed to fit global needs.

AGI's short video, entitled *Why Earth Science?*, has been a popular resource in the United States to convey the importance of requiring earth science in a quality basic education. The Mexican IYPE committee adopted this video and translated it into Spanish. Now *¿Por Qué Ciencias de la Tierra?* is available through YouTube and is broadcast to schools in Mexico as part of that country's Edusat system. What began as an initiative to highlight the importance

of earth science in one country is now a mission adopted by others.

One of AGI's core education programs is teacher training. Not only is it necessary to have earth science education as part of a required curriculum, it is vital to have educators who are well versed in the earth sciences and the best ways in which to teach. To this end, AGI conducts teacher training workshops across the country. The Geological Society of London has participated in our teacher training sessions and hopes to duplicate this program for use in the British Educational System.

In addition to traditional classroom education, both AGI and IYPE support public outreach for the geosciences. Earth Science Week began in 1998 to engage students and teach the public about the importance of the earth sciences, as well as motivate geoscientists to share their knowledge with their communities. Now in its 11th year, Earth Science Week, like IYPE, is celebrated around the globe. Geoscientists working for universities, government and industry are sharing their expertise and are encouraging others to become actively involved in the earth sciences.

In an effort to include more global participation in Earth Science Week, AGI has sponsored an IYPE photo contest for the past two years. As part of Earth Science Week, the contest invited individuals to

send pictures capturing the beauty and power of the geosciences from every corner of the Earth.

This year the Seismic Research Centre of the University of the West Indies is hosting several Earth Science Week events in Trinidad and Tobago. They have tailored their events to highlight the natural hazards that affect their area with the theme "Tsunamis and Other Coastal Hazards." This demonstrates that Earth Science Week, although created in the United States, can be grown and translated into an outreach and education opportunity that works for geoscience organizations worldwide.

While one of AGI's main missions is outreach and education, supporting those already in the geoscience community is another of equal value. AGI provides services useful to geoscientists worldwide. AGI's GeoRef, the largest database of bibliographic information in the geosciences, includes translations of geoscience publication abstracts from 18 different languages into English. In 2008, more than 70 percent of the publications indexed were published outside of the United States, including literature from 102 countries.

Not only does GeoRef provide access to a global network of research, it has been expanded and partnered with other countries to produce bibliographic databases specific to those regions. AusGeoRef contains over 180,000 references from

Australian geosciences literature dating back to 1840. GeoRef continues to grow and develop new partnerships that enable earth scientists worldwide to have access to the pertinent literature necessary to complete quality research.

An important part of supporting those in the broader geosciences community is understanding the demographics of that community and the issues, such as supply shortages, education and salary statistics, grant information, and economics that affect those of us who have invested in the earth sciences. AGI's Workforce Program tracks these and many more statistics.

AGI has recognized that similar trends exist globally concerning earth science workforce issues. We have realized the need not just to track our statistics, but also to track those employment and education statistics worldwide. To start this new undertaking, AGI is leading the taskforce on workforce issues internationally through the IUGS and UNESCO.

In collaboration with IYPE, AGI has played an active part in the planning and organizing of the first Y.E.S. (Young Earth-Scientists for Society) Congress to be held in Beijing, China as part of the international organizing committee and the senior advisory committee. For this congress, AGI is organizing four roundtable symposia on academic and career pathway challenges that young geoscientists face. The roundtables

aim to foster a prominent conversation between science, policy and society to engage both senior and young geoscientists as both presenters and participants.

The International Year of Planet Earth has encouraged geosciences organizations worldwide to work together toward common goals: education, outreach, and community support are necessary across the globe. AGI has striven to focus on those areas in the United States, but has also realized their importance outside of our borders. Through the partnerships developed throughout IYPE, we've been able to collaborate with those organizations that share similar missions across the planet. It is our hope that these collaborations will continue to grow and that earth science understanding and appreciation will develop further through these strengthened partnerships with our global partners.





Photo of Usu Volcano in Toya Caldera and Usu Volcano Geopark

Geological survey of Japan (AIST)

Know the Earth well, Live together with our Planet

The mission of the Geological Survey of Japan-AIST is to contribute to sustainable society with its research outcomes; strategic engagement in research and development to provide a high-quality, safe, and sound life where people can coexist with planet Earth. To help realize the sustainable development of society, we will collect and provide basic geoscientific data by means of geological surveys carried out under the aegis of the Ministry of Economy, Trade and Industry as a national project, and make the resulting knowledge common capital, in accord with the IYPE subtitle “Earth Sciences for Society”.

The GSJ-AIST has contributed to IYPE by joining two international projects - One-Geology and the CCOP Book project. On domestic activities, the GSJ is the main

supporting and implementation organization of IYPE in Japan, serving as its secretariat. During the IYPE triennium, the GSJ has supported development of Geoparks, established a Geology Day and the Earth Science Olympiad activities with some academic societies, and has distributed geological maps with the IYPE logo. The GSJ also established an outreach network “Geo-networks Tsukuba” as a local legacy of the IYPE, and has managed it together with local government, research organizations, non-profit corporations and local media to increase the geological and environmental literacy of the public, especially among young people.

GEOPARKS in Japan

Japan has remarkable geological diversity. The Japanese Islands and the surrounding seas are situated in an area of unique geological features, being a location where

several tectonic plates collide. This causes earthquakes and volcanic activities, and makes Japan one of most dynamic areas on Earth. The dynamics of the Earth bring about not only geological hazards but also many blessings. Geoparks in Japan are characterized by a wide variety of interesting and attractive features.

In August of 2009, three Geoparks (the Toya Caldera and Usu Volcano Geopark, the Itoigawa Geopark and the Unzen Volcanic Area Geopark) were accepted into the Global Geopark Network, the first such acceptances from Japan. Since its launch in 2006 the GSJ, together with Geological Society of Japan, has played a major role in promoting Japanese Geoparks. The GSJ hosts Japan’s Geoparks Committee (JGC) for quality evaluation, serving as the national information center.



Photo of a scene of GEOLOGY DAY, a boy collecting fossil shells



Geology day

The Geology Day of Japan (10th May) was set up by the academic societies for geology in Japan as well as the GSJ in 2007. The Geology Day is expected to provide opportunities for the public to enjoy field trips and excursions and to understand the importance of geo-diversity. The Day commemorates the first publication of the geological map of Japan on 10th May, 1878. A total of fifty-nine geology-related organizations, including natural museums and academic societies, joined the eighty nine events on Geology Day all over Japan this year.

The GSJ-AIST works to build a safe and secure society by constructing the national geological data infrastructure, conducting basic research and development of technologies to mitigate natural disasters, protecting the environment, and devel-

oping natural resources and energy. The GSJ-AIST serves as a national center for the solution of geology-related issues, driving three research units (Active Fault and Earthquake Research Center, Institute for Geo-Resources and Environment and Institute of Geology and Geoinformation) and two service units (Geoinformation Center and Geological Museum).

The Geoinformation Center provides reliable and impartial geoinformation to the public in close coordination with three geoscience research units and the Geological Museum. It places great stress on integrating the newest knowledge systematically with the geoscience data gathered over the years, and informing the public with even more reliable data among its highest priorities.

The Geological Museum promotes better understanding among the public of

how deeply human beings depend on and impact upon the treasures of the earth. Visitors can learn about various geological topics through plain and helpful explanations, and also about GSJ's research activities. Large collections of valuable fossils and minerals from all over the world not only attract visitors, but also are utilized by researchers within and outside of the organization. In cooperation with the research units, the Museum holds various geological exhibitions and educational events, and provides geological consultation. It also supports the research units by managing and offering the geological specimens and making thin-sections of rocks.





BES GROUP

A Commitment to sustain a safer, healthier and wealthier world

For BES Group, a financial institution that dates back to 1869, sustainability consists of effectively adopting practices and behavior capable of providing a dynamic and progressive balance in the creation of value for Shareholders, Clients and Employees. Furthermore, sustainable development also furthers the level of usefulness, understood in its broadest sense as social, economic and cultural activity of the surrounding society, specifically within the scope of the markets where the Group operates.

This vision is reaffirmed by its CEO, Dr. Ricardo Espírito Santo Silva Salgado, who states that “Sustainable management consists of maximizing financial results and shareholder value over the long term. This long term perspective calls for a balanced approach to the economic, social and environmental issues that underlie our activity. **Sustainable development thus becomes a factor of competitiveness for BES Group**”.

During the last five years, BES Group has reinforced in its business this vision of sustainability and intends to perpetuate it. We believe that, by doing so, a positive contribution will be made towards value creation within our activity and consequently within the community in which we operate.

At BES, the dialogue established with our stakeholders, the monitoring of trends in the financial business (in particular in banking), the monitoring of risks and the

benchmarking of the Bank’s performance facilitates the identification of opportunities and challenges and, in turn, permits the Bank to adapt processes and procedures as well as to offer innovative products and services.

Our commitment to sustainability is evident in various dimensions of the Bank’s core business. As examples of this, we would emphasize the **sale of ethical funds, the promotion of financial inclusiveness through microfinance, the incentive programs for the development of lower income regions and the development of products specifically designed for students, senior citizens and emigrants.**

We are the 5th major world investor in renewable energy projects. This position expresses the responsibility we wish to assume by structuring vectors for the Portuguese economy, namely by promoting investment in projects aimed at producing energy from renewable sources and by promoting programs to stimulate research and innovation in key areas for the development of the Portuguese economy.

Our aspiration is therefore to consolidate the Group as a reference in investment projects promoting the improvement of environmental and living conditions in the communities in areas in which we operate, through the offer of innovating products and services.

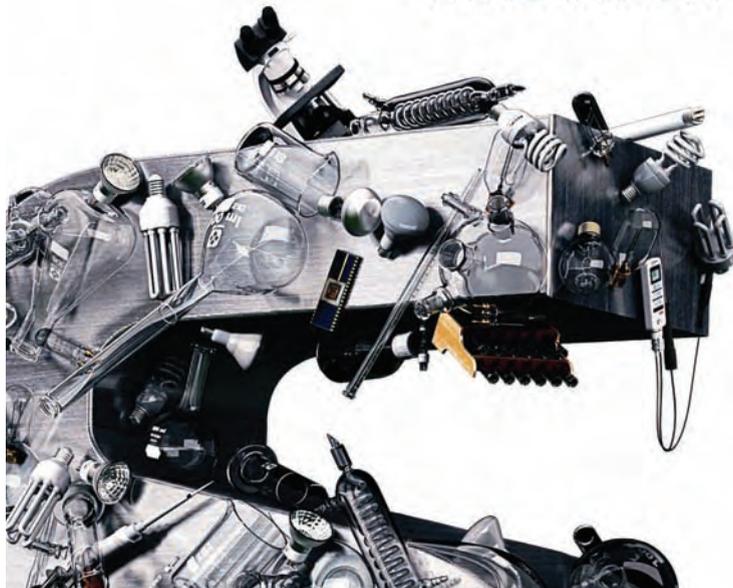
We were the first Portuguese private financial institution to adhere to the United

Nations Environmental Programme Finance Initiative (UNEP-FI), which will strengthen even more the BES’ sustainability strategy at an international level.

Risk management and transparency are core issues in the activity of the entire BES, being the basis of our sustainable development. We always act with prudence when dealing with the various types of risk incurred in our activity, and the objective is to increasingly match the essential goals of the bank’s risk management system with consideration that is of an ethical, social and environmental nature.

The assessment of environmental and social aspects is consequently part of the process of risk assessment used by Group BES Project Finance analysts. These criteria are supported by the Equator Principles, subscribed to in 2005. This way, the Group guarantees to fulfill social and environmental aspects that, in any other way, would not come under the legislation, especially in emerging countries.

We were also the first Portuguese company to sign the project’s “Declaration of Commitment to Biodiversity – Business & Biodiversity”, whose main promoter is the National Institute for Nature Conservation and Biodiversity (ICNB). This declaration has as its main goal the support of the preservation of biodiversity in Portugal and the promotion of development of new products and services in this domain.



We also embrace initiatives to advance social wellbeing, namely measures intended to complement the professional life of our employees with their family life, to create career opportunities and to enable their harmonious development as human beings, as well as introducing measures to broaden the scope of our environmental policy and the promotion of culture.

Our commitment to promotion and investment in the business innovation area has been expressed in some important initiatives we have created, namely the BES National Innovation Awards. Of their kind, these are unique awards in Portugal and are intended to stimulate technological development and entrepreneurship, contributing to the transformation of the best research and innovation projects in corporate and economic realities, through practical implementation and commercialization in areas identified as critical for the development of the Portuguese economy: Renewable Energies, Health, Personal Care and Hosting, Tourism, Industrial Processes and Ocean Economy.

Great minds - Many Ideas - One goal

The International Year of Planet Earth (IYPE) initiative is all about gathering the greatest knowledge from the scientific, industrial and political world in order to achieve successful solutions in response to the greatest challenges facing our planet.

BES Group strategy towards sustainable

development seeks continuously to gather proposals to consolidate ideas, support projects and create conditions so that, together and in a permanent dialogue, solutions are found in order to ensure "a sustainable way of living".

Within BES culture, we also challenge our stakeholders to use their abilities to undertake "standard business" but to do so in a meaningful and sustainable way. In order to do so, we try to establish a relationship with everyone in a respectable, ethical, transparent and involving manner. We are confident that, in this way, we will achieve the desired economic performance, but associate this with reduced impact at the social and environmental level in the communities where we operate.

We also believe that the strategy and commitments assumed by the Group towards Sustainable Development are perceived by our clients and actively contribute to reinforce this relationship of trust, enabling our continued positive growth in the main business areas; they are also mirrored in the confidence shown by our shareholders, a necessary condition for the success of BES Group's Business project, and also in the participation and commitment of all our employees, actions that are essential for the assertion of the brand in the market and a determinant of the BES Group's progress in the future.

Additionally, to place sustainability in the

national agenda, creating space for communication and visibility specifically concerned with this issue, and to develop value-creating initiatives that accelerate the pace of sustainable development in Portugal, we also decided to launch several initiatives in order to promote debate on issues as important as Biodiversity, Climate change, Demography and Poverty, Desertification and Drought, Education and Health.

The Planet Earth Lisbon Event 2009 (PEL2009) will be an important forum for discussion of these issues, since the results of the IYPE will be evaluated and successor initiatives will be launched to build on the legacy of the IYPE. The important objectives of this event are fully supported by the BES Group's sustainability vision and, this being so, we are honored to be the official patron of the PEL2009.



Association of African Diamond Producing Countries

Message

On behalf of the African Diamond producers association, it is with a deep sense of gratitude and commitment to the International Year of Planet Earth that we send this message to you.

The objectives upheld by Planet Earth are in line with those of the ADPA, so that your invitation could not have come at a better time. We believe that our Planet should be free from all adversity due to industrial production and pollution; we fervently hope that Planet Earth and its legacies will be beacons of hope that will change the views of men including industrialists and so make our world a better place.

We wish Planet Earth every success in all its endeavours and in its mission to raise the awareness of all actors and stakeholders, an action that will eventually generate a common vision for success.

ADPA, with its 18-member states, can be counted upon to support for Planet Earth's objectives.

Background

Recalling the Declaration of Luanda establishing the Association of the African Diamond Producing Countries (ADPA) adopted in Luanda on the 4th of November 2006; Considering the role that African diamond

producing countries play in the development of the diamond industry;

Recognizing the need for consultation, effective coordination, and cooperation in policies and strategies in the areas of exploration, mining, cutting and polishing, and the trading of diamonds as the best way to safeguard their interests and achieve socio-economic development, as well as sustainable development of human resources;

Conscious of the responsibility that each state has with regard to its population and towards the future generation in mining under the principles of rational sustainable use of the environment;

Considering the need to adopt a harmonized legal framework, which would provide a security of tenure to the investors in the diamond industry;

The Association of African Diamond Producing Countries resulted from an Angolan government initiative. The objective of this Association is to bring together all the African producing countries in coordination with policies and strategies interests and efforts towards a dynamic and sustainable development of the African diamond industry.

The Association was created on the 4th of November 2006 in Luanda, capital of the Republic of Angola where are located the

head office and the executive secretariat of the association.

The Association has an inter-states nature and is composed of eighteen African countries of which 11 as effective members and 7 as observers.

The senior leadership of the association is comprised of Mr. Eng. Edgar Diogo de Carvalho de Angola, Executive Secretary, and Mr. the Ambassador Daouda Kourouma from Guinea Conakry, and The Economist Sindiswa Gaven from South Africa, as Deputy Executive Secretaries respectively.

Vision and Mission

The Vision and Mission of the Association is the cooperation and coordination of political and strategic interests as a basis for a dynamic and sustainable development of the African Diamond Industry, as well as the sharing of experience, the legal and technological harmonization and the development of human resources. Such coordinated actions will help to maximize the potential of diamond resources of Member States in compliance with the recommendations of the Kimberley Process, in favour of the social and economical development of Africa, contributing in this way to achieve the transformation of conflict diamonds into diamonds for peace.

Objectives

The Association aims:

1. To Promote cooperation and assistance among Member States in policies and strategies concerning exploration, mining, cutting, polishing and trading;
2. To adopt harmonized legal solutions and the exchange of information between member states in areas related to mining and trading in Member States that have acquired valuable experience;
3. To develop human resources and promote mutual technical assistance in the coordination of policies and strategies for development of the diamond industry;
4. To work towards the transformation of conflict diamonds, wherever they exist, into diamonds of peace and sustainable development in conformity with the minimum requirements of the Kimberley Process.

Plan of Action

Based on the vision, mission and the objectives set forth in the ADPA's statutes, there is a need to draft a proposal for an Action Plan by the ADPA.

In this context, ADPA shall perform several duties which are aimed at fulfilling the objectives adopted during the constitutive

meeting of the Association.

During its first mandate, the Executive secretariat will fulfil the following duties:

1. The consolidation of the Association
2. The drafting of all the back-up documents to its functioning
3. The organization of the ordinary meetings set forth in the Statutes of the Association
4. The organization of several conferences, congresses, symposiums, workshops, seminars on various topics which affect directly or indirectly the African diamond sector;
5. Cooperation and collaboration with various national, regional, and international institutions linked to the diamond sector, namely the Kimberley process;
6. Support all the member countries in the implementation of the recommendations of the Kimberley Process;
7. Contribute actively to change the image of the African Diamond Sector turning conflict diamonds into diamonds for peace and development;

Current Projects

1. African Union member for the establishment of a Task Force on Commodities Stock Exchange (Addis Ababa)
2. Establishment of a Cooperation Agree-

ment with IES for evaluation studies on African Diamond Areas

3. Studies for the Implementation of a Diamond Stock Exchange in the Democratic Republic of Congo
4. Seminar on the Harmonization of African Diamond policies and Fiscal Law concerning Diamond production and commercialization.
5. Seminar on environmental impact on Diamond production Activities on Kimberlitic mines and River shores
6. Social and environmental development of the diamond mining areas.

*Eng. Edgar Diogo de Carvalho
Executive Secretariat*





Caixa Económica de Cabo Verde, INC.

The history of the development of Caixa Económica de Cabo Verde, INC. (CECV) is a clear indicator of the development of Cape Verde as a nation and country, a development that was always sought to be balanced and in harmony with nature.

CECV was created on May 18th, 1928 under the name of Caixa Económica Postal, as part of the Post Office under the Department of Telecommunications.

On December 30th, 1985 it changed its name to Caixa Económica de Cabo Verde, a legal entity under public law, endowed with administrative, financial and patrimonial autonomy, as a public company under the Department of Finance.

On August 31st, 1993 CECV became a public company able to carry out all operations and activities authorized by law.

In 1999 the state transferred by public tender 100% of their direct involvement in the Caixa Económica de Cabo Verde, which then became a company with both public and private capital.

Late in 2005 CECV was listed on the Stock Exchange of Cape Verde. From a weak and timid postal bank, CECV thus became a universal commercial bank with a large presence in the country, extending its reach into the Cape Verdean diaspora. This metamorphosis took place as Cape Verde was converting from a Colony to an independent country, from a one party political system to a democratic system, from a less developed country to one with middle-income and from a country whose economy depended heavily on emigrants' remittances to a tourist country.

As with Cape Verde, which had fought for its survival and consolidation as a nation-state since its independence, so from the 1980s onward the CECV fought for its

rightful place in the Cape Verdean financial sector, having taken a leading role in the struggle for the development of the country.

However, we are aware that, despite all efforts made to preserve the natural environment, this struggle for survival (in its first stage) and development have gradually contributed to a degradation of our environment, with negative consequences for our ecosystem.

CECV knows that its future stability also depends on the sustainability of the economic, social and environmental development that the country must guarantee to secure its future. This sustainability will be guaranteed only if all participants in the development process take on their share.

Caixa Económica de Cabo Verde believes that one way of winning the battle for the preservation of the environment is to emphasize the fight against poverty through the financial inclusion of the low-income population, but also through education and schooling. For this reason CECV has a micro-credit unit in its structure and has created several education loan products. In its strategic plan for 2009-2012, it declared its strategic aim to become a bank very close to the community, by recognizing a set of social responsibilities as part of the framework of its corporate citizenship policy.

The pursuit of strategic objectives outlined will be based on four pillars: Quality, Innovation, Leadership and Proximity. These pillars will be established in strict compliance with existing rules on the preservation of the environment and always in a spirit of promoting a culture of environmental balance.

It was in this context that our partnership with the IYPE arose. We firmly believe

that, regardless of the size of the country and its companies, this struggle must be borne by all throughout the world. It should not be confined to national concerns but should contribute effectively to the environmental balance of the entire planet.

Institutions should feel honored to contribute to the sustainable and balanced development of the planet and to belong to the group of IYPE's international partners. Caixa Económica de Cabo Verde is so honored.

*Emanuel Miranda
CEO and Chairman of the Board of Directors*

LISBOA

Major Regular Events



LISBON FISH FESTIVAL

April

The festival celebrates the great food speciality of Lisbon, fish, in its diverse preparations, recipes and side dishes. There will be tasting, cooking demonstrations and entertainment for all.

www.visitlisboa.com



INDIELISBOA

April - May

International Independent Film Festival - IndieLisboa is the greater film festival of Lisboa. The main aim of the Festival is to discover new films and new directors, in the universe of independent cinema.

www.indielisboa.com



ROCK IN RIO LISBOA

May

Rock in Rio - considered the biggest music festival in the world - takes place every two years in Parque da Bela Vista in central Lisbon. Lisbon is set to welcome top international music acts, and thousands of their fans in early summer.

<http://rockinrio-lisboa.sapo.pt>



FESTAS DE LISBOA

June - July

These celebrations take place in the historical quarters of Lisboa. At the street parties people dance, listen to Fado, eat grilled sardines and drink. It is also traditional to hold a collective wedding ceremony where the brides are known as "Brides of Santo António".

www.egeac.pt

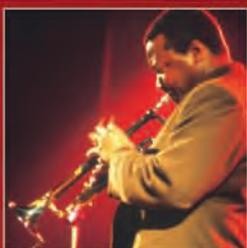


OCEANS' FESTIVAL

August

The Oceans' Festival is a thrilling tour of the seven seas, made on dry land. It attracts thousands of locals and visitors to the Tagus riverside area where they can watch concerts, urban interventions on the theme of oceans, multimedia shows and musical pyrotechnics.

www.festivaldosocenos.com



JAZZ AT THE CALOUSTE GULBENKIAN FOUNDATION

August

An initiative set up by the Gulbenkian Foundation in 1984. The programme includes concerts by world acclaimed musicians, whilst promoting current trends in contemporary Jazz.

www.camjap.gulbenkian.pt



DOCLISBOA

October

In October the world fits into Lisbon. The only Portuguese competitive festival entirely dedicated to documentaries, it will bring the best of the contemporary national and international production offering 11 days of an intensive program. DocLisboa focuses on breaking new ground and on the great diversity and vitality of this cinema of reality.

www.doclisboa.org



ARTE LISBOA

November

International Art Fair gathering the most prestigious art galleries in Europe thus promoting Contemporary Art in Lisboa. One of the most important objectives for ARTE LISBOA - Contemporary Art Fair, is to stimulate the development of patronage and artistic production. In the Nations Park of Lisbon.

www.artelisboa.fil.pt



NEW YEAR'S EVE PARTY

December

This super-event marks the transition from the Old Year to the New Year. Staged usually in the waterfront of the river Tagus, performs concerts with some famous names as well as street entertainment and, of course, fireworks.

www.visitlisboa.com



TURISMO DE PORTUGAL  lisboa

www.visitlisboa.com



CATOCA mining company: shareholding partners & geographic location

The Catoca Mining Company Ltd., an Angolan mixed-capital enterprise, was established on September 16, 1993. The Company's purpose is: prospecting, exploring, processing and trading diamonds mined from the Catoca Kimberlitic deposits. Catoca is located in the province of Lunda Sul, Angola, approximately 35 km from the city of Saurimo.

Working towards the Development of Angola

Angolan development is the purpose that sets the course of all the initiatives of the Catoca Mining Company - initiatives that range from the advanced training of our professionals to the deployment and utilization of the most modern mining technology. Social initiatives are aimed at food supplements, health care, education, sports and cultural programs designed to promote local communities and recover the cultural identity of the Cokwe people. Such initiatives are living proof that investing in the Angolan people yields very positive results.

Vision

We aim to be a company with recognized qualification in the international mining industry and to contribute to the social and economic development of Angola.

Social Commitment

- Building of the PIC-PEC: more than 85 children under 5 years of age receive pre-school education by social workers/educators with support from Catoca in terms of food rations assistance
- School Building Program
- Sun Powered Energy
- Building a Day Care Center in Saurimo
- School Snack Distribution Program
- Staple Food Rations Distribution Program
- Water Wheels

Environmental commitment

The Company's concern with natural resources and its environmental concern led us to adopt policies and initiatives aimed at integrating MAN and NATURE. All the activities of the Catoca Mining Company are carried out under the motto: **"MINING WE MUST, PRESERVING WE CAN"**. A constant concern at the Catoca Mining Company is environmental protection. Several programs are currently implemented, both in our operational as well as in our neighbouring areas. These programs deal with the protection of rivers and streams, and land management concerning inter/mineral residue piles and solid waste. The reforestation of cleared land (de-

graded by mining activities) with native tree and shrub species, plus soil recovery vegetation, together with the treatment of effluents, mostly the overflow of the containment reservoir; are given priority attention, in addition to the water and sewage treatment system. In sum, our environmental protection and monitoring plan, applied on a daily basis, ensures the maintenance of consistent levels of quality of our air, water (surface and underground) and soil, in addition to the preservation of the fauna and flora. Furthermore, our constant effort in creating environmental awareness among our workers as well as among the neighboring communities, which is in line with the company's overall policy of adopting clean technologies and a sustainable development, is paying off.

Public Health Care Programs

- The company operates a Medical Clinic at Catoca's Residential Compound for workers and their direct family members, plus community members:
- Program destined to check malaria
- Program for the prevention, control and treatment of tuberculosis
- Program for the prevention of uterine cancer and breast cancer



Of the more than 3500 yearly medical consultations dispensed at Catoca's medical center, a full 10% is made up of people from neighboring villages.

HIV/AIDS Fighting Campaign in Catoca

- An intensive information campaign concerning all medical and clinical aspects of AIDS and other STDs to workers
- Encouraging HIV/AIDS and other STDs Prevention measures
- Prevention against vertical contamination
- Intensive campaign counseling workers and pregnant women to submit voluntarily and routinely to HIV/AIDS detection tests
- Guaranteeing the free treatment of opportunistic diseases and HIV/AIDS
- Guaranteeing full confidentiality to patients

Producing vegetable and beef food items aimed at ensuring the Catoca Mining Company's self-sufficiency in matters of food products, further diminishing the logistics involved in the acquisition and transportation of such staples.

Message

Telling Catoca's history is very much more than recounting not only the story of its namesake kimberlite, in whose gangue lay the diamonds that bring the wealth need-

ed to sustain our Country's development, or that of the four founders who laid their trust and hopes on the undertaking, in spite of the complex problems they had to overcome at the outset, mostly in the field of logistics.

In reality, Catoca's history revolves principally around all those men and women, both Angolans and expatriates who, in the last four decades, contributed decisively to turn the extraction of kimberlite into a resounding international success story. It is to them, the pioneers who began the initial prospecting in the 1960s and those who labor in the mine, mineral treatment plants and other sectors in the Company today that we owe our success.

As a form of recompense, Catoca accepted full social responsibility and took upon itself to institute a participation standard based on the belief that, beyond the benefits and taxes destined for the government, as is the rule for any economic activity, the wealth derived from the mining activity must be invested in socially beneficial activities such as education, health and others that are conducive to sustainable development. This is why our Company's policy determines that workers must feel well, must receive decent wages for their labour and must have a good quality of life for themselves and their families.

All these benefits are further extended

to the community settled around the undertaking. Through partnership projects with the Lunda Sul provincial government, Catoca provides support for public educational programs from pre-school to university levels, in addition to a food supplement program for 20,000 public school students in the city of Saurimo, to which soy milk and bread rations are supplied on a daily basis.

We are also fostering entrepreneurship in neighbouring communities, encouraging people to carry out agricultural and cattle breeding projects, in addition to sundry services, as a means of finding their natural vocations and their own path en route to greater material and moral progress.

All these are based on our conviction that man can feel accomplished only when he advances his cultural, professional and social evolution.

*José Manuel Augusto Ganga Junior
General Director*





CELESC: energy and citizenship

Centrais Elétricas de Santa Catarina S.A. – Celesc is a mixed capital corporation, which controls service concessionaires for the generation and distribution of electrical power. Currently, its area of activity covers almost 92% of Santa Catarina state, besides providing services to the municipality of Rio Negro in Paraná state with a total of more than six million consumers.

Celesc, which has a consolidated position among the best companies of the Electricity Sector in the country, has the merit of having the quality of its services renowned nationally and internationally.

After being recently structured into a holding company, in compliance with the new regulatory mark of the sector, which requires the organizational restructuring of activities for the concession of public services related to the generation, transmission and distribution of electrical power, the company has controlled since October 2006, equity interest in activities related to its business area and two subsidiaries: Celesc Distribuição S.A. and Celesc Geração S.A.

The energy Celesc generates and distributes reaches the most distant places and changes people's lives. This same energy generates employment, income and social inclusion. Celesc sees social responsibility

as a form of management with ethical values that are present in all the relationships and activities within the corporation.

True to its public services nature and very aware of the social responsibilities corporations have nowadays, Celesc has developed several social projects in different areas within the community. These projects are structured so as to involve employees, suppliers and the community in general.

Projects related to sustainability with impact on the environment are regarded as priority projects following evaluation of their efficiency and effectiveness. One of our policies, customer respect, is translated into a strategy leading to real opportunities for human and social development.

As a participant of the United Nations Global Compact since 2005, Celesc adopts sustainable and socially responsible policies. These policies are clear and defined with the purpose of working with present and future generations, helping to create opportunities within the work environment, respecting ethnic, sexual and cultural diversity, valuing culture as a way of historical preservation and contributing towards material growth.

Celesc respects all its commitments with Global Compact, supporting the Pact of

Business Integrity Against Corruption, the National Pact for the Eradication of Slave Labour and The National Pact Against Sexual Exploitation of Children and Teenagers in Highways. Celesc aims to make a solid contribution towards the construction of good citizenship.

One of the policies adopted by Celesc relates to company/supplier relationships. The commitments are reciprocal, and all contracts include clauses securing participation of the suppliers in our socially responsible projects, respect for all environment laws and safety at work.

At the moment, Celesc is carrying out 16 projects of social inclusion and environmental education. Last year we invested R\$5.648.041,28 in the development of such projects and actions. The projects, "Wired in a New Time", "I am cool, I am connected", "Future Energy" and "Sun Bath" are fine examples.

For 3 consecutive years now, through the Project "Wired in a New Time", Celesc has offered qualifying electrician courses for socially vulnerable young people. It is a project that aims to qualify good professionals for the work market, stimulating personal growth and fighting violence. The course includes subjects such as citizenship, ethics, and environment education,



human relationships at work, and language and communication, in addition to the technical subjects in accordance with the legislation.

The Project "I am cool, I am connected!" allowed Celesc to give, for the first time in its history, 100% of its budget from the Programme of Energetic Efficiency to poor communities. This project promotes a more efficient use of electricity in home installations, the regulation of patterns of energy entry and educative actions, using resources regulated by the National Agency of Electric Energy (ANEEL).

This project also brings financial income to women working as community agents in the 96 communities that are under the project's umbrella, in 37 cities in Santa Catarina state; in addition, the project promotes discussion of energy use through cultural activities that are taken to schools and other public places.

"I am cool, I am connected!" was the winner of a prize from ADVB 2008, in the category Citizen Organization.

"Sun Bath" is a project that invited charities, such as hospitals, orphanages and others, to replace their water heating systems for showers from electrical to solar energy systems. The project is also financed

by the Programme of Energetic Efficiency (ProCeleficiência). It is estimated that this change can save up to 70% of energy use, thus contributing to the charity financial health and helping to preserve the environment.

Another successful project is "Future Energy"; Celesc embraced this and invested R\$ 39.266,50 in a partnership with Jose Alcino Alano, a retired gentleman who invented a Solar Water Heating System manufactured using old plastic bottles. This project promotes awareness of the need for environment preservation, through recycling and energy saving. "Future Energy" was also a winner of the ADVB 2008 prize in the category Citizen Organization.

Celesc supports these projects and actions in order to strengthen its brand name as a promoter of awareness of environment needs, of the need to reduce the waste of electricity power and water; thus saving resources that are already scarce.

The company also aims to lower the indirect costs involved in generating electrical power such as sanctions and indemnities related to damaging the environment and the health of employees and communities living close to power plants. Celesc hopes to achieve the following benefits:

**Financial Benefits -
Cut costs with:**

- Water, energy and other input consumption.
- Recycling and sale of waste material, reducing effluents.
- Reduction of fees and penalties due to polluting the environment.

Furtherance of Revenue, through:

- Increase of the marginal contribution of "Green produce".
- Increase of market share by innovative products and through decreased competition.
- New product lines to new markets.
- Increase of the demand for products that contribute to reduction of pollution.

Strategic Benefits:

- Improving the institutional image.
- Product portfolio renewal.
- Increase in productivity.
- Improvement of work relationships.
- Improvement of creativity for new challenges.
- Improvement of relationships with government, community and environmental entities.
- Secure Access to foreign markets.
- Improved adequacy for environment patterns.



EDP

The energy sector is at the centre of a revolution that will shape the future of society as we know it.

Investments in new renewable energies will play a leading role in this revolution. It is crucial for these to be understood not as a burden but as an opportunity, and more specifically as a lever to promote sustainable economic growth.

However, it is important not to convey the wrong message; to reduce the threat of climate change, increasing the share of renewable sources in electricity generation is only part of the solution. We also have to reduce CO₂ emissions from transport (electric cars today seem to be one of the most promising technologies) and domestic energy consumption needs to become more efficient.

EDP has led the way by creating, in only three years, the 2nd largest renewables company in the world in terms of market capitalisation. It is also currently the largest European company in terms of new hydroelectric developments. In addition and among other projects, EDP has actively participated in introducing electric vehicles into Portugal, supporting the development of "smartgrids" through the Inovgrid project, as well as encouraging consumers to change their habits to make better use of energy.

When the issue is sustainable growth, EDP is at the forefront in efficient and careful management of human and financial resources, in social responsibility and in environmental protection - both in Portugal and across the world. This is why we have remained on the Dow Jones Sustainability Indexes - World and Stoxx. Such a consistent mode of operation also reflects the commitment of all our stakeholders.



Being listed on the Dow Jones Sustainability indexes for the 2nd. consecutive year reflects the quality of our work.



Management of corporate environmental policies, strategic planning, information and performance of the EDP Group organizations.





“Mining is a need and preservation is possible”

The National Diamonds Company of Angola, ENDIAMA E.P is a company of public funds constituted in 1981. It acts with a dual nature, state and entrepreneurial. As a company, the social object of ENDIAMA-E.P is Prospecting, Research, Recognition, Mining and diamond trading. Due to being a state run company, ENDIAMA links its strategy to the Angolan Government policies on the diamond sub-sector, namely the Government’s Strategy for the Development of the Diamondiferous Sub-sector until 2010. As a result, ENDIAMA’s strategic objective is to contribute to the fast, consistent and organized development of the Diamondiferous Sub-sector; in order to increase the national added value in a context of a “cluster” of mineral resources; this aids diversification of the national economy and also contributes to the sustainable development of Angola. The International pattern suggests that the development of societies should consider

not just the economical viability but also the social and environmental dimensions of developing in a sustainable manner. The mining industry has peculiar characteristics that differentiate its activity. By its very nature, mining activity transforms the environment and, when undertaken irresponsibly, can damage considerable areas to the extent that some resources become unusable. We therefore think that it is possible to reconcile the geological and mining activities with the environment in which they develop, by practising in a responsible manner. This is a challenge of enormous complexity that faces many obstacles and interests of various orders like ecosystem biodiversity, cultural, social and economical challenges which, at first sight, appear irreconcilable.

In order to reverse the current framework ENDIAMA-EP and its associates, a team of multidisciplinary experts has devised

actions aimed at changing the present scenario. ENDIAMA-E.P has organized discussion forums on environmental intrinsic issues for the Diamondiferous Sub-sector; arranged visits to mining areas such as the districts of Saurimo, Cuango, N’zagi in order to study the environmental effects of geological and mining operations; and arranged other visits to mining areas to assess means of mitigating the impacts caused by the activity and how impacted areas might be rehabilitated.

“Mining is a need, preservation is possible” was the title of a forum in Saurimo that brought into focus diverse subjects like environmental education as a tool for mitigating environmental impacts; the role of civil society in environmental conservation; the application of environmental legislation; the aquatic environment in areas where exploitation activity takes place; causes and origins of ravines in northeast



Angola; Jatropha - a raw material for obtaining biofuel; the HIV/AIDS epidemic and Sustainable Development; and Mining, Sustainability and Social Responsibility.

ENDIAMA has created institutions that are part of ENDIAMA-E.P or are 100% financed by the group to undertake the mission of improving ways of meeting today's social challenges. "Fundação Brilhante"- Brilliant Foundation was created in 2004 to deal with aspects of social support, culture and promotion of community development programs. Clínica Sagrada Esperança/Holy Hope Clinic is a more representative unit in the health Department of ENDIAMA. Opened in 1991, it has since undergone expansion works in order to offer services that are better and increasingly differentiated. Grupo Desportivo Sagrada Esperança is a football club based in Dundo city and exclusively sponsored by ENDIAMA. ENDIAMA has

a long tradition of financing sport. Some mining companies even have community sports schools for children, but nothing is more visible than the Grupo Desportivo Sagrada Esperança, a trust created in the mid-70s, a few years after Angola became independent. The Green Diamonds, as they are known, won the first Cup in Angola in 1988.

Corporate social responsibility is the continuing commitment by which business behaves ethically and contributes to economic development while improving the quality of life of the workforce and their families as well as that of the local community and society at large. The technology currently available makes possible the monitoring, preservation and rehabilitation of environmental impacts and thus allows mining activity to develop with fewer and more minor risks. Protection of the environment is of major importance in the constant search for cleaner technologies.

Today's challenges along the road to sustainable development in Angola's Diamond Sub-sector demands the development of collective actions aimed at coordination of efforts on the part of companies/business leaders, communities and provincial governments involving a number of tasks designed to protect and conserve the environment with every respect for social responsibility. ENDIAMA's efforts are just a small step towards sustainable development in the quest to ensure that mining, conservation and rehabilitation go hand in hand.



Galp Energia

Galp Energia, a Portuguese based company, is an integrated operator that is present throughout the whole oil and natural gas value chain and is increasingly active in renewable energy sources. Its activities are expanding vigorously worldwide and are predominantly located in Portugal, Spain, Brazil, Angola, Venezuela, Mozambique, Cape Verde, Guinea-Bissau, Swaziland, Gambia and East Timor.

Our vision is to be the reference energy operator in the markets where we compete and our mission is to create value for clients, employees and shareholders operating in the energy markets with ambition, innovation and competitiveness while, at the same time, promoting respect for ethical principles and sustainability.

Galp Energia's strategy is to develop its potential as an integrated multi-energy operator, thereby creating long-term value for its shareholders, subject to environmental, economic and social constraints. To this end, Galp Energia aims to grow its businesses and, through increasing integration of its activities, capitalise on the vast opportunities afforded by its diversified portfolio of assets and projects.

To achieve this goal, Angola plays a major role in both its track record and medium and long-term prospects. Galp Energia participates in five exploration and production projects in Angola side by side with some of the world's most prestigious oil companies. Out of these five offshore projects, block 14 stands out for its current production and growth prospects.

Galp Energia's production activities are currently concentrated on this block, in three producing fields – BBLT, Tômbua-

Lândana and Kuito. Working interest production of 15 kbopd in 2008 came predominantly from the BBLT field, which contributed with 12 kbopd.

Also important are the projects under exploration and development in block 14K-A-IMI and block 32. In 2008, Galp Energia began exploration of Angola LNG II, the first integrated gas project in Angola, where Galp Energia has a stake of 10%. Angola therefore plays a major role for Galp Energia,

As for marketing of oil products, Galp Energia concentrates its activities in Angola within two companies: Petrogal Angola and Sonangal. Petrogal Angola manages participation with other companies and the marketing of lubricants. Sonangal's activity focuses on the distribution and marketing of liquid fuels and lubricants and the operation of service stations. In 2008 Galp Energia sales in Angola reached 210 thousand tonnes of petroleum products.

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The group develops its activity in Investment Management and on the Promotion, Implementation and Project Management of Commercial and Industrial developments.

Our aim is to Create and professionally manage a portfolio of business participating in economic sectors with growth potential in a sustainable manner so we can maximize GEMA's value for all the partners and the community around us.



The Investment portfolio is quite diversified ranging from Petroleum Industry, Construction & Real Estate, Motor vehicle distribution to Food and Beer industry, Fishing and trading sectors.

To make this possible is GEMA's vision to boost and transform new business opportunities in solid, innovative and attractive projects for economical growth. At the same time is our vision to consolidate a differentiated position in the market developing a business model in solid partnerships.

The group corporate values can be described in three simple lines:

- Responsibility, respecting the principles of economic and environmental development;
- Human development, creation and promotion of conditions for success;
- Value creation, promotion of pride and professionalism of all staff and partners.



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International Geographical Union (IGU)/Union Géographique Internationale (UGI)

IYPE and IGU

The International Geographical Union is pleased and proud to be an integral part of the International Year of Planet Earth. We congratulate the International Union of Geological Sciences on its initiative in organizing and bringing IYPE to such a productive and successful conclusion, with special appreciation to Ed de Mulder for his tireless energy and enthusiasm for the project.

The IYPE's aims and ambitions were, and remain entirely congruent with the goals and traditions of the IGU. Because of the historic interest of geographers in human settlements, the IGU is especially pleased that Professor Frauke Kraas of the University of Köln was selected as the leader of the IYPE Megacities Program and the Editor of the IYPE volume *Megacities: Our Global Future*. (Springer: 2010).

Participating in the IYPE has broadened and deepened the IGU's contacts with other international scientific unions in the earth and social sciences. We look forward to continued, productive collaboration with colleagues and organizations with which we have worked to date as we all plan ways to build upon the solid scientific foundations that the IYPE has laid.

Goals and Structure

Following a series of International Geographical Congresses that commenced in 1871, the International Geographical Union (IGU) was formally established in 1922 to:

- promote the study of geographical problems;
- initiate and coordinate geographical research requiring international cooperation;
- promote the discussion and publication of scientific research;
- provide for the participation of geogra-

phers in the work of international organizations;

- facilitate the collection and diffusion of geographical data in and among member countries;
- promote international geographical congresses, regional and topical conferences, and specialized symposia in geography;
- participate in any other appropriate form of international cooperation that advances the study and application of geography; and

- promote international standardization and compatibility of methods, nomenclature, and symbols employed by geographers.

The IGU adheres to the International Council for Science (ICSU) and the International Social Science Council (ISSC), which it recognizes as coordinating bodies for the organization of international science.

For most of its history, the IGU has consisted of three major components:

- a general assembly of delegates appointed by each member country which normally meets in conjunction with an international congress. The general assembly is the highest authority of the union;
- an executive committee, consisting of the IGU's president, nine vice presidents, and the secretary general and treasurer; and
- commissions (and prior to 2002 study groups) that conduct research on salient geographical problems.

The official languages of the IGU are English and French.

The current (2008-2010) members of the IGU Executive Committee are:

- President: Ronald F. Abler, USA
 - First Vice President: Vladimir Kolossov, Russia
 - Secretary General and Treasurer: Wu-ik Yu, South Korea
- Vice Presidents:



- Irasema Alcántara-Ayala, Mexico
- Giuliano Bellezza, Italy
- Ruth Fincher, Australia
- Aharon Kellerman, Israel
- Markku Löytönen, Finland
- Michael Meadows, South Africa
- Dahe Qin, China-Beijing
- Dietrich Soye, Germany

Membership in the IGU is on a national basis, each country being represented by its National Committee for the IGU. As of 31 December 2008, there are 97 member countries. Admission of a country to membership in the IGU constitutes recognition of its scientific status, not its political standing.

The IGU sponsors an International Geographical Congress every four years. Five days are normally devoted to the main congress, including general assembly sessions and exhibits. The main congress is customarily preceded by numerous specialized symposia organized by commissions and task forces, and followed by field excursions of two to seven days duration. Recent congresses were held in Seoul (2000), Glasgow (2004), and Tunis (2008). Future congresses are scheduled for Köln (2012) and Beijing (2016).

Between congresses, regional and topical conferences are scheduled under IGU auspices. Recent conferences were held in Durban (2002), and Brisbane (2006). Future regional conferences are scheduled for Tel Aviv (2010), Santiago (2011), Kyoto (2013), Krakow (2014), and Moscow (2015).

The IGU's scientific work is carried out by its commissions and task forces. Commissions and their chairpersons are appointed by the executive committee and confirmed by the general assembly. Task forces are established by the executive committee to meet specific, limited objectives. Both consist of a Chair, a steering

committee of ten to twelve individuals, and unlimited numbers of members. Commissions have considerable flexibility to develop and pursue their programs as long as they are consistent with IGU objectives. As of December 2008, the IGU had 34 commissions and three task forces:

C08.01. Applied Geography, Chair: Robert Stimson, Australia

C08.02. Arid Lands, Humankind, and Environment, Chair: Mahmoud M. Ashour, Egypt

C08.03. Biogeography and Biodiversity, Chair: Udo Schickhoff, Germany

C08.04. Climatology, Chair: Zbigniew Ustrnul, Poland

C08.05. Coastal Systems, Chair: Edward Anthony, France,

C08.06. Cold Region Environments, Co-chairs: Nancy Doubleday, Canada ; Dario Trombotto, Argentina

C08.07. Cultural Approach in Geography, Chair: Benno Werlen, Germany

C08.08. Dynamics of Economic Spaces, Chair: Michael Taylor, United Kingdom

C08.09. Environment Evolution, Chair: Andrei A. Velichko, Russia

C08.10. Gender and Geography, Chair: Robyn Longhurst, New Zealand

C08.11. Geographical Education, Chair: Lex Chalmers, New Zealand

C08.12. Geographical Information Science, Chair: Brian Lees, Australia

C08.13. Geography of Governance, Chair: Jan Bucek, Slovakia

C08.14. Geography of the Global Information Society, Chair: Mark Wilson, USA

C08.15. Geography of Tourism, Leisure, and Global Change, Chair: Jarkko Saarinen, Finland

C08.16. Geomorphic Challenges for the 21st Century, Chair: Anthony Parsons, United Kingdom

C08.17. Global Change and Human Mobility, Chair: Armando Montanari, Italy

C08.18. Hazard and Risk, Chair: Shigeko Haruyama, Japan

C08.19. Health and Environment, Chair:

Wuyi Wang, China-Beijing

C08.20. History of Geography, Chair: Jacobo García-Álvarez, Spain

C08.21. Indigenous Peoples' Knowledges and Rights, Chair: Jay T. Johnson, USA

C08.22. Islands, Chair: Chang-Yi David Chang, China-Taipei

C08.23. Karst, Chair: Elena Trofimova, Russia

C08.24. Land Degradation and Desertification, Chair: Gudrun Gisladottir, Iceland

C08.25. Land Use and Land Cover Change, Chair: Ivan Bicik, Czech Republic

C08.26. Local Development, Chair: Michael Sofer, Israel

C08.27. Marginalization, Globalization, and Regional and Local Responses, Chair: Etienne Nel, South Africa

C08.28. Modeling Geographical Systems, Chair: Yee Leung, Hong Kong

C08.29. Mountain Response to Global Change, Chair: Joerg Loeffler, Germany

C08.30. Political Geography, Chair: Anton Gosar, Slovenia

C08.31. Population Geography, Chair: Alan Findlay, UK

C08.32. Sustainability of Rural Systems, Co-chairs: Lucette Laurens, France ; Ana Maria Bicalho, Brazil

C08.33. Urban Commission: Emerging Urban Transformations, Chair: Christian Matthiessen, Denmark

C08.34. Water Sustainability, Chair: J.A.A. Jones, UK

T08.01. Geoparks, Chair: Dongying Wei, China-Beijing

T08.02. Megacities, Chair: Frauke Kraas, Germany

T08.03. Olympiad, Co-chairs: Joop van der Schee and Henk Ankoné, Netherlands

Ronald F. Abler, President





INQUA International Union for Quaternary Research

INQUA is the most prominent international scientific organization with a specific focus on the most recent period of Earth history (the Quaternary) and on the interplay between humans and the contemporary Earth system. It was founded in 1928 as the International Association for the Study of the European Quaternary and expanded in 1932 to cover the world.

Vision and mission

The primary objectives of INQUA are two-fold, first to encourage the interdisciplinary study of all aspects of the Quaternary Period (the last 2.6 million years) and, second, to facilitate and coordinate international cooperation for this study through the organization of international congresses and the research activities of its commissions. The Quaternary is a unique period in Earth history. The genus *Homo* appeared at the beginning of the Quaternary, and human evolution was driven by frequent large changes in global climate that led to a succession of glacial and interglacial ages with environmental conditions very different from those of

today. These climatic fluctuations led to major global reorganization of terrestrial geography, ocean circulation, and biotic communities. To gain a full understanding of these complex changes, scientists from many different fields of enquiry collaborate in research on the recent evolution of the surface of our planet and on how climate and physical and biotic environments have fluctuated on short time scales. Quaternary scientists are able to reconstruct environmental change at decadal and even annual resolution, which is generally not possible for older geological periods. They also study modern glaciers and permafrost to understand past glaciations, climate change, and the important feedback role of snow and ice cover in the global climate system. Quaternary studies are an important and integral component of international and national global change programs, for they provide the baseline needed to understand how natural environments have changed through time and how human activity has affected them. By the nature of their research, Quaternary scientists, represented by INQUA, are making important contributions to fore-

casting the likely impacts and consequences of human activity on Earth's future environment. It is noteworthy that INQUA has expertise in nine of the ten broad themes of the IUGS/UNESCO project International Year of Planet Earth (IYPE): groundwater; hazards, earth and health, climate, resources, megacities, ocean, soil, and earth and life. INQUA recently became a Founding Partner of IYPE in order to contribute fully to this important initiative. A measure of INQUA's stature is that its officers and members are senior editors of many international scientific journals that address these themes, including all of the leading Quaternary journals (Quaternary Science Reviews, Journal of Quaternary Science, Quaternary Research, Boreas, Géographie physique et Quaternaire, The Holocene, and Quaternary International), as well as many journals that do not have a Quaternary focus.

Knowledge generation

The aim of INQUA is to foster integrated, interdisciplinary research on the Quaternary Period by bringing together



scientists working in archaeology, anthropology, paleobiology, soil science, ecology, geology, geochemistry, geophysics, geochronology, geography, glaciology, climatology, oceanography, and social science. An important focus of INQUA is research on applied issues such as hazardous geophysical processes, climate and environmental change, and impacts of that change on humans. Quaternary scientists document the climate variability of the recent past and establish the boundary climate conditions relevant to humans. Based on their knowledge of the past, Quaternary scientists establish scenarios of future change through numerical and analog modeling. INQUA represents a global network of at least 5000 scientists in over 50 countries. INQUA nurtures and promotes cooperation of scientists and research institutions worldwide through its commissions, meetings, and publications.

The Union's scientific activities are performed by five thematic commissions, each of which is organized into sub-commissions and working groups. The five commissions are: Coastal and Marine Processes, Palaeoclimate, Humans and Bio-

sphere, Stratigraphy and Chronology, and Terrestrial Processes. The scientific activities of the commissions are supported by grants from INQUA and other organizations, including ICSU. The grants support research projects, meetings, and other activities involving scientists and students from around the world. Further information on the activities of each commission is available via links to the INQUA homepage (<http://www.inqua.tcd.ie/>). INQUA international congresses are convened every four years and bring together 1000-2000 scientists and students. The quadrennial congresses provide venues for commissions and other groups to report progress during inter-congress periods, and for Quaternary scientists and students to share their latest information and ideas. The congress sessions, like INQUA itself, are integrated and interdisciplinary. An important activity of INQUA is the dissemination of scientific knowledge. Results of research by INQUA scientists and scientists of allied organizations are published in a wide variety of peer-reviewed international journals, some specifically devoted to the Quaternary Period. INQUA also publishes its own journal, Quaternary

International. The journal, which began publication in 1989, reaches a diverse international audience. INQUA's newsletter, Quaternary Perspectives, is published by Elsevier twice a year

Capacity development

INQUA actively assists scientists and students, especially in developing countries, to strengthen their research capacity. INQUA provides grants to scientists and students to allow them to participate in research projects, workshops, and conferences. Funds are also provided to deserving young scientists and students to allow them to attend quadrennial INQUA congresses.



International Union of Geodesy and Geophysics (IUGG)

International Cooperation in Studies of the Planet Earth and its Environment

Our Earth both benefits and destroys life on this planet. Our very existence depends on the bounties of the Earth, oceans, and atmosphere, yet often these elements turn against us. Each year natural hazards affect our communities in ways that range from inconvenience through to mass destruction. Studies of the Earth and its environment in space help scientists to anticipate and warn of natural disasters and help keep people out of harm's way. Studies that reveal the secrets of the Earth's natural resources can improve the quality of life for our growing populations and scientific understanding of the Earth's processes can help us reduce our own destructive impact on the environment and help promote sustainable management of its resources. These natural processes know no political boundaries and therefore require organized international cooperation.

As part of its portfolio of activities, the International Union of Geodesy and Geophysics (IUGG) studies some of the most pressing problems facing the world today:

climate variability, water resources, and natural hazards. IUGG is a non-governmental, scientific organization dedicated to advancing, promoting, and communicating knowledge of the Earth system, its space environment, and the dynamical processes causing change. Established in 1919, IUGG is one of the oldest and largest scientific Unions presently grouped within the International Council for Science and is dedicated to the promotion and coordination of scientific studies of the Earth (physical, chemical, and mathematical) and its environment in space. These studies include the shape of the Earth, its gravitational and magnetic fields, the dynamics of the Earth as a whole and of its component parts, the Earth's shape, surface, internal structure, composition and tectonics, the generation of magmas, volcanism and rock formation, the hydrological cycle including snow and ice, all aspects of the oceans, the atmosphere, cryosphere, ionosphere, magnetosphere and solar-terrestrial relations, and analogous problems associated with the Moon and other planets.

IUGG is composed of eight semi-autonomous Associations, each responsible for a specific range of topics or themes within the overall scope of Union activities: cryospheric sciences (IACS), geodesy (IAG), geomagnetism and aeronomy

(IAGA), hydrological sciences (IAHS), meteorology and atmospheric sciences (IAMAS), the physical sciences of the ocean (IAPSO), seismology and physics (IASPEI), and volcanology and chemistry (IAVCEI) of the Earth's interior. In addition, IUGG establishes inter-Association Commissions and relationships with other scientific bodies with similar interests. Through its constituent Associations, Commissions, and services, IUGG convenes international assemblies and workshops, undertakes research, assembles observations, disseminates standards, gains insights, coordinates activities, liaises with other scientific bodies, plays an advocacy role, contributes to education, and works to expand capabilities and participation worldwide.

IUGG has initiated and vigorously supported collaborative efforts that have led to highly productive world-wide interdisciplinary research programs, such as the International Geophysical Year (1957-58), the Upper Mantle Project (1964-70), the International Hydrological Decade (1965-74), the Geodynamics Project (1972-79), the Global Atmospheric Research Programme (1967-80), World Climate Research Programme (1980-present), International Lithosphere Program (1981-present), Global Geodetic Observing System (2003-present) and others.



*Studies of ice cores help to improve our understanding of climate dynamics and change
(courtesy of Georg Kaiser)*

These programs have set a model for international, interdisciplinary cooperation. The numerous scientific accomplishments of these international programs include the discovery of the Van Allen radiation belts encircling the Earth, the first estimates of the size of Antarctica's ice mass, confirmation of the theory of continental drift, understanding of seafloor spreading, and the development of the new theory of plate tectonics. Even in tense political and economic times (most of the programs were initiated and conducted during the Cold War), scientists from around the world worked together for the betterment of humankind. Representing all geophysical disciplines, IUGG has been, and continues to be, involved in projects and programs related to climate change, global warming, and related environmental impacts. IUGG scientists working under the umbrella of the Inter-governmental Panel on Climate Change (IPCC) made us all proud when IPCC shared the 2007 Nobel Peace Prize.

IUGG enthusiastically supported the initiative of IUGS to establish a Year of Planet Earth as a means of bringing together the whole community of geo-scientists and sharing their knowledge with the community - and as a means of commemorating the outstandingly successful fiftieth anniversary of the International Geophysical

Year. Several international programs have been associated with the IGY fiftieth anniversary: the International Polar Year (IPY, 2007-2008), International Year of Planet Earth (IYPE, 2007-2009), the International Heliophysical Year (IHY, 2007-2008), and the Electronic Geophysical Year (eGY, 2007-2008). IPY, co-sponsored by ICSU and the World Meteorological Organization, brought together many nations to investigate Arctic and Antarctic regions and covered two full annual cycles at both poles. IPY sponsored 170 projects involving 60 countries resulting in an overall project budget of about one billion EUR. The IUGG programs, eGY and IHY, were more specific: IHY focused on studies of fundamental heliophysical processes, whereas eGY fostered international cooperation in data stewardship.

IYPE produced an excellent international outreach program ensuring greater and more effective use by society of the knowledge accumulated by the world's Earth scientists. IUGG contributed to the development of the IYPE Natural Hazards Program, the results of which will be published in a Springer book "Natural Hazards: Minimizing Risk and Maximizing Awareness".

Data, information, and the knowledge

gained from them are made openly available for the benefit of society – to provide the information necessary for the discovery and responsible use of natural resources, sustainable management of the environment, reducing the impact of natural hazards, and to satisfy our curiosity about the Earth's natural environment and the consequences of human activities. IUGG helps to create and popularize new ways of thinking about "Planet Earth" as a dynamic and interconnected system.

Alik Ismail-Zadeh (Karlsruhe Institute of Technology, Germany / Russian Academy of Sciences, Moscow / Institut de Physique du Globe de Paris, France), IUGG Secretary General, Member of the IYPE Board of Directors.

Tom Beer (Commonwealth Scientific and Industrial Research Organization, Aspendale, Australia), IUGG President, Chair of the IYPE Hazards Theme.



The International Union of Geological Sciences

The International Union of Geological Sciences (IUGS), one of the largest scientific organizations in the world, encourages international cooperation and participation in the Earth sciences and fosters communication among the world's Earth scientists. It achieves its goals by organizing international projects and meetings, sponsoring symposia and scientific field trips, and producing publications. Topics addressed range from fundamental research to its economic and industrial applications, from scientific, environmental and social issues to educational and developmental problems. With approximately 120 member countries and almost 50 affiliated organizations, IUGS represents some one million Earth scientists worldwide. IUGS is a non-political, non-governmental and non-profit organization and has been a member of the International Council for Science (ICSU) since its inception. As world population continues to grow and the impact of human activities on the Earth surface increases, it is the responsibility of the Union to make society conscious of the importance of the geosciences to help improve the quality of human life.

IUGS works through its Commissions, Subcommissions, Task Groups, Initiatives and Joint Programmes with the support of its international affiliated organizations. At present the Union supports the following Commissions and Task Groups:

- Geoscience Education, Training and Technology Transfer (COGE)
- Geoscience for Environmental Management (GEM)
- Management and Application of Geoscience Information (CGI)
- International Commission on Stratigraphy (ICS)
- History of Geological Sciences (INHIGEO)
- Isotopes and Geochronology (TGIG)
- Global Geochemical Baselines (GGB)
- Tectonics and Structural Geology (TECTASK)



The Union sponsors the International Geological Congress held every four years. It advises and assists the congress organizers in developing the scientific programme. The next meeting will be in August 2012 in Brisbane, Australia, followed by Cape Town, South Africa (2016).

The International Geoscience Programme (IGCP) has been the most successful Earth science programme ever conducted in UNESCO, and IUGS has been a full partner since its inception. Tens of thousands of Earth scientists from nearly every nation on Earth have been involved in IGCP since its launch in 1972. It is a global programme of scientific collaboration be-

tween working scientists with a focus on socially and culturally relevant themes. About 40 IGCP projects are active in any single year and since its inception over 500 projects have been financially supported by IUGS and UNESCO. IUGS-UNESCO cooperation extends to the Geological Applications of Remote Sensing (GARS) Programme which is of relevance to the welfare of the Earth's population with respect to geohazards, and to the Global Geoparks Network (GGN), of significance to geological heritage, sustainable development and public education.

IUGS also develops and maintains geological standards, especially for geologic time



which is the framework for deciphering our planet's complex and exciting history. IUGS publishes a quarterly science and news journal called Episodes, with the assistance of the Geological Society of India, which covers developments of regional and global importance in the Earth sciences and is distributed in more than 150 countries. All back issues from 1978 to the present are available for download at www.episodes.org. IUGS also has an agreement with the Geological Society of London, under which the results of scientific work completed by commissions and groups of IUGS are published by the GSL Special Publication series. See www.geol-soc.org.uk.

IUGS releases regular E-Bulletins to about 12,000 e-mail addresses worldwide. These short and informal "news bites" briefly convey the activities and accomplishments within the Union and its family of members and countries; they are meant to keep Earth and other scientists and people abreast of changes and events in the IUGS community at large.

Given the large scope and mandate of IUGS, it is no surprise that the International Year of Planet Earth (IYPE) was first developed within the IUGS. It provides a key opportunity to communicate to the citizens of the world the importance of Earth sciences for the well-being of society.

The international events of IYPE have addressed the political dimension by drawing attention to geo-solutions to societal problems. The IUGS is now an active supporter of initiatives that originated under the IYPE, such as OneGeology which, with the support of geological surveys around the globe, is developing a 1:1 M digital geological map of the world, as well as the Young Earth Scientists (YES) Network.

For further information on IUGS consult the web site www.iugs.org or send an e-mail to any of the current IUGS Executive Committee members listed on the web-site.

Mammoths - drawing by Kamil Niewiadomski, 10-years old winner of "Our Earth – the Natural Environment Yesterday, Today and Tomorrow Contest" (2007)



The Polish Geological Institute - National Research Institute (PGI)

Founded in May 1919, barely half a year after re-established of the Polish State by the Treaty of Versailles, the PGI is the largest and one of the oldest nation-wide scientific institutions.

The PGI undertakes comprehensive studies of the geological structure of the country for practical applications in the national economy and environmental protection. In addition to scientific activities in all aspects of modern geology, the Institute has been entrusted with responsibility for the Polish Geological Survey and the Polish Hydrogeological Survey organizations. It is also responsible for the country's security in mineral resources and groundwater management, monitoring of the geological environment and alerting the community to natural hazards and risks.

In February 2009, the Council of Ministers of the Republic of Poland bestowed the status of National Research Institute on the Polish Geological Institute in recognition of its achievements and contribution to developments in science and the national economy. PGI status carries with it tasks of special importance for develop-

ment and implementation of domestic policy. PGI operates under the general supervision of the Ministry of the Environment of the Republic of Poland.

The Warsaw headquarters and five regional units (Gdansk, Kielce, Kraków, Sosnowiec, Szczecin, and Wrocław) employ over 700 people, most of the staff being professional geologists, including 12 professors, 27 assistant professors, and 116 PhDs.

Studies by the Polish Geological Institute studies have revealed outstanding mineral deposits such as copper, silver, sulphur, hard coal, brown coal, rock salt, potassium salt, iron, titanium, vanadium, zinc and lead ores, and gas and oil deposits.

The Geological Institute is the major source of geological maps (both survey and thematic), including those showing paleogeographical, hydrogeological, geochemical and mineral resource information. Of fundamental importance for the Polish geology is the recently completed series of the Geological Map of Poland at a scale of 1:50,000. This served as the basis

of other important map series, including the Hydrogeological and Geoenvironmental maps of Poland at the same scale. In addition to these three large maps providing national coverage, about a thousand maps and atlases have been produced, placing Poland among one of the most completely mapped countries in the world with regard to the natural environment.

The Geological Institute, on behalf of the State Treasury of Poland, collects and stores geological data from all over the country. Digital databases, archives and core stores contain millions of information items, maps, descriptions of well profiles, and aerial and satellite images. After being processed these data are made available to the public by way of Web geo-portals, thus aiding growth of the information society.

The Geological Institute's accredited geochemical laboratory is one of the largest of its kind in Poland. It has modern analytical equipment and produces hundreds of thousands of analytical results each year, both for the Institute and customers. The PGI cooperates with geological in-

The Kielniki Quarry Trail in the Cracow-Czestochowa Jura Chain, the first geological educational trail opened in Poland in year 2008



stitutions in 30 countries, participates in European Union Framework Programmes and is involved in many other international scientific programmes. It is a member of EuroGeoSurveys, an organization of European geological surveys. The Centre of Excellence on Research on Abiotic Environment (REA) at PGI integrates its activity with the European Research Area.

The most important challenges faced by the Institute now and in the near future are mainly those related to domestic energy security, including supporting the search for deposits of classic fossil fuels, work on energy supply from alternative sources such as geothermy and HDR, studies on safe geological storage of CO₂ and hydrocarbons and geological analysis of sites for nuclear power plants and radioactive waste disposal. Issues important from the point of view of the living conditions of individual communities include identification and mitigation of geohazards and geochemical pollution, revitalization of post-industrial areas and protection of soils. Efforts will be made to implement the ideas of the Aarhus Convention, which involves opening archives to provide ac-

cess to environmental data by the whole community.

Institute increasing attention is being paid by the Institute to sustainable development and protection of the abiotic environment, treated in accordance with the spirit of the International Year of Planet Earth, as our common heritage that joins together all citizens of planet Earth. A good example of this is the beginning of work on the geological documentation and design of six geoparks, including three that cross national borders (two Polish-German and one Polish-Lithuanian). One of these geoparks - "Muzakow Arc" Geopark - is already open and some of the others are in progress or at an advanced planning stage.

Geotouristic educational trails are smaller but, nevertheless, very important initiatives. Nine such trails have been completed and the first, Kielniki Quarry Trail in the Cracow-Czestochowa Jura region, was established last year. It should be emphasized that the Kielniki Quarry Trail was organized by the Institute in close cooperation with self-government and may be

treated as a model example of cooperation between scientists and local community leaders.

Our activities in the field of ecological education also include preparation of geotourism maps, especially those for individual national parks, guidebooks of the road geology type (as for example the recently published "Sudetes - geotourist guidebook along the road Nysa-Zloty Stok-Klodzko-Jelenia Góra Geotouristic Guidebook") and numerous popular science publications. The Geological Museum of the Polish Geological Institute contributes, especially by organizing geological and environment knowledge contests for children and young people. It is worth noting that this year's competition, held for the 10th year in succession, attracted over ten thousand participants including children and young people from Lithuania.



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One of our missions is taking the energy wherever it's necessary. Always concerned with social and environmental issues and having high quality and safety standards. That's why REN ensures an effective transport channel of all the country's energy, whether it is very high voltage or high-pressure, considering the high-standard market demands. Because we envisage the future, we're allocating all our energy - electricity or gas - where it's needed. Throughout the country.



Redes de confiança



ZON Multimédia Group

ZON Multimedia is a Portuguese Group with over 1.6 million customers, reaching more than 3 million homes and over 5 million people. ZON provides telecommunications and entertainment services, over a state-of-the-art hybrid network of coaxial cable and optic fibre, digital satellite platform and over 200 cinema screens.

ZON stands for different innovative and integrated business areas and through its subsidiaries ZON TV Cabo, ZON Lusomundo Cinemas, ZON Lusomundo Audiovisuais and ZON Conteúdos it provides customers with the widest and most attractive range of entertainment options.

ZON TV Cabo is the Portuguese Pay TV market leader and the largest triple play operator (Pay TV, Broadband Internet and Fixed Voice) with 33% of its customer base subscribing to all three services. The launch of the new ZON Box, in May 2008, was a significant milestone, changing the way Television is watched. Providing over 100 channels on its Pay TV offer, ZON is also leader in HD content, widening the range of its digital offer, with 11 High Definition channels so far.

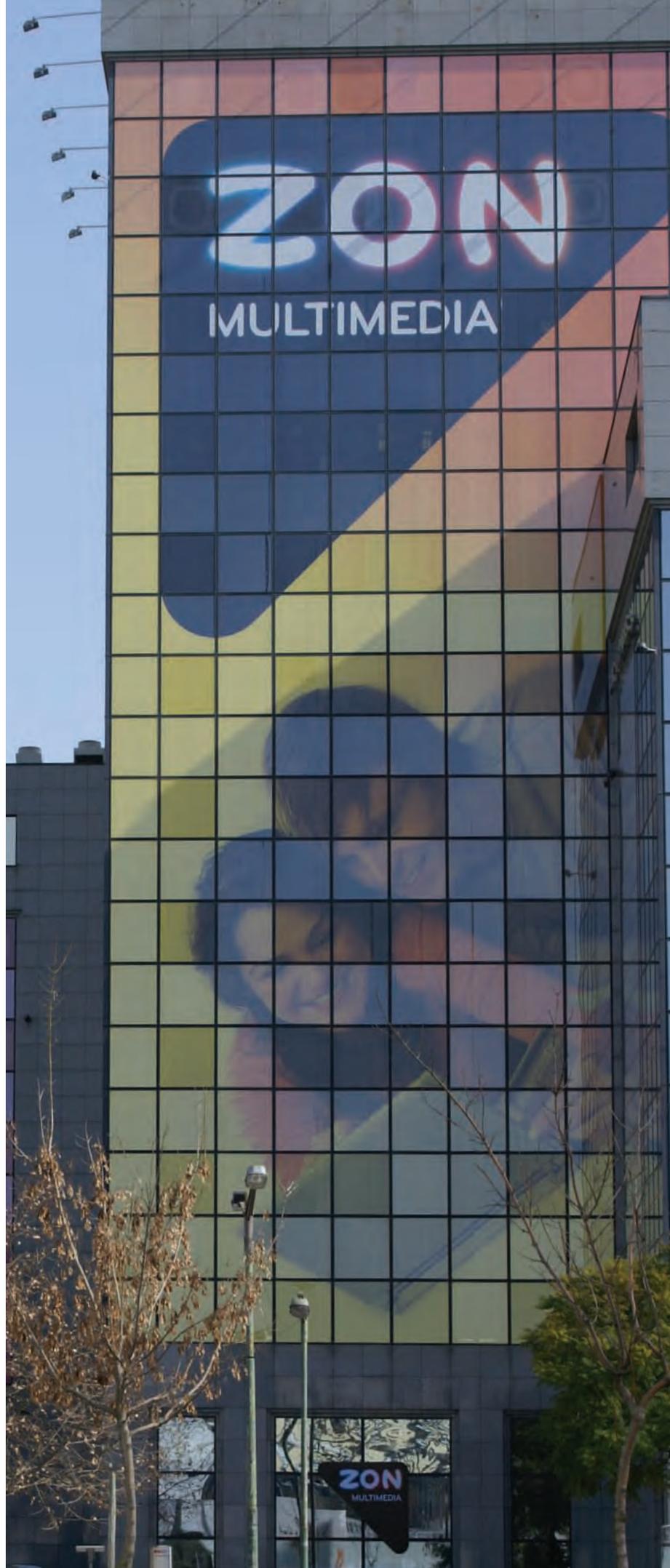
With over 500 thousand Broadband Internet customers, ZON Netcabo is the technological leader in Portugal. In 2007, ZON launched the Fixed Voice service, which now also has over 500 thousand customers. With the launch of the Mobile service (MVNO – Mobile Virtual Network Operator), in 4Q08, ZON's Triple Play Service became a Quadruple Play offer.

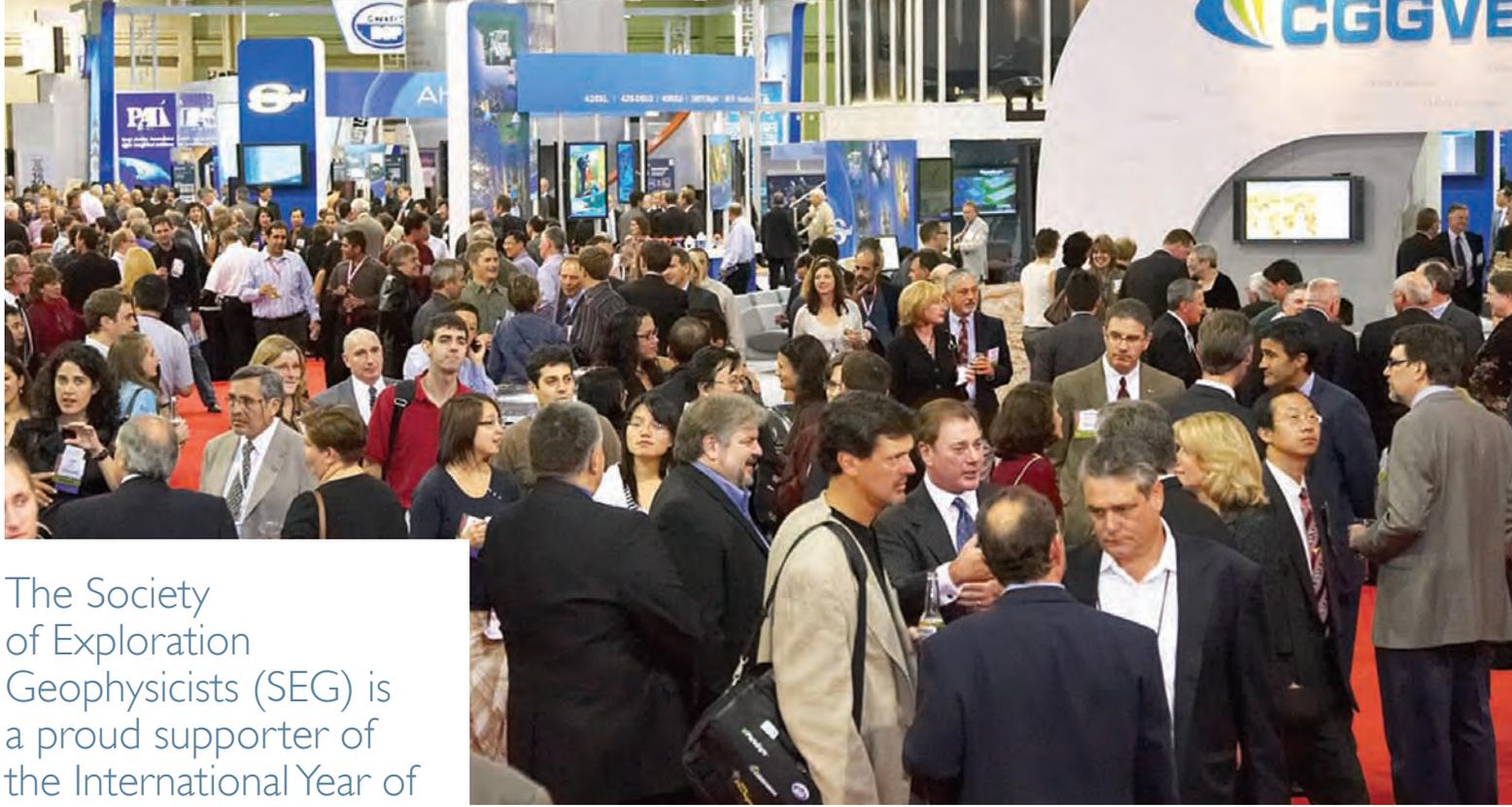
ZON recently launched the ZON Fibra brand, offering Next Generation Internet Services with speeds of 100Mb, 200Mb and 1Gb (the fastest offer ever by any European provider). ZON Fibra bundles gather the best TV, Internet and Fixed Voice services in the Portuguese market, including high speed and unlimited traffic Broadband Internet, Fixed Voice with unlimited domestic and international calls, Video club and free Mobile Broadband.

ZON Lusomundo Cinemas is responsible for the management of more than 200 cinema theatres in 32 complexes. As the market leader in this segment, ZON pioneered the introduction of digital 3D platforms in movie theatres. With 200 premieres and 349,380 showings in 2008, ZON Lusomundo is taking on a very important role in a group that is increasingly entertainment oriented. ZON Lusomundo Audiovisuais is also a reference in its domestic market. As the leader in the supply of content, it ensures the exclusive distribution of several box office hits. Its growth is supported by partnerships with the most prestigious brands of film distribution, publishing and video distribution.

ZON Conteúdos is in charge of content wholesale, ensuring its negotiation, acquisition, aggregation and resale. It is also responsible for investments in production of TV channels in Portuguese and Premium content distribution.

ZON continues to innovate, seeking to provide its customers with a global high quality entertainment, cultural and communication experience.





The Society of Exploration Geophysicists (SEG) is a proud supporter of the International Year of Planet Earth (IYPE)

A half a century ago SEG supported the successful International Geophysical Year, which coordinated the efforts of geoscientists from 67 countries to observe a broad range of geophysical phenomena. SEG's participation contributed significantly to that first initiative through efforts to seismically record underground nuclear explosions and create a gravity map of the world. Our role in the International Year of Planet Earth is equally important, especially with today's growing concerns about the environment and global warming.

SEG is helping expand the IYPE's audience and celebrate its success by inviting IYPE Goodwill Ambassador Werner Janoschek and IYPE Representative for Europe Wolfgang Eder to participate in the 2009 SEG Annual Meeting in Houston. IYPE will exhibit in the International Showcase, present the program's activities at the Global Theatre and make targeted presentations at Global Affairs Committee luncheons.

A not-for-profit organization, SEG promotes the science of applied geophysics and the education of geophysicists. SEG fosters the expert and ethical practice of geophysics in the exploration and development of natural resources, in characterizing the near surface, and in mitigating earth hazards. The Society, which has more than 35 000 members in 138 countries, fulfills its mission through its publications,

conferences, forums, Web sites, and educational opportunities.

SEG was founded in 1930 by 30 men and women who felt that the use of geophysical technology for petroleum exploration had matured to the point that a professional society was needed to facilitate the transfer of technical knowledge.

SEG has always held an annual meeting but, until 1955, only in conjunction with the AAPG convention. SEG began sponsoring an independent annual meeting in that year, and it quickly became the world's premier showcase for state-of-the-art geophysical instrumentation.

SEG memberships include several types to fit different needs. Members get full access to the SEG Digital Library, which includes Geophysics, The Leading Edge, SEG Technical Program Expanded Abstracts, and Robert E. Sheriff's Encyclopedic Dictionary of Applied Geophysics, fourth edition. All members also receive the SEG Yearbook on a CD that includes the previous year's articles from Geophysics and TLE. Most members receive TLE in print, and Geophysics is available in print to members at a modest subscription rate.

In addition, members get lower pricing for reference publications at the SEG Book Mart, Annual Meeting registration, and

professional development. SEG Online offers members a suite of services including an online messaging and collaboration tool, a career center, and group health and life insurance in cooperation with its partner society American Association of Petroleum Geologists (AAPG).

SEG has hosted meetings, conferences, workshops, forums, and expositions for the geosciences community for more than 78 years. These international events have taken place in numerous locations on six continents. In addition to serving its global membership, SEG works with other organizations, associated societies, and businesses around the world to create the most comprehensive listing of meetings possible. These SEG international events bring together a global society in ventures of education, research, collaboration, and networking.

SEG's Annual Meeting and International Exposition, held in cities including Houston, New Orleans, Las Vegas, and San Antonio, is the world's largest gathering of exploration geophysics related activities. Six days of Annual Meeting events deliver professional geoscientists' technical paper presentations, poster presentations, an exposition showcasing the latest in geoscience-related products and services, workshops, continuing education courses, tours, networking events, career services, and



student events. It regularly brings together more than 8,000 exploration industry professionals from around the globe. In 1958, the Society of Exploration Geophysicists (SEG) formed a trust to provide scholarships for students of geophysics. Thirty years later, in response to the needs of a growing industry, that trust was transformed into the SEG Foundation.

Today, the SEG Foundation supports cutting-edge programs that benefit SEG members, the corporations for which they work and the communities in which they live. Many of the high priority programs funded by the SEG Foundation help SEG members remain up-to-date with the latest career enhancing skills. Example programs include the Distinguished Instructor Short Course (DISC), the Honorary Lecturer program, SEG Forums, and the newly launched SEG Online.

Other programs bring together the leaders of tomorrow with the leaders of today, inspiring the next generation to pursue excellence in applied geophysics. Since 1956, the SEG Foundation scholarship program has been an acknowledged symbol of excellence for geoscience students around the world. Four thousand scholarships representing almost \$5 million have been awarded to 1,900 individuals in the past 50 years.

SEG's publications program helps the Society fulfill its mission of promoting the science of geophysics and the professional development of geoscientists by disseminating information about geophysical research and applications through a variety of channels.

SEG's online offerings include implementations of Geophysics and TLE; the Encyclopedic Dictionary of Applied Geophysics, fourth edition; SEG Technical Program Expanded Abstracts; the multi-society Digital Cumulative Index; SEG Technical Standards; SEG news; the SEG Extra e-mail newsletter; and the SEG Yearbook.

SEG Professional Development consists of four programs:

- SEG/EAGE Distinguished Instructor Short Course
- Continuing Education short courses
- Distinguished Lecturer
- Honorary Lecturer

The SEG/EAGE Distinguished Instructor Short Course (DISC) is SEG's primary professional development program. It is presented in partnership with the European Association of Geoscientists and Engineers (EAGE). The DISC is a one-day course taught by a prominent geophysicist on a current topic of interest to a broad audience of geoscientists. The DISC visits over 25 sites around the world each year.

The backbone of the SEG Professional Development program is Continuing Education (CE). These short courses, taught by industry experts, cover topics from the fundamental to the leading edge of geophysics.

The Distinguished Lecturer (DL) program is offered twice per year and is recorded and posted to the Distinguished Lecturers Presentation Library for free viewing by members and the public.

The Fall DL is sponsored jointly with the American Association of Petroleum Geologists (AAPG). SEG and AAPG administer the program in alternate years.

SEG also offers the Honorary Lecturer (HL) program. The HL program is a companion program to the DL with a focus on transfer of knowledge within a region. The regional focus strengthens services SEG provides to an expanding global membership. Lectures may be given in English or a language appropriate to the region.

The regions are Central and South America, Europe, Middle East and Africa, North America, the South Pacific, and South and East Asia.



SOMOIL, Sociedade Petrolifera Angolana

SOMOIL, Sociedade Petrolifera Angolana, SA, is a private company constituted in the year 2000 with capital integrally retained by Angolan citizens. The company vocation is to serve the oil national and international markets developing the following activities:

- Research, development and production
- Marketing of crude oil and commercialization
- Advisory services in petroleum activity
- Alternative energy (solar and wind).

Somoi's mission is to participate directly or indirectly in the activities of research, development and production of crude oil, placing its share of crude oil on the international market in the best possible conditions, and to provide a service of quality and reference on the distribution of fuel and lubricants to the national market. Somoi's values are the observance of an ethical and excellence approach in the ex-

ecution of its activities; strict respect for the law; protecting the environment; concern for the welfare and professional development of its employees and collaborators and proactive participation in solving social problems.

To respond proactively to environmental challenges at national and global levels, Somoi created the office of QSHE-quality, safety, health and environment that, among other important programs, develops the one on environmental protection.

At the level of proactive participation, Somoi contributes to the wellbeing of community/society, developing infrastructure projects in the areas of electric power, clean water, schools and health centres, as well as supporting the development of cultural and sporting activities.

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Springer Publishers

Springer, a key partner of the International Year of Planet Earth (IYPE), publishes the official book series as a legacy to the Year. The new book series enhances Springer's growing Earth Sciences publishing program, which consists of journals, textbooks, monographs, reference works, handbooks and encyclopedias. (www.springer.com).

The scientific book series focuses on the main themes of the International Year of Planet Earth, including climate change, Earth and life, resource issues, hazards, megacities and oceans. Approximately eight books are planned for 2009/10. The books present contemporary and innovative research authored by some of the world's top scientists.

Springer is the second-largest publisher of journals in the science, technology, and medicine (STM) sector and the largest publisher of STM books. The Company publishes over 1,700 journals and more than 5,500 new books a year, as well as the largest STM eBook Collection worldwide.

www.springer.com

IYPE Titles in the series:

Geophysical Hazards

Beer, Tom (Ed.)
2009, Approx. 390 p. 121 illus., 75 in color,
Hardcover
ISBN: 978-90-481-3235-5
approx. 99,95 Euros

This volume brings together some of the most influential international scientists dealing with Natural Hazards and society's response to natural hazards. It recognizes that hazards, like poverty, will always be with us but that concerted and organized societal response can prevent a hazard becoming a disaster.

New Frontiers in Integrated Solid Earth Sciences

Cloetingh, S.; Negendank, Jorg (Eds.)
2009, Approx. 625 p. 189 illus., 146 in color,
Hardcover
ISBN: 978-90-481-2736-8
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Examines ways of better understanding mass transfer at Earth's surface, and its feedback with deep Earth recycling and discusses how our improved understanding of Earth processes can lead to better prediction.

Sustaining Groundwater Resources A Critical Element in the Global Water Crisis

Jones, J. Anthony A. (Ed.)
2010, Approx. 260 p. 85 illus., 10 in color,
Hardcover
ISBN: 978-90-481-3425-0
approx. 99,95 Euros

This volume looks at the technical, socio-economic and political problems being faced, and at the developments in groundwater science and management that may help create a sustainable future for our planet

Megacities

Our Global Urban Future

Kraas, Frauke (Ed.)
2010, X, 250 p., Hardcover
ISBN: 978-90-481-3416-8
approx. 99,95 Euros

The book identifies and promotes examples of balanced and safe urban management, through contrasting megacities worldwide and research on how megacities can become more competitive, creative and attractive human environments, as well as safer places for people to live.

Medical Geology A Regional Synthesis

Selinus, Olle; Finkelman, Robert B.; Centeno, Jose A. (Eds.)
2010, Approx. 365 p. 40 illus., Hardcover
ISBN: 978-90-481-3429-8
approx. 99,95 Euros

The book gives a detailed global overview of the effects of our natural environment on our health and covers all aspects on a regional-global scale.

Extinction Intervals and Biogeographic Perturbations Through Time Earth and Life

Talent, John A. (Ed.)
2010, Approx. 410 p., Hardcover
ISBN: 978-90-481-3427-4
approx. 99,95 Euros

This volume focuses on the broad pattern of increasing biodiversity through time, and recurrent events of minor and major ecosystem reorganization. Intense scrutiny is devoted to the pattern of physical (including isotopic), sedimentary and biotic circumstances through the time intervals during which life crises occurred.



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TAAG



TAAG Angola Airlines

TAAG Angola Airlines (Linhas Aéreas de Angola) is the national flag carrier of Angola. Based in Luanda, the airline has a large domestic network and flights to other parts of Africa, South America, Asia and Europe.

TAAG has been one of the few profitable sub-Saharan African carriers and one of the few to recently purchase newly built aircraft as opposed to second-hand aircraft.

It is 100% state owned by the Angolan government and has the objective to meet the needs of its airlines customers worldwide, as well as their expectations for safety, quality, reliability, economy and accuracy in all services and activities of the Company.

We intend to maintain our leadership position through continuous monitoring of the business environment in order to identify and define new standards, attract and retain customers in our market. We learn from our mistakes and we will raise our standards levelling it to a more demanding market, with the aim to increase our market share.

The Company intends to project a friendly, welcoming and professional image and will also seek to minimize the environmental impact on operations and to provide a healthy and safe environment for its customers and employees.

TAAG is working hard to be a leader in modernization of air transportation and

related services in Angola, through reliable operations and financial sustainability promoting the image of Angola in the world.

TAAG's Beliefs and Values:

Safety and reliability of operations

Ensure strict adherence to all rules of safety for all TAAG operations;
Ensure close collaboration with national and international regulatory authorities;
Ensure total commitment to punctuality and reliability of all our operations;

Customer service

Serve passengers in a professional and caring way;
Convey the passion we feel for the Company in everything we do;
Adapt the characteristics of our services to the needs of our passengers;

Human resources

Install a culture of learning and knowledge sharing;
Promote unity and internal decision-making in a corporate perspective;
Encourage a culture of continuous improvement and personal development;

Integrity and responsibility

Work as a team and seek always what is best for the business rather than personal benefits;

Be responsible for our actions and act in accordance with the Code of Ethics of the Company;
Face obstacles, in a constructive manner but always seeking for the best solutions;

Financial Responsibility

Work to ensure the financial sustainability of the Company, ensuring the ability to generate positive financial results;
Promote a culture of rational use of Company's recourse;
Ensure that the financial information is reliable and timely;

Social Responsibility

Promote the image of Angola in and out of the country;
Be a driving force of the Angolan economy and enhance our community through social interaction;

Environmental awareness

Promote environmental awareness measures within the Company;
Work to minimize the impact of our operations on the environment by adopting criteria for environmental responsibility;

TAAG's Management Policy

In order to implement a good management system that allows us to be sustainable in the full sense of the word is crucial to the involvement of all collaborators;

As a company we have made the following commitments:

Perform all operations in a professional and disciplined way, honouring the highest tradition of the air transport industry. The safety of aircraft and passenger comfort should be considered of utmost importance;

Demonstrate commitment to safety and health of employees and their training, so that they can fulfil the responsibilities entrusted to them, thus avoiding injury to themselves or others, constantly defining and disseminating the responsibilities relating to safety & quality throughout the company, and reinforcing the importance of individual and collective responsibility for activities of safety & quality;

Continuously monitor the activities of each department, measure and record progress, to ensure continuous improvement;

Ensure adequate training and access to necessary information for all employees;

Provide sufficient funding for all activities so that operations & maintenance can be financed and implemented in accordance with the standards required by the Authority (INAVIC), and ensure that any additional requirements defined by TAAG-Angola Airlines can be implemented and optimized;

Provide sufficient financial resources to ensure that the physical infrastructure and work environment meets the needs of operations in flight, maintenance and administrative areas;

Provide sufficient financial resources to ensure a positive working environment for the company and for the surrounding communities, with all the human and physical factors required.





Bradaleci Pass is an erosion geosite, situated on the divide between the waters draining to the Adriatic and Black seas (Photo.A. SERJANI)

ProGEO-Albania GeoEcoTrip 2008

According to the Project put together in June 2008, ProGEO-Albania organized the Geological and Botanical excursion-Geo-trip 2008 on September 13-14. This was a two-day trip in the Albanian Alps and the High Karst zone in Montenegro, supported by "GEF/SGP", implemented by UNDP on behalf of the three GEF implementing Agencies (UNDP, UNEP and the World Bank), and executed by UNOPS (ALB/SGP/OP4/YI/CORE.08/15).

The ProGEO-Albania GeoEcoTrip itinerary included Tirana-Shkodra-Tamara-Vermoshi (Albania)-Gucia-Plava (overnight)-Podgorica-Budva-Ulqini-Shkodra and back to Tirana.

A short guide was compiled in July and August, with descriptions of the geodiversity and biodiversity of the Albanian Alps and especially of the Kelmendi Highland. Brief data on flora, fauna, medicinal and endemic plants were also included. The guide was distributed by e-mail to all members of ProGEO-Albania, the GeoEcoTrip itself being made up of 18 participants.

The region has considerable geodiversity. From Shkodra, including the city of Rozafa Castle (an historical and cultural centre in Albania) the tour continued northward

towards Vermoshi village, the most northerly point in the Albanian Alps. The characteristic flora on the limestone is impressive and the carbonate rocks of the Albanian Alps, with their perfect bedding and huge folds are magnificent, as are a number of geosites of glacial, karstic and erosional origin. The palaeoenvironment geosite, Leqet e Hotit (Tamara), is an impressive stratigraphical section. The route included the Bradaleci Pass geological site (1300m above sea level), located on the drainage divide where waters flow to the Adriatic Sea and to the Black Sea. Some arboreal vegetation reaches up to 2000m above sea level, above which are Alpine pastures. Over 90 plants of medical importance are found in the Kelmendi Highland, including *Juglans regia*, *Hypericum perforatum*, lime tree, *Rubus iidaeus* L., *Fragaria vesca*, *Gentiana lutea* and *Saturea montana*, as well as 52 endemic and rare species. Fauna includes lynx, fox, stone marten, zardaf, chamois, roebuck, wolf, wild cat, weasel and the rare dark grey bear.

One matter of business was transacted during an overnight stay on the shores of the Plava lake. A short meeting was held at which a new ProGEO Committee and a new President were elected.

Among several outcomes of the ProGEO-Albania GeoEcoTrip 2008 was the proposal that a case should be made for inclusion of all territory from Bradaleci Pass up to the border with Montenegro as a new National Geopark in view of its considerable biodiversity and geodiversity. In addition, there is a strong feeling that all of the northern part of the Kelmendi Highland, Rugovo Valley in Kosovo and the territories of Guçia and Plava in Montenegro, including "Bjeshklet e Nemuna" ("Prokljtie Gori" or "Crusted Mountains"), constitute a natural unity and should be put forward for recognition as an inter-border natural Geopark with investment and protection by Albania, Kosovo and Montenegro.

Afat SERJANI and Gjovalin LEKA, ProGEO-Albania, Tirana

Botswana: Outreach Programme

The University of Botswana Geology Club (UB Geo Club), under the sponsorship of the UNESCO Harare Cluster Office, undertook an outreach programme from the 25-29 June 2009, as a means of spreading knowledge of the geosciences among high school students. Four senior secondary schools in the eastern and northern parts of the country, namely, Swaneng Hill, Lotsane, Materspei and Maun Secondary School, were visited. Approximately 500 completing students, studying pure sciences (chemistry, physics, biology and mathematics) were reached. The outreach was very significant in the sense that Botswana, being a country whose economy is largely dependent on mineral resources, deserved the opportunity to run an outreach programme designed to raise awareness of students, teachers and the community at large to the aims and objectives of the IYPE, the importance of the Earth sciences and how knowledge gained could be used to manage better the country's resources. This was the first outreach programme on the Earth sciences ever to be undertaken in the schools of Botswana.

The objectives of the outreach program were to:

- make students aware of the International Year of Planet Earth (IYPE) and its themes,
- teach the students about the importance of caring for the planet and sustainable exploration and use of resources,
- teach the students about geological sciences and career opportunities in geology,
- motivate the students to work hard and join the scarce scientific community in Botswana and
- encourage them to be ambassadors of IYPE in the country by disseminating information to other students and to their own communities.

The outreach programme was designed to resemble an exhibition. Various stalls were set up, with displays of different pamphlets containing detailed information on each IYPE theme. PowerPoint presentations (videos), rock samples and posters were also some of the teaching aids. Students were taught how the various IYPE themes relate to geology and influence their lives on a daily basis. This was followed by com-



ments and questions when students discussed environmental issues interactively with the outreach team.

The overall student participation was exceptionally good. They displayed both much amusement and zeal on the topics discussed, with many vowing to take care of their surroundings as well as being ambassadors for planet earth. Teachers were encouraged to incorporate the IYPE themes and ideals into their everyday teaching so as to consolidate further what the students had been taught during the programme.

Depending on availability of funds, it is intended to extend the programme in future to cover more schools and so reach a wider sector of society.

The outreach team (from left to right) Kelvis Thibelang, Koketso Rakgomo, Ame T. Selepeng, Phemo Moleje, Maduo Mabengano, Nametsegang Otsetswe, John Abbey, Koketso Ludwig, Kegomoditswe Koitsiwe, Issaac Kgakgamatso, Charity Pema, Wame Lekhao

Students at Materspei College listening attentively to a presentation by Ame Selepeng, of the University Geo Club





IYPE activities in Bulgaria: Main results

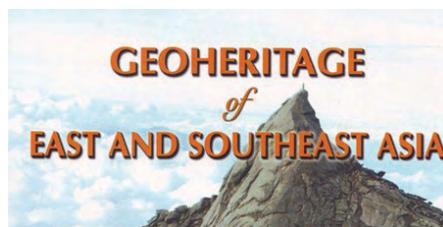
The International Year of Planet Earth (IYPE) and the Triennium of Geosciences involved the Bulgarian geological community in various research and outreach activities. Amongst the most successful ones were the competitions (International competition “Music and the Earth”, poetry competition, photographic competition, children’s painting competition, among others) and exhibitions organized by the National Museum on “Man and Earth”, and the publication of several books and brochures. Two of the latter are briefly described below.

The book “Geology of Bulgaria, Volume II, Mesozoic Geology” is the first volume on this subject published in the past forty years. It is based upon the latest developments in the stratigraphy, sedimentology, igneous and metamorphic petrology, palaeogeography and geodynamics of the country, and includes 768 pages and 277 illustrations (99 in color). In Mesozoic times, considerable parts of the present Balkan Peninsula belonged to the Tethyan Ocean, and other areas were periodically covered by the shallow seas of the Peritethys. Collisional processes resulting from subduction along the southern Eurasian margin occurred at the end of the Triassic Period, at the end of the Middle Jurassic (only in the Tethyan East-Balkan and Veleka troughs), and in the Middle and Late Cretaceous. The latter period witnessed the most important events, when dry land

formed through Mid-Cretaceous collision, and crustal thickening suffered thinning, rifting and formation of a volcanic arc with the intra-arc Srednogorie basin. The extensive Late Cretaceous igneous activity controlled the formation of considerable copper, gold and molybdenum deposits. The book is dedicated to the IYPE and the 140th anniversary of the Bulgarian Academy of Sciences.

Another book entitled “The earth – the restless planet” was published in 2008; it was written by 37 distinguished authors and edited by Prof. Angel Kunov. The book falls into 3 parts, as follows: 1) Origin and evolution of the Earth; 2) Restless Earth; 3) Earth’s resources and richness; 4) our motherland – Bulgaria; 4) New challenges before the Earth sciences. The book focuses on the scientific themes of the International Year of Planet Earth. It is addressed to the widest circles of society, and its 624 pages set out in a popular manner the most important new developments in the Earth sciences.

Among other books dedicated to the IYPE, recently published or in press, is the third entirely reworked edition of the *Bases of Palaeontology and Historic Geology* (Nikolov, T. 2009; University Publ. House “St. Kliment Ohridski”, Sofia; 486 pp.) and a *Geological Guidebook of the East Rhodope Mts.*



The Coordinating Committee for Geoscience Programme in East and Southeast Asia (CCOP)

The Coordinating Committee for Geoscience Programme in East and Southeast Asia (CCOP) is unique in being the only regional Committee in the IYPE Organization. CCOP is an intergovernmental geoscience organization comprising 12 Member Countries of East and Southeast Asia. It is supported by 14 Cooperating Countries from developed nations and 14 Cooperating Organizations. Its mandate is to facilitate and coordinate the implementation of applied geoscience programmes in East and Southeast Asia in order to contribute to economic development and an improved quality of life within the region.

CCOP became an Associate Member of IYPE in early 2007 and was later accepted as the regional committee by IYPE in late 2007, after which Coordinator was appointed to deal with IYPE matters. The CCOP Member Countries support IYPE and have their own national committees.

Each country member of CCOP has a long list of interesting programmes organized in support and in honour of IYPE. An impression of some of the interesting events and activities can be gained from the contribution of these countries to this volume.

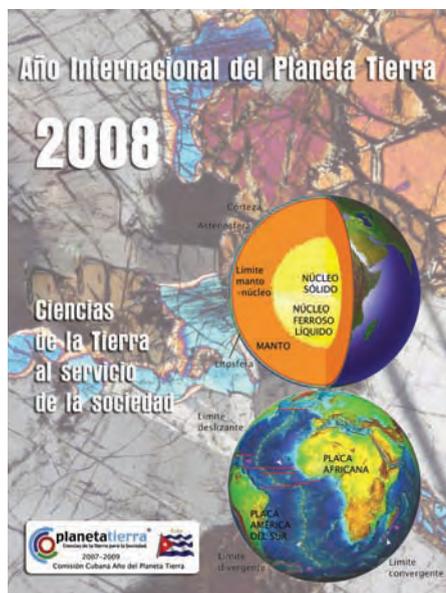
As a unique regional geoscience organization, CCOP lent strong support to IYPE right from its inception. Throughout the triennium, IYPE was on the permanent agenda for the biannual CCOP Steering Committee Meetings and its Annual Sessions during which IYPE matters were shared and discussed.

Two significant contributions to IYPE by CCOP as a regional geoscience organization are highlighted. A book entitled "Geoheritage of East and Southeast Asia" was published in October 2008 during the 45th CCOP Annual Session in Thailand. The uniqueness of this book is that eight Member Countries (China, Indonesia, Japan, Korea, Malaysia, the Philippines, Thailand and Vietnam) each contributed their own chapter. It was the task of the three appointed editors to scrutinize painstakingly the drafts of the incredibly rich geoheritage of the region, in great diversity of style, language prowess and information availability. There are 139 geoparks, 7 aspiring geoparks and 116 geoheritage sites described or mentioned in the book. For the description of these geoheritage sites, attention was specially given to their scientific value, but many sites were also chosen for their additional aesthetic as well as cultural values. In their respective concluding remarks, there appeared to be growing concern among all the contributing Member Countries about the importance of placing their nation's geological heritage in its rightful place as a foundation upon which the nation and its society could develop. Changing the mindset from economic exploitation of geological resources towards a more innovative, sustainable, development-oriented use for geotourism and geoheritage conservation is not an easy task. The publication of this book has succeeded in drawing people's attention to the attractions of the innovative approach of geological heritage conservation and sustainable development in use of resources. In his message for this book, Dr Eduardo de Mulder, Executive Director of the IYPE Corporation said "By distribut-

ing this beautiful book widely throughout the region, we hope and expect that it will enhance the appreciation of the beauty of the Earth and the interest of the public in the exciting science behind it".

The book is intended for the general public. It is written in language readily understood by the non-specialist reader. It is available from the publishers, CCOP and the Institute for Environment and Development, Universiti Kebangsaan Malaysia.

CCOP is participating in, and contributing to the OneGeology map initiative of the IYPE. It has made available the digital geological map of the East and Southeast Asia region to OneGeology on behalf of the 12 Member Countries. Well before OneGeology, in 1997, CCOP had already completed the digital geological map compilation for the region achieved with the participation and cooperation of all the Member Countries. When the OneGeology Map project was undertaken, it was just a matter of handing the CCOP compiled digital map data set to OneGeology. The data set and the digital map compilation can be continually improved and updated thanks to CCOP coordination. The CCOP contribution to the OneGeology map project has proven the strength and purpose of a regional organization in which a single contribution for all the Member Countries under CCOP has eliminated much of the coordination, communication, technical harmonization, standardization, language, coverage and a host of other issues associated with a project of this nature for a region that covers 1/10 of the globe.



La colección completa de folletos y carteles referente al cuidado del medio ambiente y la protección de la familia.



Cuban achievements during the International Triennium of Planet Earth (2007-2009)

In order to fulfil some of the aims of the IYPE initiative, the Cuban NC, in coordination with the Cuban Geological Society, generated a major campaign with three objectives: 1- Promote the perception of Geosciences within society, 2- Capture the interest of young people in the study of Geology, Geophysics and Mining, and 3- Improve the awareness of the general public of the need to reduce vulnerability to geohazards.

These tasks were accomplished by means of conferences, video-debates, exhibitions, and newspaper articles. We also produced more than 40 original documentary films about Cuban nature, by Televisora Mundo Latino, where geology and palaeontology are always highlighted (www.redciencia.cu/cdorigen/arca/documml.html). Another major action was 25 hours of TV lectures, designed to popularize the Geological Nature of Cuba, including plate tectonics, paleogeography, paleobiogeography, water and mineral resources, oil and gas, geohazards, geosciences and society, etc. (www.medioambiente.cu/uptnatgeo/index1.html).

htm). These lectures were broadcast in the years 2007 and 2008, each three times a week, attracting a very wide national audience; they may well be broadcast again in 2010. In order to have a textbook for these lectures, there were printed 60 000 newspaper-style brochures, all in full colour. Along the same line of action, a book entitled "Geology of Cuba for everyone" was published: it provides an overview of Cuban Geology and resources, with many original colour photographs and illustrations. Similar materials are available at www.redciencia.cu/cdorigen/arca/index.html.

The third task deserves special attention, as we are engaged in a major action to reach the population of the most vulnerable parts of the island, in order to educate them as to how to protect their families against geohazards and climate change. This program includes posters and booklets, setting out in a very simple and direct manner explanations of problems concerning contaminated water, landslides, earthquakes, soil erosion, land inundation,

extreme waves and coastal inundation, as well as how to respond to climate change. These materials can be freely downloaded from the internet (www.redciencia.cu/cdorigen/arca/protegefam.html), but we are encouraging several NGOs and local authorities to print these documents, so that they may be widely used during educational activities within local communities. Some NGOs have already printed and used some of them.

These actions will not cease at the end of this year. The Cuban Geological Society will continue to run the program in the future, given that promotion of the geosciences and improving general awareness of geohazards is a task that we can never abandon.

*Dr. Manuel A. Iturralde-Vinent
President, Cuban National Committee IYPE*



At the origins of the Earth (Aux sources de la Terre)

For the first time, a major IYPE event showed France's complete geological map assemblage, together with a 450 m long alley that represented the Earth's time span and scale, some monumental rocks, and geoscience photographs. It took place in the open, during seven months from April to November 2008, at the Natural History Museum in the Jardin des Plantes, in the heart of Paris. The aim was to present a spectacular history of the origins of the Earth to all prospective viewers.

More than **one million visitors** attended the exhibition which was organized by the French Geological Survey (BRGM) and the National Natural History Museum with the help of the IYPE French National Committee, and was sponsored by TOTAL. The project received the **gold 'Top Com' prize for 2009**, for the best communication event in France due to its originality, the cooperation between organizations and industry, and mostly, its outreach impact.

The exhibition highlighted 4 IYPE projects among the 346 developed in France:

-The **Geological map of France assembled for the first time:**

-Vertically, outdoors, on the Grande Galerie de l'Evolution façade, the 1:1 million

scale geological map, enlarged on a 420m sheet;

- Horizontally, on the ground, in the Jardin des plantes, the assemblage of the 1060 geological maps of France at 1:50,000 scale. This giant platform (20m x 20m, 440m) was displayed in the open and access free;

- The **Time alley:**

Along the plane tree alley on the side of the garden, Earth history was illustrated in 450 meters (one meter representing 10 million years, which amounted to 4 500 million years). The time scale was marked by 10 totems, one for each major event in the Earth and Life histories.

The Time alley concept is now duplicated in several cities in Europe, as a legacy of the year of Planet Earth;

- The **Rocks of France:**

Large scale monumental rocks with a volume of a few cubic meters were selected and displayed on the ground, before the geological map platform. The objective was to illustrate lithological diversity in France.

The success of this rock presentation to the public led to a permanent 'Rock garden' within the 'Jardin des Plantes', providing another IYPE legacy;

- The **Earth at the heart of Science:** a selection of the 40 best photographs issued from French scientific research centers was exhibited on the botanical garden gates. Taken by geoscientists worldwide, this original photo-compilation led to publishing a bestseller book containing the IYPE logo.

The aim of the exhibition was to draw the attention of visitors to the beauty of the Earth, the impact of the geosciences, and the preservation of our planet.

The objective of "At the origins of the Earth" was to encourage all members of the public, especially young ones, to understand and discover the benefits of the geosciences. To that end, young geoscience students and older geologists attended the exhibition, on the platform and along the Time alley, several days a week, to provide explanations and to distribute 150 000 explanatory booklets. More than 225 schools throughout France attended the exhibition.

Denis VASLET



აქ ბინადრობს ჩვენი ცივილიზაცია



ლექციები გორში, ქუთაისში, თბილისში

The placard on the IYPE event for children in Georgia

IYPE activities in Georgia 2008-2009

In collaboration with Georgian National Science Foundation and Nodia Institute of Geophysics of Georgia, Georgia's National Committee for the International Year of Planet Earth organized a series of popular lectures in schools dedicated to the Year of Planet Earth. About 500 children in the towns of Tbilisi, Gori and Kutaisi listened and discussed different topics and problems concerning our planet. The Committee, with the same partners, initiated preparations to link Georgia to the worldwide, primary and secondary school-based science and education program GLOBE (Global Learning and Observations to Benefit the Environment). In November 2008 the International conference "Natural Resources, Catastrophes

and Climate of South Caucasus" took place in the framework of IYPE's activities in Georgia. Almost 100 scientists presented their reports on various aspects of the Geosciences. The Georgian National Committee on Disaster Risk Reduction was also organized in 2008.

Professor T. Chelidze, Chairman of the IYPE National Committee for Georgia



Earth and Heaven - Geology and Theology

Sopron (Hungary), 16-18 October, 2008: a Conference Report

2008, the core year of the triennial International Year of Planet Earth was in Hungary the Year of Bible. It seemed reasonable, however unconventional, to link these two aspects. The idea was brought up by the IYPE National Committee for Hungary, and was remarkably well received by the so-called "historical" Churches in Hungary. Patronage was granted by Cardinal P. Erdő, Archbishop of Esztergom and Budapest and J. Pálinkás, President of the Hungarian Academy of Sciences.

The Conference

As a joint venture, a three-day conference was arranged in the West Hungarian town of Sopron, with an exceptionally rich Exhibition of various translations and editions of the Bible. Among the 20 lecturers there were more scientists than theologians (13:7). What did they talk about?

The Theologians

History of Religion – unrelated to the Earth Sciences

1. Heaven in the world concept of the Ancient Orient
2. Development of the Canon of the New Testament

Creation and Evolution

3. The Story of Creation in the Book of

Genesis – hidden aspects

4. Hominization and cooperation – not only struggle for life
5. Positive Christian interpretation of evolution

Earth and Heaven in the Literature

6. A Selection of Poetry and Prose

Apocalypse – End and Beginning

7. A New Heaven and a New Earth in the Book of Revelations

The Geoscientists

Comprehensive topics

8. Science – Pseudoscience, Religion – Pseudoreligion
9. Geology and Theology – according to O. Prohászka – in 1902. Interrelation of Earth and Heaven in the Cultural History of Mankind

Earth Science and Society

10. The role of the International Year of Planet Earth
11. The fate of fertile soil

On some part(s) of the Bible

12. The principle of actualism in the Pre-dicator's Book
13. Job 28 about the earth
14. Creationism, deluge or scientific evolutionism?
15. Some geological interpretations: deluge, passing of the Red Sea, disclosing water

16. The limits of human cognition

17. The world view of apostle Peter
18. Medicaments from the earth in the Bible
19. The salt of the earth

The presentations were followed by a public discussion.

Message

Nobody expressed any antagonism between Science and Christian religion. However, there are contradictions between science and pseudosciences, and between religions and pseudoreligions. Science (and only science) is able to provide reliable knowledge about how Nature works, and the investigation of the "ultimate Why", the "Primordial Cause", should be left to Religion (and Philosophy, linking Science and Religion). The aggressive form of atheism and aggressive creationism were both rejected as extreme views.

The conference book (Earth and Heaven, edited by: Zoltán Unger, Hantken Kiadó, Budapest, 2009) has led to interesting further discussions in Hungary. The conference pointed out that, in due time (i.e. before the start of the Darwin Year), the Creationist-Atheist war is meaningless both on stages of evolution and Earth's history.

E. Dudich, L. Szarka

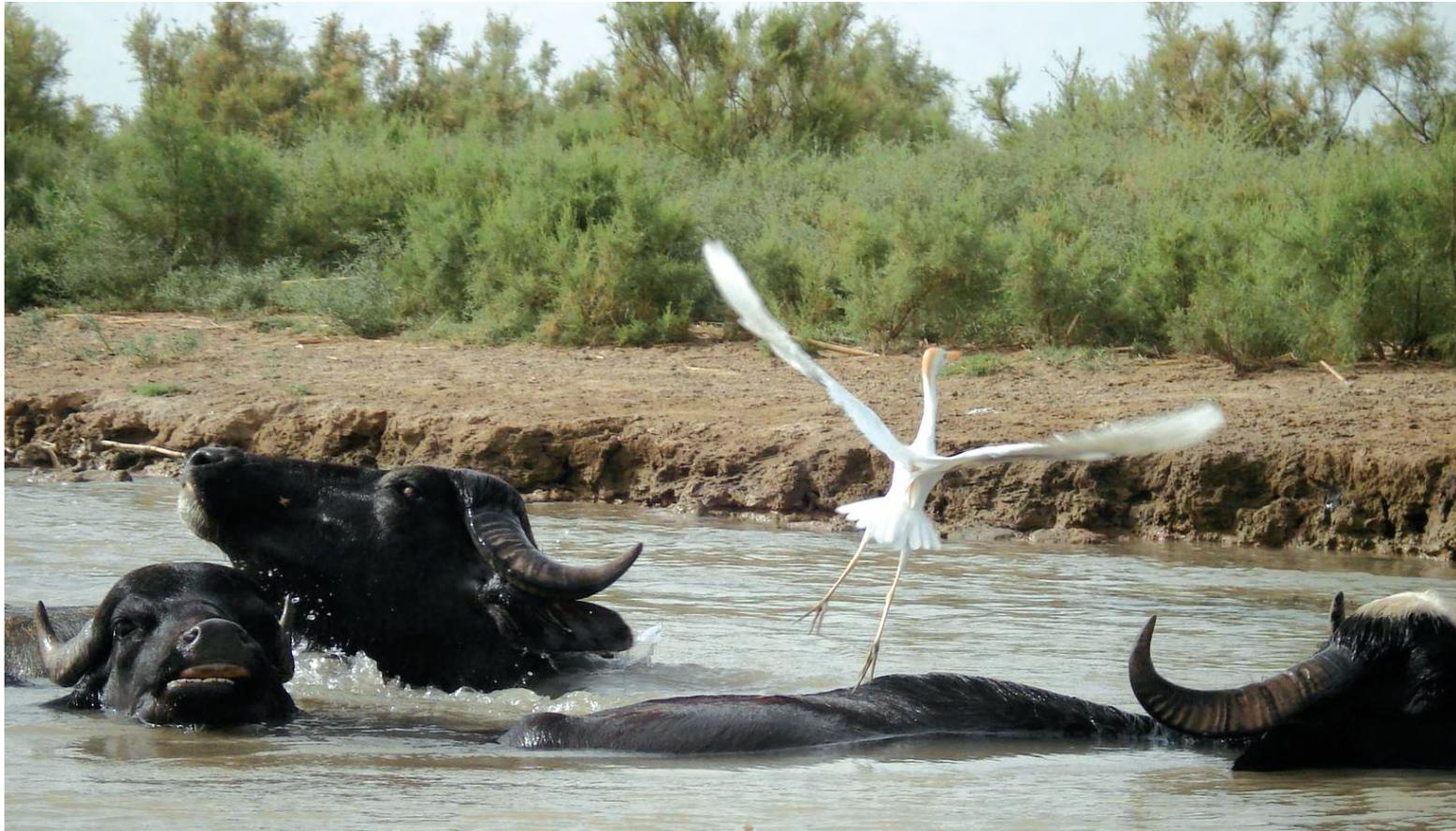


Dr. A.P.J. Abdul Kalam, the then Honorable President of India and Prof. Harsh Gupta, General President of the Indian Science Congress and National coordinator IYPE, are seen while the President releases balloons to launch IYPE activities in India

India and the IYPE

Activities during the International Year of Planet Earth (IYPE) in India were perceived as an integral part of a broad initiative on International Years (eGY, IHY, IPY, IYPE). A national coordination committee on International Years was formed as early as 2006, its first meeting held in October of that year having been attended by Ed de Mulder, Executive Director of the IYPE. A number of activities related to the themes of the IYPE have been taken up (<http://www.iypeinsa.org/>). Government agencies and non-government organizations have actively supported projects for educating students and archiving various types of data of use in scientific and societal interventions. The outreach activities included student rallies, displaying of posters and calendars for public education (in local languages) and guidance on important issues such as earthquakes, tsunamis, storm surges, ground water, oceans, floods, droughts, global warming, etc. A novel concept of Earth Explorer was floated, in which two primary school teachers from separate districts (counties) were trained to popularize matter related to earth sciences. The Department of Science and Technology of the Government of India launched "Science Train", in which a com-

partment was totally allocated to displays related to the IYPE themes. Amongst numerous IYPE events in India, organization of the "Indian Science Congress" (ISC-94) on the focal theme of PLANET EARTH in January, 2007 was the biggest showcase projecting earth sciences as an important area of research of great value to planners. This event was a grand amalgamation of thousands of students, researchers, science managers and politicians. It was inaugurated by the Honourable Prime Minister of India in the presence of several leading politicians and administrators. Many parallel sessions with special invitees were conducted on themes related to Planet Earth. There was a separate parallel congress and exhibition for schoolchildren. The Honourable President of India inaugurated exhibitions for children and addressed children emphasizing the importance of mother Earth and her resources. To mark this occasion and initiate IYPE activities in India, he released balloons; this memorable Planet Earth science and outreach event still lingers in the memories of many who were present and who watched it on television in every nook and corner of India.



Iraq's National Committee for the IYPE

Involvement in the International year of Planet Earth 2007-2009 was a pleasure for the Iraqi National Committee. Every effort was made to exceed our initial planned events. In 2007 and 2008, many events were celebrated in the Ministry of Environment's main theater and, in 2009, when working with the College of Science in Baghdad University. Many symposia, lectures and conferences were held in the Iraqi governorates such as Basra, Karbala and Babylon. Although we believe that we were successful, we continue to look forward, despite the still difficult security situation in Iraq. Scientific excursions to many parts of Iraq were organized with a focus on environmental deterioration, especially during the very dry years of 2008-2009. We were able to show members the dried up Iraqi Marshes region and the invasion of sea water from the Arabian Gulf, the Shatt Al-Arab River and estuary in

southern Iraq, as well as the very famous (Gally Ali Bik) dry falls in northern Iraq. A good number of lectures, discussions, articles and TV programmes were organized on the IYPE themes. We were greatly impressed and pleased with the meetings during the IGC Congress in Oslo in 2009 and we look forward to continuing our work with support and help in the future..

Dr. Moutaz Al-Dabbas



Via GeoAlpina and the National Committee for Italy

Via GeoAlpina is a transboundary international cooperation project promoted by the Italian IYPE Committee as an initiative of six Alpine countries - Austria, France, Germany, Italy, Slovenia and Switzerland - to make the Alpine geological heritage known and accessible. The project's long term target is Earth Sciences dissemination through fun and educational activities.

Via GeoAlpina sets up a series of mainly pedestrian tourist itineraries through Alpine areas, which stand out for their educational value and/or landscape beauty and/or scientific significance from a geological viewpoint. It aims to make such geological heritages known by the public at large.

Via GeoAlpina is run in open cooperation with Via Alpina (<http://www.via-alpina.org>), the first recognised hiking trail network described in multilingual documentation linking Trieste, on the Adriatic Coast, to Monaco and the Western Mediterranean. When possible, the Via GeoAlpina trails coincide with the Via Alpina ones.

Each itinerary is described in detail by a team of experts and the descriptions are available free of charge on the web in every language of the Alpine countries and,

in addition, in English. Therefore, in order to enjoy Via GeoAlpina it is not necessary to be a mountaineer or a geoscientist; one can just browse the website www.viageoalpina.org and choose a trail (over 40 are already available in Italy alone). The next step is to download and print the description in the preferred language and then leave home to discover a new world.

The level of difficulty for each trail is clearly marked in the description. Moreover, through a direct link to Google Earth it is possible to walk virtually along the trail viewing where shelters, lakes, and other features are situated.

In simple and attractive language, descriptions focus on the complex processes that led to the geological creation of the areas. Special attention is paid to the link between geology and the processes that influenced and, sometimes, originated life, culture and the traditions of the population living therein. Also explained is how agriculture, architecture, human settlement locations and life in the Alps is, in general, strongly dependent upon the local geological, geomorphological and hydrogeological situation.

Hikers will not only receive basic information on the processes that led to the cre-

ation of the Alpine landscape and those that led to the evolution of human societies in such environment, they will also be virtually driven to the discovery of some geological peculiarities, which are normally considered natural beauties, learning about the way they formed. Decision makers and the public at large will have access to a huge amount of information, often reserved for experts, on themes such as water, energy, health, soils and geohazards through the use of a simple and immediately understandable language. Learning things directly is, in fact, the fastest way to test the real applicability of Earth Science to everyday life.

Via GeoAlpina also has an economic value, clearly representing a tool for local development, both at private and local administrative levels; regions, Cantons, Landers and hundreds of municipalities can potentially benefit from the increase in tourism or from a better distribution of hikers.

The project was launched in the summer of 2009. In Italy, five launches were held in different areas of the Alps, with considerable participation by both public and media.



IYPE reaching out to Ireland's young scientists

Geology Matters! and Geoscience Rocks! – these were the twin messages that rang out loud and clear at the BT Young Scientist and Technology Exhibition in Dublin in January 2009. Under the aegis of the International Year of Planet Earth a geoscience stand incorporating personnel and props from several different organisations was a central feature of the Exhibition's Eco-zone.

The geoscience exhibit aimed to communicate to the students (and their teachers and parents) the varied nature of geology in an interesting and engaging way. It sought to demonstrate the importance and relevance of geology and geologists, what Planet Earth is all about and how it impacts on our everyday lives. Considering that the Young Scientist Exhibition is the leading schools' science showcase in the country with an attendance of 30,000, it was an excellent opportunity for the geoscience sector to reach out to the youth of Ireland.

Stand Design

The Geological Survey of Ireland (GSI) coordinated the stand and were partnered by several of Ireland's leading geoscience institutions. Integrating several organisations into one large exhibit stand was no easy task. It was decided that the central messages of the stand had to be neutral,

and not organisation-specific. The stand carried the title "Understanding Planet Earth" and the over-riding message was that the rocks around us are central to everything we do on earth and need to be studied and understood. The design of the stand employed a uniform "earthy" green-blue colour scheme, with posters representing the work of each organisation involved. All staff manning the stand wore a neutral t-shirt communicating both the title of the stand and the message "Geology matters". The 12 metre stand was one of the busiest stands across the entire exhibition.

Stand Props

The stand availed of a range of props to generate traffic. Foremost among them was a "Minerals for Living" Challenge. This competition was almost constantly swamped by excited, giddy students, trying to link colourful minerals in a glass display case with the appropriate product in everyday use that was displayed on the wall behind the case. Another prop that generated a lot of enthusiasm was the "Magic Planet". This is a constantly rotating globe which displays all kinds of earth information in a dramatic fashion. Other props included rock core samples with traces of oil, a working seismometer and a cast replica of part of an Irish Tetrapod Trackway (the fossilized footprints of a four footed

animal from 385 million years ago!). The All-Island committee for IYPE also sponsored a special geoscience award at the exhibition and a range of interesting entries were shortlisted for final selection.

Affirmation

For many stand visitors it was their first time to speak with a practising geologist. They talked about everything from oil to dinosaurs, from gold to caves. Yet, it was very much a two-way street – it was readily apparent that stand personnel found the exhibition to be very inspirational, with the hordes of stand visitors re-igniting their own enthusiasm in their work in the field of geology. Further information on the Exhibit can be found at

<http://www.gsi.ie/Education/2009+BT+Young+Scientist+Exhibition.htm>



Japan's National Committee

In the autumn of 2008, the Japanese National Committee for IYPE co-hosted the International Symposium "Fifty Years after IGY-Modern Information Technologies and Earth and Solar Sciences" at the National Institute of Advanced Industrial Science and Technology, Tsukuba, with the International Polar Year (IPY), the electronic Geophysical Year (eGY), and the International Heliophysical Year (IHY), to commemorate the fiftieth anniversary of the International Geophysical Year (IGY, 1957 – 1958).

The symposium aimed to provide an opportunity to discuss the latest outcomes and the future plans of Earth and space sciences and to review the further development of the sciences and collaboration with society; for example, how have we managed and organized a vast amount of information from Earth's interior to the sun to expand our knowledge, what the present goal of our work is and how we return our results to society, etc. The symposium at which scientists, not only of Earth and space sciences but also of other relevant areas including information technology, came together to discuss heatedly, proved to be quite interdisciplinary.

The symposium opened with three keynote lectures: "Roles of the scientist in the sustainability age" given by Prof. Hiroyuki Yoshikawa, then-President of the

National Institute of Advanced Industrial Science and Technology (then-Chairperson of Japanese National Committee for UNESCO), "Info-fusion Reactor for Earth Environmental Informatics toward the Information Explosion Era" by Prof. Masaru Kitsuregawa, of the University of Tokyo, and "Fifty Years after IGY: A Challenging Time for Science and Technology" by D. J. Carlson, Director of the IPY International Programme Office. Next, the representatives of each International Year presented their lectures. As for the IYPE, Prof. W. F. Eder, Regional Representative for Europe of IYPE, delivered a joint lecture with Dr. E. de Mulder, Executive Director of IYPE, entitled "Fifty years after the IGY: finally political support for the Earth sciences,". In the subsequent scientific session, a wide range of research results from technology to information sciences were presented under a variety of themes such as remote data collection and communication networks, establishment of a virtual observatory like an astrological one, data mining, development of geoscientific information technology infrastructures, returning research results to society and so on. At the banquet, following the opening remarks by the Vice President of the Science Council of Japan, Dr. Kisaburo Kodama, President of IYPE Japan and Emeritus Adviser of AIST, delivered a welcome speech as the host and on behalf of the Japanese National Committee for the

IYPE. The wrap-up session held on the last day unanimously produced the "Tsukuba Declaration," which appeals for the setting of Earth and space scientific goals and activities so as to achieve a sustainable global society, and the sharing of information and knowledge of the Earth and space. The declaration is posted on the websites of IYPE Japan (www.gsj.jp/iype/en/) and the IUGG (www.iugg.org).

The Japanese National Committee for the IYPE has contributed to the scientific world through the symposium in a spirit of the Celimontana Declaration, in which the four international years confirmed their mutual cooperation in launching the International Year Planet Earth.

Lithuania: “Earth Day” in Lithuanian schools, September 22, 2008

A great number of Lithuanian secondary and high schools devoted a range of activities to earth sciences on September 22 (autumn equinox) 2008, proclaimed by the Lithuanian National Committee for IYPE and the Lithuanian Ministry of Education and Science as “Earth Day”. Beforehand, the 11 IYPE brochures were translated, supplemented with relevant Lithuanian data and placed on the website www.zemesmetai.lt. In many schools the 10 scientific themes were expanded, transformed and included in different school programmes such as geography, chemistry, physics, biology, Lithuanian language, etc. Other schools preferred to organise discussions, performances and concerts where children expressed their concern about the future of the Earth and suggested ways to save it. Several schools invited geologists, ecologists or other representatives of the Earth sciences or local authorities to provide information on environmental and geological issues in Lithuania and the school’s surroundings. Several museums and nature sites were visited. “Earth Day” was advertised on TV and radio, and was reflected in the press. The reports from schools were placed on the Lithuanian IYPE website. The Board acknowledged the best participants with special letters of thanks. It turned out that, despite the information provided on different subjects of geology, only a few of them were chosen. School teachers en-



Trying to save the planet Earth

countered some problems in relating the Earth’s interior to its surface, recognising modern geological processes etc. They found some brochures to be too complicated for non-specialists. Biodiversity was much easier to explain and present than geodiversity. Nevertheless, participants admitted the great importance of the geosciences to society, were aware of their insufficient knowledge, and greatly acknowledged the initiative of the IYPE.

Many different competitions, camps and seminars followed “Earth Day”. In addition to the programmes in the schools, many geologists and other scientists were invited to public and governmental institutions to provide a variety of geological information. The successful co-operation with the Lithuanian Ministry of Education and Science and also with several private and governmental institutions and commercial enterprises resulted in the publishing of a special calendar for 2009. Each month in the calendar was sponsored by an institution or enterprise, and is related to geosciences, the use of natural resources in a sustainable way or the production of environmentally friendly goods or energy. The calendar was distributed to Lithuanian schools, as well as other public and governmental institutions.

Inspired by the success of “Earth Day”,

the Lithuanian NC and Ministry of Education and Science organised a competition, “Earth in our hands”, for all types of schools in 2009. Over 50 PowerPoint presentations, movies, drawings, photographs and posters were received at the Centre of Young Naturalists in Vilnius. The winners were awarded a special “geotour”, which took place on September 25.

Lithuanian National Committee for IYPE



Geology lessons in the quarry

International Year of Planet Earth – Activities, Challenges and Plans in Mexico

The International Year of Planet Earth developed into a major international geosciences program for the triennium 2007-2009, with the inclusion and participation of National and Regional committees. In this note we focus on the publication program and contribution to international activities and the Latin American Regional Committee (RC). The Mexican community has been involved in international programs since the International Geophysical Year, continuing through, e.g., Upper Mantle, Geodynamics, Lithosphere, IHY, IPY and eGY.

The Mexico NC committee was established in 2006. In 2007 activities included events and lectures in the National University and at the American Geophysical Union meeting in Acapulco, which had international participation from the US, Canada, Europe and Latin America. Activities in 2008 were formally initiated with a country-wide inaugural event in Mexico City and at National Committee (NC) venues in Morelia, Queretaro, San Luis Potosi, Ensenada, Merida, Cancun and Pachuca. An event was held on February 12, in parallel and with the launching of the IYPE global event in Paris, France. Other special events followed on the Megacities and Hazards themes, with an event in the Three Cultures Place Tlalotelco. In 2009, public events were held in the Mining Palace, historic district Mexico City, Science Museum Universum and Queretaro.

Publication Program

NC activities have concentrated on publications, OneGeology, radio/TV programs, organization of conferences, meetings and outreach events. The publication program includes leaflets, books and special El Faro issues (edited by the National University) and articles in other journals. A book series on Earth Science Experiments for Children has been edited, the first books published on "Atmospheric Pressure and Free Fall of Objects", "Light and Colors", "Standing on Archimedes", "Foucault and Climate" and

"Earth and its Waves". Books are distributed to schools, with tens of thousands of copies distributed nationwide and with new editions under way.

Major themes considered by the NC include megacities, hazards, life, resources, soil and oceans. The metropolitan area of Mexico City, with around 20-24 million inhabitants presents special challenges, being at high altitude within an active tectonic and volcanic area requiring major efforts in water supply, water control, rains and waste disposal and management. Involvement in international activities includes Spanish translation of IYPE thematic leaflets, with strong collaboration of Latin American National Committees in Cuba, Chile and Peru.

Challenges and Plans

Current plans include an electronic e-newsletter in Spanish/English and an open-access outreach publication, additional publications of the Planet Earth Children Book Series, articles and special issues in journals and magazines in the science and outreach programs, and events on selected themes from the IYPE science program. Participation in international events includes the Lisbon event and the AGU Fall Meeting.

A major long-lasting legacy of IYPE is the formation of links/partnerships within Latin America and in an international context. Consolidating and expanding further cooperation/partnership in research, education and outreach will then be our major challenges. In addition to future plans in different countries and regions, we consider that IYPE should develop long-term initiatives for further enhancing international cooperation and ensuring increased effective use by society of the Earth and space sciences.

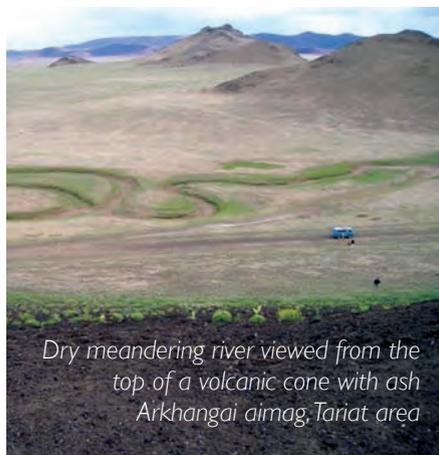
*Jaime Urrutia Fucugauchi
IYPE National Committee Mexico*



Examples of the publication program: thematic IYPE Faro special issues and Children Books on Simple Experiments for a Complicated Earth



Spanish translation program of IYPE publications, as part of the Latin America RC cooperation



Dry meandering river viewed from the top of a volcanic cone with ash Arkhangai aimag, Tariat area



The coin stones (eroded sandstone), Chandmani massif, Gobi Altai aimag

Planet Earth 2009 in Mongolia – DST- MUST Geological Photographic Contest

The last international event initiated by the Mongolian University of Science & Technology, the IYPE Mongolian National Committee (O. Gerel, Yo. Majigsuren), and Trieste University, Italy (A. Alberti) was the Geological Photo Contest. The contest was aimed at Bachelor, Master and PhD students in Geoscience from 19 to 30 years old in both the Mongolian University of Science & Technology and Trieste University. The contest aimed to attract a greater number of people to understand our Earth, and so to bring Geosciences to Society. The themes included any topic related to Geoscience, and especially the environment, past and present.

The photographs of Mongolian students were exhibited at the Mongolian University of Science & Technology on February 16, 2009, during the International CIDA Workshop. Mongolian photos mainly illustrated student practical and field work; 34 photos with Mongolian and English captions were sent to Trieste University. Mongolian photos were presented during International CIDA Workshop on February 14-15, 2009 in Ulaanbaatar, during Student Scientific Conference in March, 2009, and on 26 March, 2009 at Trieste University.

The outcome of the photo contest is recorded (in Italian and English) in the www.units.it/dst site. The professional Jury came from different faculties of Trieste University and MUST, with numbers of applicants as follows: 14 Mongolian (total 34 photos) and 16 Italian (total 45 photos). For each group, the awards included: a first prize of 300 Euros, a second prize of 150 Euros, two "ex aequo" third prizes (50 + 50 Euros), one UNESCO acknowledgement plate, and two "nominations of excellence". The Mongolian winners were as follows: First - Amarjargal Otgonkhuu, with photo entitled "Dry meandering river from the top of volcanic cone with ash. Arkhangai aimag, Tariat area"; Second - Tamir Enkhbaatar, with photo entitled "The coin stones (eroded sandstone), Chandmani massif. Gobi Altai aimag"; Joint Third ("ex aequo") - Onon Gantumur, with photo entitled "A huge sandstorm happened in the geology camp near Tavan Khar Ovoo crater" and Jargal Otgonkhuu, with photo entitled "Geology practice in Altai Mountains"; UNESCO acknowledgement plate: Tsenguhei Boldbaatar, with photo entitled "Man of Bronze Age (petroglyph)". Special mention of excellence was awarded to: Odbileg Usna-Ekh, for a photo entitled

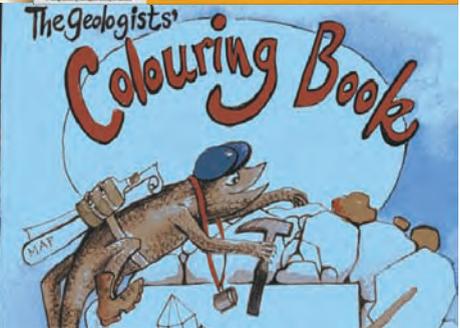
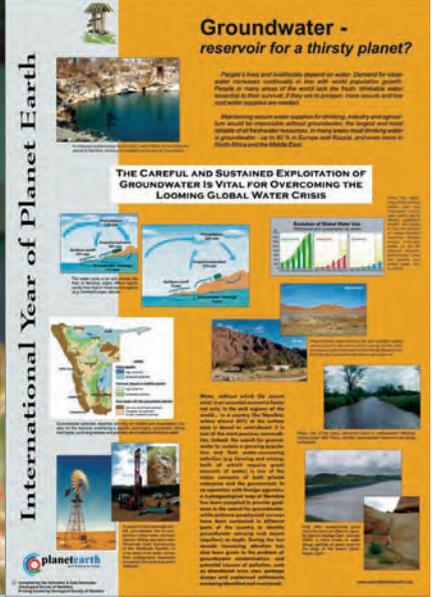
"Geology students in the field, Bulgan aimag, 2008" and Onon Gantumur, with a photo entitled "It was a rainy dark night"

The Photo Album "Earth Vision" will be published and presented in Lisbon.

*O. Gerel
Mongolian National Committee for IYPE*



Patron of the International Year of Planet Earth, Dr. Sam Nujoma with Dr. Gabi Schneider at the poster exhibition opening ceremony.



Colouring book for primary school children covering the science themes of the Year.

The IYPE poster exhibition at the University of Namibia

The Namibian National Committee (NNC), established in 2007, is chaired by Dr. Gabi Schneider and driven by the Geological Survey of Namibia in collaboration with the Geological Society of Namibia. The NNC has had a busy triennium with several events and outreach initiatives carried out to promote Earth Sciences. A highlight was the production of customized International Year of Planet Earth posters using Namibian examples set in the Namibian context. The IYPE logo was also translated into the 11 different indigenous languages. The poster series covers the following science themes: Groundwater, Hazards, Earth and Health, Climate change, Resources, Deep Earth, Ocean, Soil and Earth and Life. The Megacities theme was not covered due to the lack of relevance to Namibian society, and in its place an introductory poster with the theme "Earth and Man – a controversial relationship" was compiled.

One of the noteworthy events was the launch of the IYPE posters at an exhibition

at the University of Namibia. The opening ceremony held on the 23rd July 2009 was attended by the University management and community, including the Chancellor, His Excellency the Founding President of the Republic of Namibia, and Patron of the International Year of Planet Earth, Dr Sam Nujoma; the event was broadcast nationwide. His Excellency was the keynote speaker at the event, and the audience was also addressed by the Chief Librarian of the University, the Chairman of the Geological Society of Namibia and the Chairperson of the NNC, all of whom emphasized the importance of Earth Sciences for Society.

The posters will now be distributed to all secondary schools in cooperation with the Ministry of Education. In addition, and in recognition of the fact that Earth science education should start at an early age, the NNC commissioned a Namibian artist to design a coloring book targeting primary school pupils and covering again all themes excluding the one on megaci-

ties. These will be distributed to the primary schools throughout the country. In the near future, a hand-over ceremony of the posters and coloring books involving the Ministers of Mines and Energy and Education will further publicise the International year of Planet Earth in Namibia through extensive media coverage.

“Spiegelzee”: The Netherlands’ Sealevel – Climate Outreach Event

It goes without saying that Sea level and Climate were the centre of interest in many activities during the Netherlands’ MijnaArde (MyEarth) IYPE Programme. Just a few, if any, countries in the world portray such an intrinsic and causal interrelationship between the geological, political, economic and cultural history on the one side, and both the natural and man-induced response to sea level and climate change on the other. This ultimately resulted in the strongly anthropogenically-influenced shaping of the present-day Rhine-Meuse-Scheldt delta, the surface area of which (tempting to say here: not by coincidence) closely corresponds to the territory of the Kingdom of The Netherlands. Successive steps in the development of the delta system since Pleistocene times and perspectives on its future evolution were subjects of quite a number of scientific, educational and outreach events.

“Spiegelzee” was the most impressive of the outreach events. It aimed to inform the public about climate-induced sea level fluctuations and the effects these had on land-sea distribution, the biosphere and on what was to become the archeological and cultural heritage of the Dutch delta, since Late Pleistocene times. This was achieved by realizing a visual impression of a sequence of sea level high- and lowstands, from the Eemian Interglacial Highstand through the Last Glacial Lowstand to the recent “intermediate” situation. For this purpose, a specially designated, unique pavilion was constructed on the beach of the sea resort of Katwijk, about 10 km north of The Hague. In the pavilion visitors were, for instance, confronted with the

visualization of the Late Pleistocene situation, when sea level was 120 metres below that of today at the one extreme, and with the Eemian Interglacial when the level of the North Sea was 6 metres higher relative to the present, at the other. While climbing and descending the stairs, visitors were able to experience rates of sea level change because of the strongly varying steepness of the pavilion’s inside staircases.

Visitors were impressed by the Glacial Lowstand visualization, which mirrored a dry North Sea with mammoths traversing the “new land” and portraying the River Thames as a side branch of the river Rhine, which intersected the North Sea coastline of the time far to the north. In contrast, the Eemian Highstand was seen by some as a “horror scenario”, reflecting a parallel to the possible submergence of large parts of the Rhine-Meuse-Scheldt delta following a pronounced sea level rise in response to extreme global warming in the decades and centuries ahead. The delta was, however, not affected by changing land-sea configurations alone.

Throughout its Late Pleistocene to Recent history, the delta was subject to repeated changes in, e.g., the course of its major branches of run-off. Therefore, the choice of Katwijk for the location of the pavilion was no coincidence: In “Dutch” Roman times, i.e., around 2000 years ago, the major discharge of the Rhine occurred through the present-day Old Rhine at Katwijk, where it built a nice delta. Actually, the Rhine formed the northern boundary (the “Limes”) of the Roman Empire at the time and the Romans built their major

fortress (“Brittenburg”) at this spot, now submerged and some kilometres offshore. It was no surprise to see that the visitors were curious to find out what happened near their fortress on the 18th of July 2008, the day when the pavilion was officially opened to the public.

Altogether, about 30.000 visitors of all ages came to see the pavilion during its almost three months’ stay on the beach. The success of the “Spiegelzee” outreach event was due to the great interest the public showed although, of course, credit should primarily go to the initiators of the project, Ph.D. students of Delft Technical University, and to the sponsors who covered the high cost of the project, which was brought to fruition under the careful eye of TNO / Geological Survey of The Netherlands.

Johan E. Meulenkamp



A Continent on the Move

New Zealand Geoscience into the 21st Century

Chief Editor
Ian J Graham



The New Zealand Minister of Science,
Hon. Wayne Mapp congratulates Chief Editor
Dr Ian Graham on the success of *A Continent on the Move*.

New Zealand Contribution to IYPE Wins a Literary Award

Published in September 2008 as an official output of the International Year of Planet Earth, *A Continent on the Move* celebrates the 50th anniversary of the founding of the Geological Society of New Zealand. With more than 120 scientific authors and over 700 illustrations, the book has been written in a relatively non-technical but scientifically literate way so that readers of all backgrounds can readily grasp the scientific concepts. Its success in achieving that goal was recognised by winning the environment category of the New Zealand Montana Book Awards in July 2009.

Adrift in the South Pacific Ocean, separated from the rest of the world by vast distances and blessed with some of the most varied and spectacular natural landscapes on Earth, New Zealand is thought of as rather special by residents and visitors alike. Geologically, the islands are exposed fragments of a large continental landmass ('Zealandia'), split by the boundary between the Pacific and Australian tectonic plates. The land is washed on its eastern seaboard by the world's largest oceanic current system, the Pacific Deep West-

ern Boundary Current and its mountains stand athwart the moisture-laden winds of the 'Roaring Forties'. These features mean that the country experiences frequent volcanic eruptions, earthquakes, floods, and rapid erosion causing landslides. But New Zealand also has abundant supplies of natural resources—metallic minerals, coal, oil, gas, and water. It could thus be regarded as both 'the best of worlds, and the worst of worlds'.

From the early European explorer-geologists to today's university-trained geoscientists, researchers have been attracted to New Zealand as one of the world's best 'natural laboratories' to study active Earth processes. *A Continent on the Move* is their story—a tale of consistent endeavour, and of the excitement generated by scientific discovery, often under trying circumstances because of the difficult terrain and remoteness from centres of international learning. Until 800-900 years ago, New Zealand was uninhabited by human beings. The first humans to arrive, the Māori, developed a close bond with the land, attaining a pragmatic understanding of its benefits and dangers. In the early nine-

teenth century, European settlers brought scientific methods for systematically analysing the geological processes at work, and assessing the availability of useful resources. Since then, generations of geoscientists have developed an understanding of what makes New Zealand geologically unique and why.

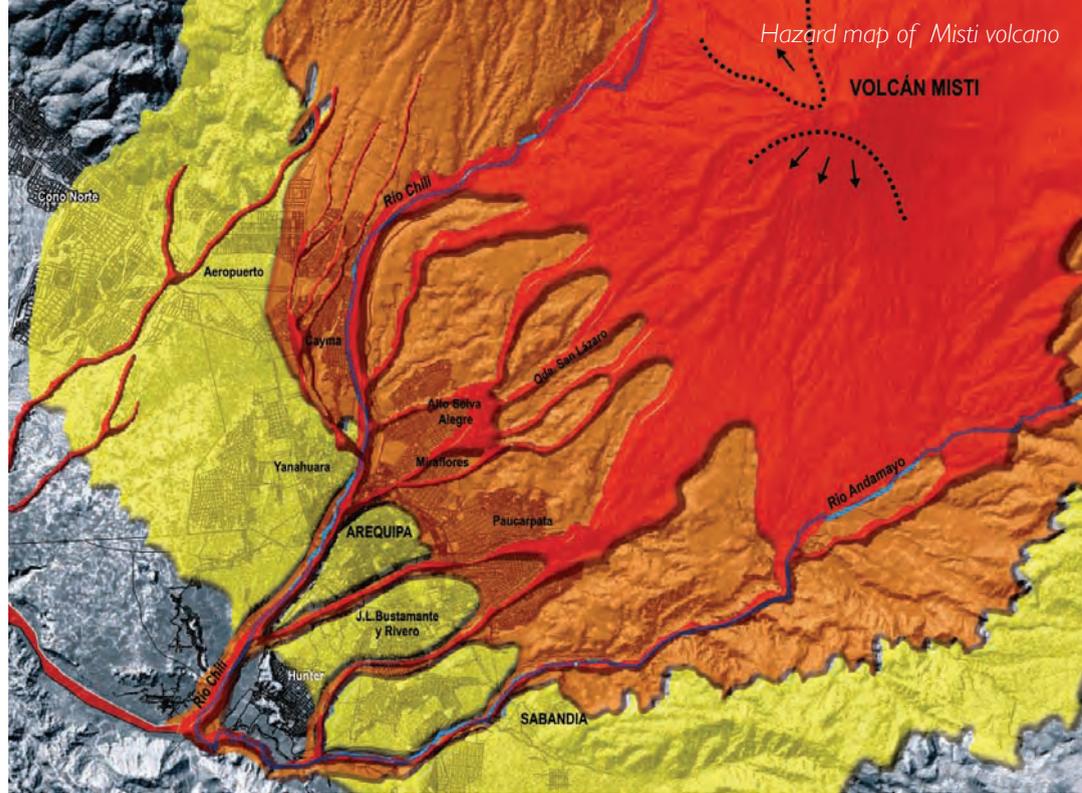
Geoscientific research in New Zealand and globally is becoming increasingly focused on understanding the dynamic Earth environment, and providing the information that allows politicians, planners and developers to make informed decisions regarding appropriate land use, beneficial utilisation of resources, and protection against geological hazards. This book provides information that will assist those decision-makers to appreciate better the issues relating to New Zealand's natural environment before they embark on courses of action which may have long-reaching consequences.



Earth Sciences in the Management of Volcanic Risk in Arequipa, Peru

The Geological, Mining and Metallurgical Institute (INGEMMET) is the Peruvian Government entity in charge, among other important functions, of geological studies in the country; it is also in charge of the coordination of the activities of the International Year of the Planet Earth in Peru. In 2007, INGEMMET published a volcanic hazard map of the Misti volcano, the crater of which is only 18 km NE of Arequipa, a city with a population of nearly one million inhabitants which has grown without adequate planning. According to historical reports, during the Christian period, the volcano experienced up to three eruptions of low to moderate magnitude, the last one in the XV century; their products reached the city. The hazard map shows that several quarters of the city are in areas of high volcanic risk. Furthermore, many vital services such as water supply, hydropower plants, bridges, highways, etc., are highly vulnerable in the event of a Misti eruption, while the population and the local authorities were oblivious, until recently, of the effects of a Misti eruption. For such reasons, INGEMMET initiated programs of education and awareness in the face of the volcanic hazards in the district of Selva Alegre Alta (ASA), one of the most vulnerable. These actions were performed jointly with the local authorities of ASA, the Arequipa regional government, PREDES, the Multinational Andean Project, and the Institute of Civil Defense, among other social institutions, achieving, among others, the following:

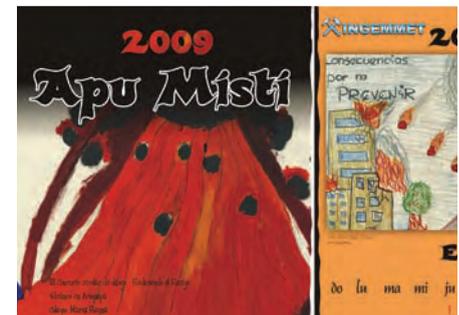
- The Municipality of ASA enacted a de-



The limits of urban growth were established and marked with indications of the volcanic danger; they were made by the local authorities.

ree forbidding urban expansion towards the Misti volcano, beyond limits established by UTM coordinates.

- The limit of urban expansion in ASA was marked so as to alert the community to the volcanic hazard.
- Elaboration of a "Contingency plan in the ASA district in the face of a Misti eruption"
- Massive distribution of the Misti volcano hazard map in public places like schools, hospitals, town houses, etc.
- The first volcanic eruption drill in Arequipa (May, 2009), with the district of ASA as a pilot place, was organized. This drill is a landmark in the handling of volcanic hazards in the second most important city of Peru. Active participation by private and public institutions demonstrated important prevention measures in the event of a volcanic eruption in southern Peru.



Calendar made using drawings by students 11 to 17 years of age, showing their perception of the volcanic risk.

- Conferences on the volcanic hazard were organized and educational materials were distributed in schools.
- Three drawing competitions among school pupils aged 11 to 17 were organized to evaluate their perception of the volcanic risk. The best drawings were used to prepare a calendar designed to further deepen the awareness of society.
- During the years 2005 to 2008, four forums on volcanic risk were organized, with an attendance of nearly 1200 persons, including personnel from Civil Defense and other authorities, as well as students and urban planners.

The above description reflects how geoscientific knowledge is a fundamental tool for land management and disaster reduction.

ŚWIATOWY ROK PLANETA ZIEMIA

10 PYTAŃ O ZIEMIĘ – PRZESZŁOŚĆ PRZYSZŁOŚCI

**Komitet
Planeta
Ziemia PAN**

Podwale 75,
50-449 Wrocław,
tel. +71 337 63 45



Planet Earth Lisbon 2009

Poland

The Planet Earth Committee, which also functioned as the Polish National Committee for IYPE, was set up by the Polish Academy of Sciences in order to raise public awareness of the achievements of the Earth sciences. The Planet Earth Committee's activities were planned for the triennium 2007-2009 in compliance with the world-wide operations of IYPE that reached a climax in 2008. Following the Polish Launch Event, held on 11 April 2008 in Warsaw, an outdoor exhibit entitled "10 Questions about the Earth – the Past for the Future" was featured in 10 major Polish cities. The exhibition focused on the IYPE's 10 main themes and drew attention to geo-solutions to important societal problems from Groundwater and Resources by way of Megacities to Oceans and Climate. It consisted of 12 stands bearing 24 posters referring to these problems and also showing bird's-eye view air photographs of the beauty and interesting features of the Polish landscape. The exhibit was displayed for 3 to 4 weeks in each city center and attracted visitors and passers-by in such places as a garden surrounding the Museum of the Earth in Warsaw and the Market Square in the old centre of

Wrocław. It was also a feature of the First Polish Geological Congress in Cracow and Science Festivals in Gdansk and Poznan. The open air exhibit provided opportunities for a number of occasional interviews that appeared in the public media.

Another raising awareness activity by the Planet Earth Committee was a series of 11 brochures popularizing Earth Sciences and their service to society. Most booklets, along with occasional posters, flyers and colorful calendars, were distributed to schools and natural museums throughout the country, where they were very welcome. Some schools even used them as rewards for winners of various thematic competitions. The brochures were similar in style to the IYPE booklets but the design was different and all original texts and attractive illustrations were prepared by members of the Planet Earth Committee. Two brochures were designed to address the considerable public interest in present and future climate under the titles 'Climate changes – what they were, what they are and what they will bring in the future' and 'Climate of the Earth in embraces of the Ocean'. Four brochures

were devoted to the natural wealth of the Earth on which all humans totally, though often unconsciously, depend: 'Minerals and rocks of the Earth – their importance for humans', 'Water – what it is for, where it is from and how to use it', 'Soils – living skin of the Earth' and 'Earth – life – health and natural resources'. Two further brochures drew attention to natural processes inside the Earth, beneath our feet and around us, all of which have a bearing on natural hazards at Earth's surface: 'Inside the Earth', and 'Hazards and natural catastrophes – can we avoid them?' Three brochures highlighted visible outcomes of the presence of people on the Earth: 'Megacities – do we need to live overcrowded?', 'A man and a rock' and 'Natural history museums – the Earth's heritage'.

*Andrzej Zelazniewicz
Chairman of the Polish National Committee*



Most prominent activities of the Slovenian IYPE National Committee

Promotional and outreach activities related to the IYPE in Slovenia were generally based on voluntary actions and initiatives by geoscientists and students of geology, while the role of institutions was focused on the publication area.

On the occasion of the Earth Day, the President of the Republic of Slovenia, Dr. Danilo Türk, visited the Geological Survey of Slovenia where geologists presented him with accounts of the challenges of modern society and the role of geoscience in them. The presenters introduced challenges in the field of geohazards, energy supplies and environmental problems. An IYPE project – OneGeology - was introduced to the President, who agreed that geology will play an important role in the future development of our society.

During the IYPE triennium, the Geological Survey of Slovenia, in cooperation with the National Committee for UNESCO, published a bilingual book entitled "Geology of Slovenia", written in both the Slovenian and English languages. More than 30

renowned Slovenian scientists contributed texts to the book, which in chronological order with attached coloured figures explains the vivid geology of this small and beautiful country from the Devonian to recent ages. In addition to chronostratigraphical descriptions of Slovenian terrain, five chapters explain the mysteries of Slovenia's groundwater wealth, the genesis of mineral resources, geohazards with emphasis on slope mass movements, earthquakes and, understandably, Karst phenomena, the name of which originates from Slovenia.

In addition, the Geological Survey of Slovenia, in cooperation with the National Committee for UNESCO, the Slovenian Research Agency and the Ministry for the Environment, published a Landslide Susceptibility map, a Debris-flow Susceptibility map and a Geological map of the territory of Slovenia at a scale of 1:250,000.

Slovenian geologists made more than 20 appearances in prime-time TV news and daily newspapers with interviews and papers for the wider public.

South Africa IYPE adventures towards 'networks of earth, life and cultural heritage'

The National South African IYPE committee was established in the latter half of 2007. Over the last two years a steady stream of events has taken place with special focus on youth awareness of our planet: how Earth works in its natural state as an efficient 'recycling machine' that, of late, has become clogged up with humanities' 'dirty washing' and is now in need of repair. Students were confronted with questions of how Earth has reached this state of neglect and how they would imagine setting up effective 'clean-up' campaigns. This IYPE-approach was the theme for the 2008 National Schools Debates, a tournament in which more than 58 schools (about 200 pupils and 40 teachers) took part, and which ended in a national-finals competition between 15 teams attended by South Africa's Deputy Minister of Science and Technology. The winning students were invited to represent South Africa's new generation of Earth custodians at the forthcoming Lisbon IYPE event. Thousands of students also passed through IYPE exhibitions at the annual national science festival in Grahamstown (www.scifest.org.za) that attracted more than 65,000 students. Arguably the most exciting development was South Africa's participation in an event 'without borders' - the official IYPE-Africa launch in Arusha, Tanzania. Three scientists took 10 school students and two young emerging scientists to Tanzania to meet delegates from all over Africa. Youth from Tanzania joined their South African counterparts in an IYPE competition. This involved a strategic card/board game 'Earth Alive', consisting of a holistic set of 101 strategies aimed at stimulating debate to explore paths into a safer, kinder future, part of the "Africa Alive Corridors" (AAC) Project. The collegiate competition between these 'leaders of tomorrow' proved a success with many of the delegates from around the world, including the Tanzanian President, H.E. Mr Jakaya Mrisho Kikwete (see photo) and the International Year Secretariat, amongst others. Why were African IYPE delegates so impressed by the impact of this game on the youth, the



quality of debate that it encouraged and the depth of knowledge it imparts? Africa is unique amongst the continents. It is the place of origin of humanity through the past 10 million years; it is the landmass with the greatest resources in terms of geological and biological diversity, and retains today the only intact mammal fauna; it was at the core of the supercontinent Gondwana; the oldest known life-forms (bacteria) have been found here. Yet it is the continent whose peoples suffer most distressingly in respect of the UN Millennium Development Goals (poverty, illiteracy, gender inequality, child mortality, disease, environmental degradation). The escalating effects of the Sixth Extinction of biodiversity and of runaway global warming, if unchecked, threaten to impact particularly severely on Africa. In playing the game, the 20 selected African students together sought ways in which the youth of the world can actively participate in sustainably managing Earth's geological, biological and cultural resources. The AAC Project aims to draw all 900 million Africans of every background and persuasion into co-curating the continent's uniquely rich heritage. In this way, all will be a part of reversing the tragic human and biological crisis. Through a selection of 21 heritage corridors (varying from 1,000-4,000 km in length and some 100 km across that will criss-cross Africa and take in all its countries, including 400 heritage nodes - World Heritage Sites, Biosphere Reserves, diversity hotspots, Geoparks, etc), the 4-billion year autobiography of the continent is told. It is an epic and continuing story. The project encourages all Africans to join in the interpretation and writing of their continent's story, and from there take it farther across Gondwana.

The South Africa National Committee for the IYPE



Seated (from Left to Right): Dr. H.A. Dharmagunawardena, Prof. K. Dahanayake, Mr. Ashvin Wickramasooriya, Prof. V. Nandakumar, Dr. A. Pitawala, Prof. P. Wickramagama

Stand (from Left to Right): Miss. R.V. Katugaha, Mr. A.W.M.V. Ekanayake, Miss. M.T.K. Ekanayake, Miss. D.A. Weerasinghe

1st Sri Lankan Earth Science Olympiad Competition - 2009

Jointly organized by IYPE Sri Lankan National Committee & Geological Society of Sri Lanka (GSSL)

The Geological Society of Sri Lanka (GSSL) celebrated its silver jubilee in 2008. Since it was established in 1983, multidisciplinary activities have been organized to promote Earth Science in Sri Lankan society. In December 2008, the Geological Society of Sri Lanka passed another milestone when it joined as the Seventy Eighth member of International Year of Planet Earth (IYPE). Since establishing the Sri Lankan National Committee for IYPE, many activities have been organized in collaboration with other organizations at regional and national level to distribute knowledge for the betterment of society. Events included the National symposium 2009, teacher training workshops at provincial levels, seminars and awareness programmes for the general public, annual research sessions, and workshops for undergraduates and postgraduates.

Both the Sri Lankan National Committee and the Geological Society of Sri Lanka considered it timely to seek promotion of Earth Science among the younger generation of the country and also understood that the basic knowledge of Earth Science/Geology should be introduced at the school level. As a start in implementing this idea, the Sri Lankan National Committee decided to organize, in collaboration with the Geological Society of Sri Lanka, the 1st Sri Lankan Earth Science Olympiad competition for secondary school students under 18 years of age. The Sri Lankan Earth Science Olympiad Committee (SLESOC), Chaired by Mr. Ashvin Wickramasooriya, was appointed to organize this event. Mr. L.R.K. Perera, Dr. H.A. Dharmagunawardena, Prof. K. Dahanayake, Prof. V. Nandakumar and Dr. A. Pitawala are appointed as the Sri Lankan Earth Science Olympiad Committee. Prof. C.B. Dissanayake, Chairman of IYPE Sri Lankan National Committee and Mr. M. Premathilake, President of GSSL, gave their fullest support and coop-

eration in organizing this novel event. The 1st Sri Lankan Earth Science Olympiad competition took place on 25th July, 2009 at the University of Peradeniya. The main topics included Geosphere, Hydrosphere, Biosphere and Atmosphere. Students representing many schools in the Central Province of Sri Lanka actively participated in the competition. School principals and teachers greatly appreciated organizing of the Olympiad competition and asked that activities of a similar kind should continue for years to come. The most outstanding four students were selected to participate in the 3rd Earth Science Olympiad competition to be held in Taipei, Taiwan, from 14 – 22, September, 2009.

Head of the IYPE National Committee of the IYPE, the Swedish King Carl XVI Gustaf, and the Permanent Secretary of the Swedish Royal Academy of Sciences, Gunnar Öqvist



National Committee of Sweden: highlights of 2008

The Swedish National Committee of IYPE is organised under the Swedish Royal Academy of Sciences. The committee consists of members from universities, government authorities, industry, etc. The main activities in 2008 were the production of a special issue of the popular journal "Geologiskt Forum" on the International Year and an official opening ceremony at the Royal Academy.

The special issue included papers on all the ten topics of the IYPE, written by the leading specialists in Sweden. The issue was printed with many extra copies and also distributed to all members of the Parliament, the press and others.

On May 26, 2008 an official opening ceremony of the IYPE was held at the Swedish Royal Academy of Sciences, in Beijersalen - the main lecture hall. It was officially opened by the Patron of the IYPE, the Swedish King, his Royal Majesty Carl XVI Gustaf. His opening speech focused on the importance of the IYPE and stressed the importance of education in geology in schools. This was followed by seven lectures covering most of the IYPE's ten major themes, and delivered by leading specialists in the respective fields in Sweden, as follows:

The fossil archives of Earth – the key to the future. Professor Vivi Vajda
The Earth's climate in a geological perspective. Professor Dan Hammarlund
Medical geology – a key issue for the fu-

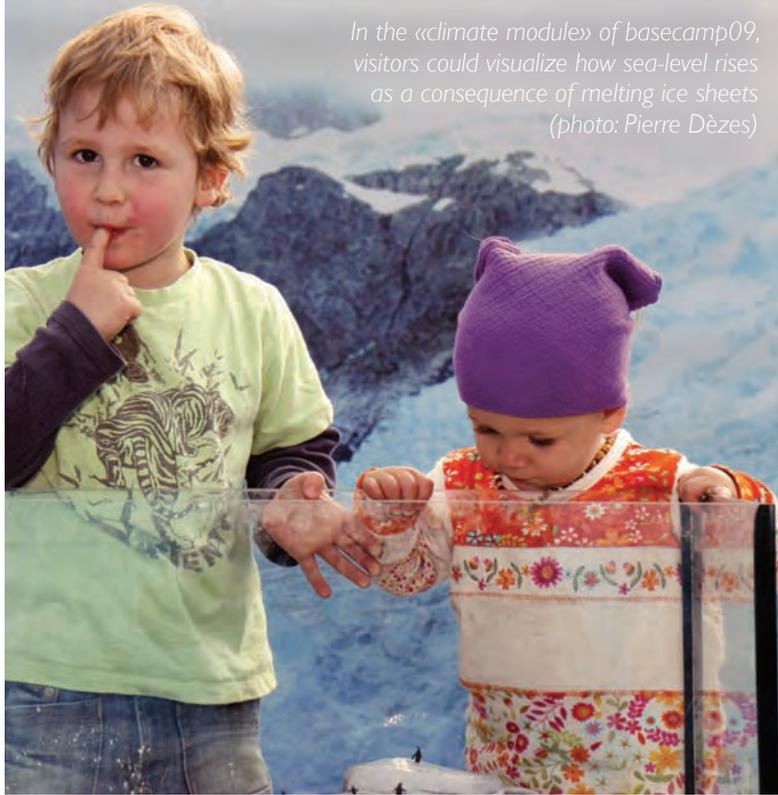
ture. Head of the National Committee for the IYPE - Olle Selinus
Our Earth and future energy issues. Professor Roland Roberts

The oceans and tsunamis - can Scandinavia be affected? Professor Martin Jacobsson
Our dependency on ores and minerals. Professor Pär Weihed

The necessity of geology in planning and construction in urban areas. Dr Per Hogård.

The ceremony was attended by about 300 people from universities, government, industry, agencies, schools, the press, etc. The ceremony was also recorded by Swedish and international TV as well as by the broader press. All lectures and other information can be downloaded from <http://www.snkg.kva.se/planetenjorden.html>.





In the «climate module» of basecamp09, visitors could visualize how sea-level rises as a consequence of melting ice sheets (photo: Pierre Dèzes)



The excursions radiating from the “base camp” offered participants many opportunities to get thrilled by Earth sciences. Here a complete dinosaur is unearthed in a quarry near Basel (photo: Pierre Dèzes)

Switzerland: Basecamp 09

The Basecamp09 festival was the major outreach and educational initiative dedicated to the International Year of Planet Earth in Switzerland. BaseCamp09 consisted of an itinerant exhibition that stopped in six cities of Switzerland's four linguistic regions during the year 2009.

The aim of the basecamp09 festival was to show how the Earth and its environment have evolved over time and to reflect upon the causes and consequences of these changes.

Of the ten official IYPE themes, the following six have been developed as modules under the common concept of «experiencing environmental changes»:

- The «Earth & Life» module dealt with the evolution of life from its origins to present times. The history of the Earth was represented by a 4.6 meter high paper tower. The major steps in life's evolution were illustrated by artist drawings, accompanied by fossil samples.

- In the «Hazards» modules, historical Earth tremors were reproduced in an earthquake simulator designed as a classroom.

- The «climate» module demonstrated the consequences of global warming and

showed ways of decreasing our footprint on the environment.

- In the «resources» module, visitors could play a game to discover on a large map of Switzerland which natural resources are available in our country.

- The «Deep Earth» module displayed different types of rocks from the crust and the mantle; a movie on the Earth's interior and plate tectonics was projected on the ceiling of a domed inflatable tent.

- «Earth & Health» showed visitors that what hurts the Earth also harms our health.

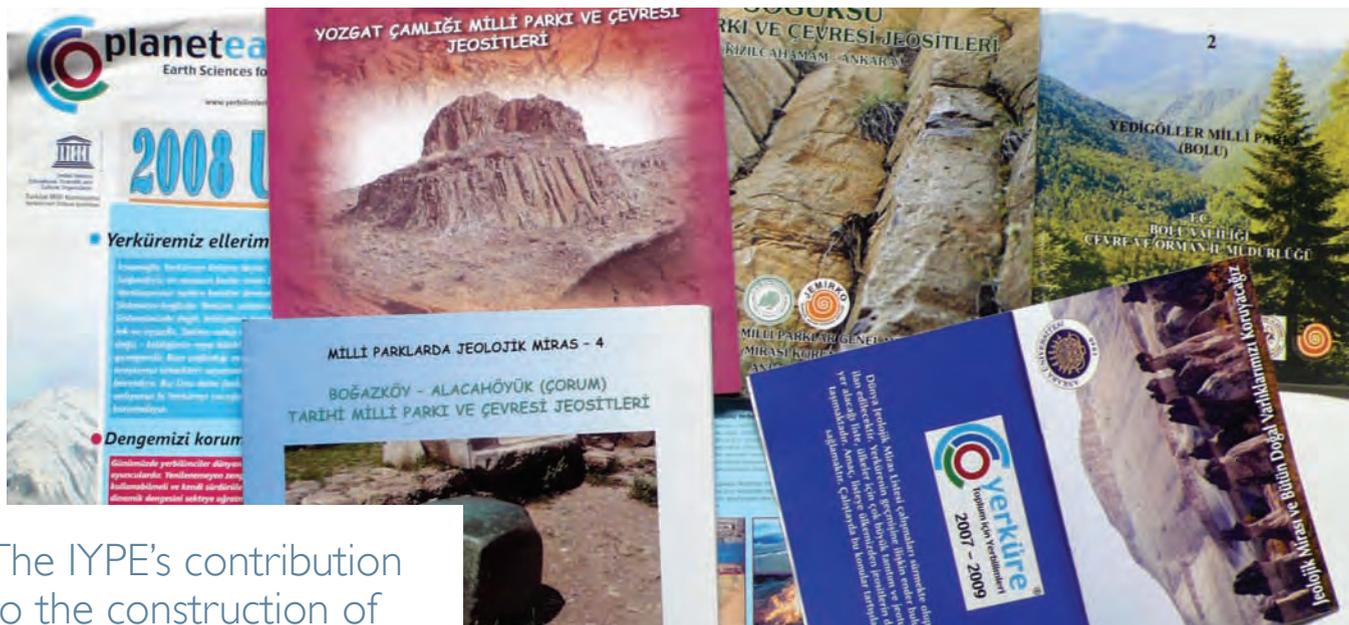
The exhibition, designed by professional scenographers, consisted of a mobile infrastructure made of inflatable modules and shipping containers reminiscent of the base camps used in large scientific research expeditions. At each of the six locations where the exhibition stopped, regional or local scientific input by universities, museums or scientific societies was added to the “basecamp”. To further complement the exhibition, guided excursions radiating from the base camp offered the visitors the opportunity to see for themselves, in the field, the changes to our environment.

Not only was basecamp09 a place of dialogue, debates and reflection about en-

vironmental change, but also a place for relaxation and entertainment. Great care was taken to ensure that the discourse on environmental changes was not patronizing or schoolmasterly but, instead, brought forward a fascination for Earth Sciences. A special emphasis was placed on reaching out to teenagers and young adults by organizing, amongst other things, rap and poetry slam contests on themes dealing with environmental changes. For younger children and their teachers, pedagogic modules on the six topics were made available for downloading from the basecamp09 website.

Basecamp09 was initiated by the “Science et Cité” foundation and by the Swiss Academy of Sciences. Numerous private or institutional partners contributed to the national or regional programs. For maximal impact, broad media coverage was assured.

Further information is available on the project's homepage at <http://www.basecamp09.ch> (in French, German, Italian & Romansh).



The IYPE's contribution to the construction of Geoparks in Turkey

Turkey is a dynamic Mediterranean country, over half of its 72 million inhabitants being younger than 28 yrs old. Such a rapidly growing population, together with intensive migration from rural areas to the cities has created many problems. Turkey is open to new ideas, and it was in this spirit that the IYPE concept and its possible results were approved by Turkish society. Of course, efforts by UNESCO-Turkey influenced this result. First, the Earth science Committee of UNESCO-Turkey organized a two-day workshop involving contributions from universities to scientific surveys and municipalities in order to prepare the national IYPE action plan. Memoranda of Understanding were signed with the IYPE and possible activities, methods, institutional contributions and necessary budgets were discussed and a simple but practical plan was finally accepted; every institution, university or company agreed to organize activities using the local and international logos of the IYPE by permission of UNESCO-Turkey.

Activities under the IYPE "outreach program" included various symposia, congresses, conferences, exhibitions, and talks on both TV and radio. The main slogans were "geosciences for society" and "responsibility of earth scientists". Early on, UNESCO-Turkey helped by producing posters and distributing them, particularly to primary and secondary schools. Protection of soil and water; geoconservation, geodiversity, natural hazards, and earthquake risks became popular media

subjects. Many scientific papers were published by different institutions in journals and popular magazines. In 2007-2009, all Earth science congresses organized separate IYPE sessions. Not surprisingly, experience of the destructive earthquake at Marmara in 1999 and a severe summer drought in 2008 generated greater attention and interest in meetings and media. A project entitled Surveying of National Parks for geoconservation and geotourism incorporated in local IYPE events was greatly appreciated on all sides in Turkey.

Almost all Turkish national parks were created in the context of the Law for Forest (no 6831, 1956), which is their legal base. These parks are the most protected lands in the country because they were set up in areas already protected by the law. On the other hand, geological values i.e. geosites and geological heritage within these parks remained hidden, so that visitor numbers have always been relatively low. Thus, despite the degree of conservation, the geological sciences did not have a prominent place formerly. Stimulated by the IYPE, however, the Turkish Association for Protection of Geological Heritage (Jemirko) has provided leadership in mounting an "Earth science for society" project with the strapline "geoheritage in protected areas"; this has attracted support from several institutions. As a result, ten national parks have been surveyed for geosites and ten books, one for each park, have been published by the Nature Protection Agency (DKMP), being the first releases

in this field. Apart from simplified geology and geodiversity, many geosites and possible geo-routes are described, so that visitors have been spending time more in the parks. However, there has been some opposition to the fixing of geological panels on geosites because of fear that this may convert the national parks into Geoparks.

Current legislation in Turkey does not contain the term "Geopark" since local people and administrators think that additional or newly protected areas can impose upon farmlands. This is illusory, because more than 20 000 cultural sites have already impinged upon a variety of daily activities. During the IYPE work, Geoparks and their potentially positive role in daily life, particularly geotourism potential, have been explained using good examples from other countries. Now, at the end of three years, local administrations and people are asking for Geoparks to be set up in their regions, so much that a meeting on March 24, 2009 concerned with the world list of geological heritage turned out to be a workshop for Geoparks. Since then, preparations for the establishment of eight Geoparks have been completed, so that it might be said that Geoparks were an IYPE gift to Turkey.

*Nizamettin Kazancı
National Representative*



Uruguay's National Committee for the IYPE

The National Committee (NC) of Uruguay was established on 4th July 2008. It is composed of Mag. Vilma Daudy, Dr. Fernando Preciozzi, Ing. Agrón. Jorge Spoturno and Lic. Nestor Baumann. The NC has taken part in the National Direction of Mining and Geology included in the Geomining Museum and Geology Division.

In 2008, the NC and the Uruguayan Geology Society organized the national student contest about the topics proposed by the IYPE. The competition involved High school students. At a public ceremony on 22nd October 2008, the General Director of Industry, Energy and Mining Minister and other senior officials presented prizes to the winners.

In addition, the NC prepared an exhibition entitled "Mining Resources of Uruguay" as part of the activities on the "Heritage Day". This activity was visited frequently by a curious public.

An exhibition about the work of geologist Dr. Karl Walther Ziegler, on the occasion of the centenary of his arrival in Montevideo, was set out in the hall of the National Direction of Mining and Geology.

Two CDs were made by the National Committee; one of them entitled "The Underground Waters" is mainly concerned with the two major aquifer systems in Uruguay; the Guarani and Raigón aquifers. The second CD was entitled "Semi-precious Stones", paying particular attention to the exploitation of precious stones in the Artigas Department of northern Uruguay. Both CDs were distributed free of charge in the schools.

Several conferences were organized for the IYPE, one of which brought to life Prof. Fernando Tabó's "Virtual Tour of Uruguay Mineral Resources". The National Committee also organized school visits to the Geomining Museum specialized guides.

Thanks to the efforts of this committee, together with some carefully considered reasons, a new curriculum in primary education has now been introduced that includes the study of geology.

Finally, some future projects will include exhibitions, conferences and workshops with special emphasis on education.

Vietnam: the National Committee for the IYPE

During the IYPE triennium 2007 - 2009, especially after the establishment of the IYPE National Committee on 28 January 2008 and the IYPE National Launch Event on 5 June 2008, various organizations in the country have actively participated in many activities devoted to the IYPE. Numerous activities can be listed: the Workshop on climate change and sea level rise in Nha Trang city organized concurrently with the IYPE National Launch Event on 5 June 2008; the Workshop on Earthquakes in Vietnam: Seismic Risk and Mitigation, 12 and 13 March 2009; the publication of 15 numbers in Vietnamese and 5 numbers in English of the Journal of Geology, a book on medical geology specially dedicated to the IYPE; several research projects on investigation of geosites and construction of Geoparks, production of a video film on petroleum exploration and production; another video film on the Dong Van limestone plateau proposed for the establishment of a Geopark, and other events.

The most prominent outcome was the compilation and publication of the Monograph "Geology and Resources of Vietnam". This work is the result of the joint efforts of 73 voluntary geoscientists from various ministries, agencies, universities, associations and companies. Its Vietnamese version has been published as a hard cover book with 590 pages in 19 x 27 cm format, consisting of the following 6 parts:

Part I:

Overview of landscape and geology of Vietnam, consisting of 2 chapters; generalizes the history of geological and resources investigations, natural geographic and geomorphologic conditions.

Part II:

Stratigraphy, consisting of 7 Chapters, describes all stratigraphic units aged from Archean to Quaternary, by each region or sedimentary basin, including the lithologic composition, color, particle size, depth of occurrence, structure, bedding characteristics and fossil contents, with one chapter devoted to weathered crusts.

Part III:

Magmatic formations, consisting of 6 Chapters, describes all igneous rock formations, by age and by geologic structure, including their geologic setting, areal distribution, mode of occurrence, mineral composition, structure, texture, associated ore minerals, alteration, etc.

Part IV:

Metamorphism, consisting of 2 chapters, describing the specific complexes of metamorphic rocks, their metamorphosing conditions, geodynamic circumstances and the main stages of metamorphism in the geologic history.

Part V:

Structural geology and tectonics, consisting of 7 chapters, describes Pre-Cambrian metamorphic terranes, Neo-Protrusion orogenic systems, Late Paleozoic - Cenozoic intracontinental depressions and rift systems, active continental margins, Cenozoic basins; tectonic deformation characteristics, including folds and faults; geohazards, environmental contamination, including natural radioactive contamination, heavy metal contamination and measures for natural hazard mitigation and sustainable development; regional geophysical fields and deep geologic structures; tectonic evolution in various periods from Paleo-Proterozoic to Cenozoic.

Part VI:

Georesources, consisting of 4 chapters, describes in detail various georesources such as mineral resources (including metallic minerals, non-metallic minerals, construction materials), energy resources (including coal, oil and gas, uranium, geothermal energy), water resources (groundwater, thermo-mineral water); geosites and geoheritage, with descriptions of heritage sites inscribed by the State or international organizations, such as Ha Long Bay, Phong Nha - Ke Bang national park, etc., as well as potential geoheritage sites.

The work contains multiple colorful up-to-date maps, sections and images. It also provides a detailed explanatory note on the geology of Vietnam in the 1: 5M scale

Geological Map of Asia compiled under the direction of the Commission for Geological Maps of the World (CGMW).

The English language edition of the book is being prepared and publication is expected to be soon.





Eduardo F.J. de Mulder

Executive Director of
the IYPE Secretariat

The IYPE Triennium: legacy and looking ahead

As the International Year of Planet Earth Triennium draws to its close, it is opportune to look back on what has been achieved and to look ahead to potential new developments in the future.

Legacy

The 80 National and Regional IYPE Committees constitute one of the most important legacies of the IYPE. At national levels, they brought together key players from several, sometimes competing organizations by focusing on a single, joint ambition to raise awareness of the Earth sciences among decision makers and the public. A self-evaluation on the part of the National Committees indicates that this ambition was at least partly accomplished.

Since the onset of the IYPE Triennium in 2007, many thousands of activities all over the globe have taken place. The National Committee of Brazil alone reports over 20,000 science and outreach activities. A significant majority of these were related to education. Thousands of schools worldwide responded to the International Year of Planet Earth according to their own languages and cultures. Again, this is reflected in the results of the National Committees' self-evaluation exercise which shows that 92 % of nations reported at least some degree of success in raising the interest of young people in numerous national activities.

A second IYPE legacy item was the emergence of the Young Earth Science Initiative

(YES). Launched in 2007, the YES provides a platform for young professionals in the Earth sciences. Stimulated by the IYPE's Global Launch Event held in Paris in 2008, an event attended by many students and young professionals, the YES has grown rapidly. Further expansion eventually led to a formal organizational structure, a network of supporting organizations (including the IYPE) and an invitation from the Chinese government to host the first International YES Conference in October 2009 in Beijing. One month later, another gathering of some 200 students and young professionals from 70 nations will take place under a joint IYPE-YES banner in Lisbon.

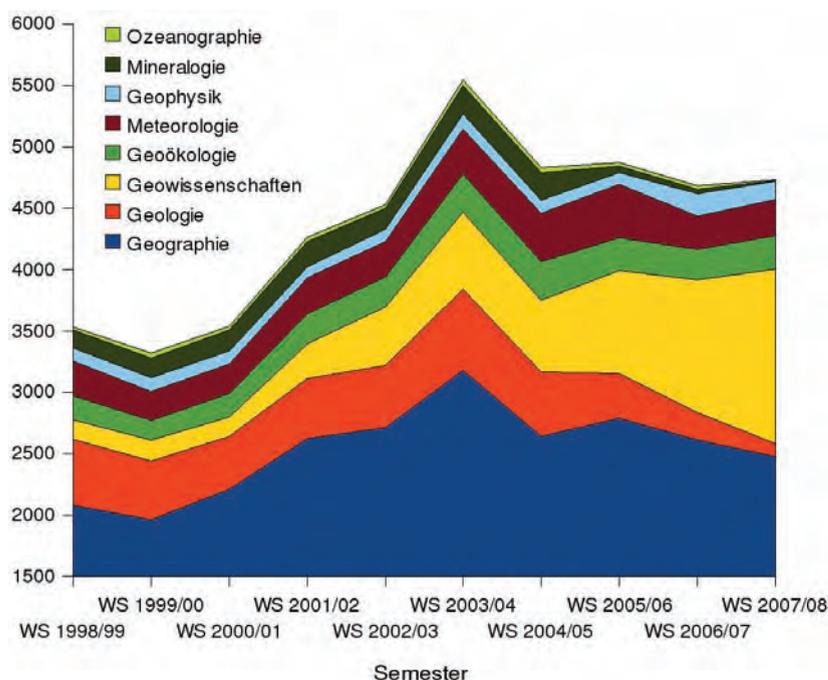
At the political level, a flood of public statements made by leading politicians pleaded for implementation of the aims and ambitions of the International Year of Planet Earth, specifically with a view to paying greater attention to science and knowledge of the Earth in the decision-making process so as to build safer, healthier and more prosperous societies. The most common examples of this process took place in the many national launch events, at which politicians spoke in such terms in support of the IYPE, followed by cultural performances by school children, designed to highlight the importance of the Earth and sustainable development for future generations.

OneGeology is another IYPE legacy of major proportions. This initiative chose to come under the IYPE banner in 2007. The ambition of this global venture is to bring

together geological data from all nations on Earth into a digital database that is then translated into one single computer language. The planned outcome is a digital map of the subsurface of the planet that may eventually provide a third dimension to popular geographical websites, such as Google Earth. Since its inception, some 113 national Geological Surveys have embarked on this initiative.

Many more legacy items were generated during the IYPE Triennium. For example, the Via Geo-Alpina initiative involved cross-country geological hiking tours through the Alps. Another successful outcome was the EarthLearning Idea, providing elegant methods using simple materials to assist teachers to explain often complex geological processes. The production of a series of state-of-the-art scientific books on each of the ten IYPE Themes contributed significantly to a scientific underpinning of the ten IYPE Themes, the first volumes now being published by Springer Verlag. Other important outcomes include a UNESCO initiative to assess the state of the Earth sciences in Africa and to develop tools to improve it, and the outlines for an African Forum for Sustainable Development, initiated by the Government of Angola in close cooperation with the International Year of Planet Earth.

Although it is still too early to draw firm conclusions, it appears that student recruitment in University Earth sciences courses has been growing in many countries since 2007. From those countries where this



process was monitored and brought to the attention of the IYPE Secretariat, 65% reported growth, 20% stagnation and only 16% noted declining numbers. A report based on details of these data will be forwarded to the United Nations and UNESCO by the middle of 2010. Although not all such changes can be attributed to the IYPE in the face of other factors (notably recent economic changes and commodity prices), it is likely that the International Year of Planet Earth contributed somewhat to this growth because growth indicators broadly correlate with the level of IYPE activities in specific nations. Furthermore, comparable growth was reported in Germany where a national Year of Planet Earth (Das Geojahr), in which many public outreach activities proved to be attractive to young people, was held in 2002. The peaks in student course entries (see Figure) match such public initiatives quite closely.

Looking ahead

From the onset of IYPE activity, the aim has been to launch initiatives that were intended to run beyond the formal triennium. Some such initiatives began at a national level and raised themselves to international level as other National Committees joined in. The following two major initiatives were developed with the specific intention of building upon the IYPE legacy.

The Planet Earth Institute

This Initiative arose from a decision by the

IYPE Board taken early in 2009 that was reinforced by the results of the self-evaluation exercise mentioned above on the part of the National IYPE Committees in March and April 2009. The Board charged an ad-hoc committee to explore options for an outreach-oriented initiative that would become active after the end of the IYPE triennium. This resulted in the development of The Planet Earth Institute. This (mainly virtual) Institute has, as its mission, the promotion of knowledge of the Earth with a view to improved management of the planet and its inhabitants. The Planet Earth Institute is a non-political, non-religious and not-for-profit Foundation. Its mission and implementation complement existing Earth scientific organizations, as described in a dedicated brochure.

National Committees constitute the geographic backbone of the Planet Earth Institute. As many of the IYPE National Committees wish to continue their (mainly outreach) activities, they will be invited to become part of the Planet Earth Institute. These National Committees will benefit from income generated by outreach activities such as big screen displays, publications, events, TV events, etc. conducted by the Institute directly in addition to National Committees' own activities at national levels.

International Partners will form the financial backbone of the Planet Earth Institute. As with the National Committees, International IYPE Partners will be invited to continue supporting Planet Earth Institute ac-

tivities after closure of the IYPE Triennium. Three stages in the evolution of the Planet Earth Institute are envisaged: an Initial Stage (first two years), a Transition Stage (years 3 and 4) and a Mature Stage (the 5th and succeeding years). Break-even status should be reached during the Transition Stage, followed by self sufficiency for the Foundation.

World-class Science Initiative

At its 5th meeting, the IYPE Board also decided to explore options to develop a 'world-class' science initiative. This option was explored by an ad-hoc group through a 'brainstorming' meeting in London in July 2009. The initiative was then tested before an Earth scientific audience in Portland, USA, in October 2009. Two more interactions with the Earth scientific community are scheduled (in North America at the AGU in December 2009 and, in Europe, at the EGU meeting in May 2010). By that time, the theme(s) of the new science initiative and its structure and funding scheme will have been determined, and the way forward set for continued growth in the advancement and application of the Earth sciences for the betterment of all.

International Year of Planet Earth: Founding Partners

	American Association of Petroleum Geologists
	American Geological Institute
	American Institute of Professional Geologists
	Geological Society of London
	International Geographical Union
	International Lithosphere Programme
	International Union for Quaternary Research
	World Soil Information
	International Union of Geodesy and Geophysics
	International Union of Soil Sciences
	TNO Built Environment and Geosciences – Geological Survey of the Netherlands

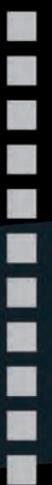
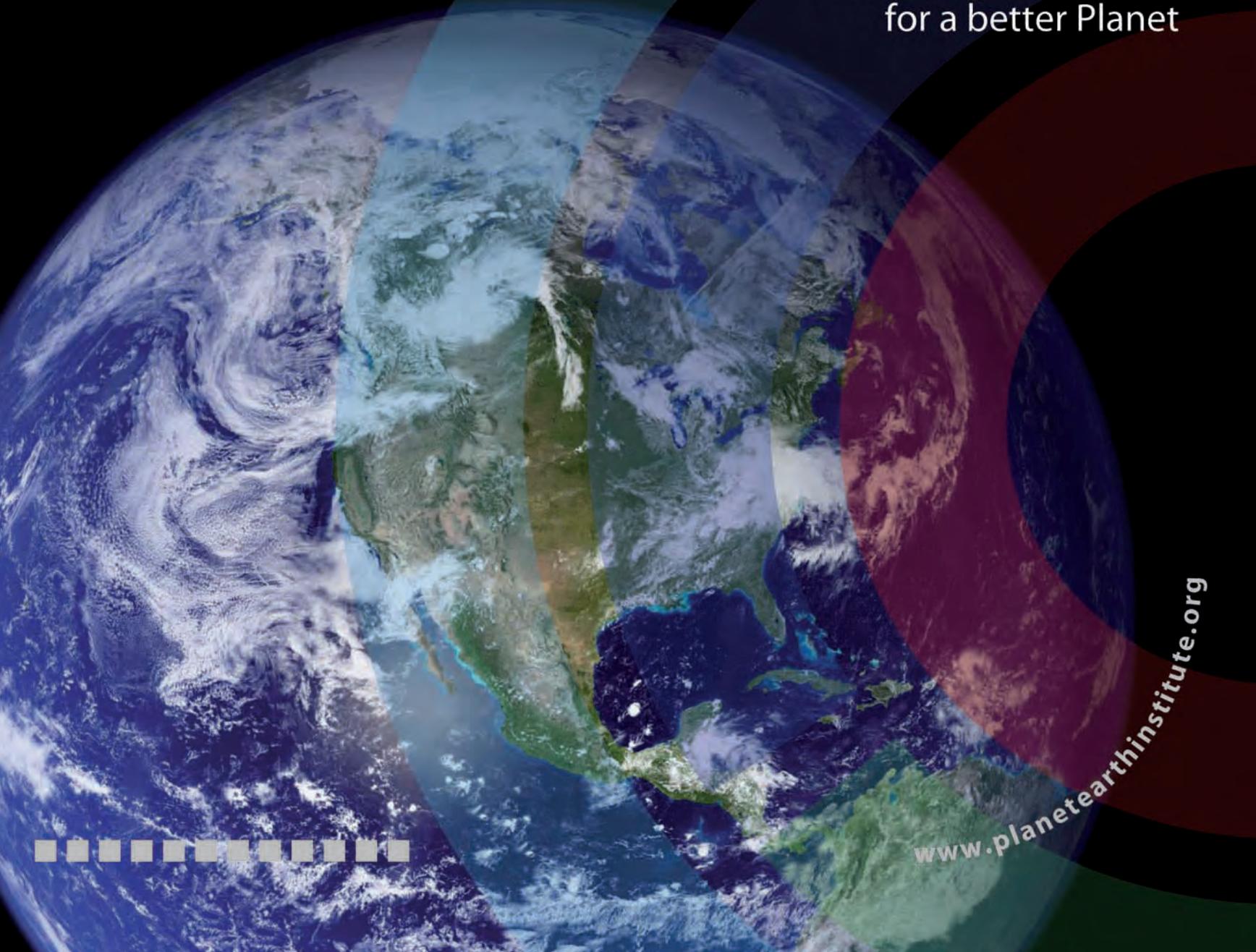
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Environment of the Netherlands



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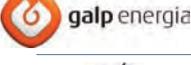
International Year of Planet Earth: Associate Partners

AARSE	African Association for Remote Sensing of the Environment
AASG	Association of American State Geologists
AGID	Association of Geoscientists for International Development
CCOP	Coordinating Committee for Geoscience Programmes in East & Southeast Asia
CGMW	Commission for the Geological Map of the World
CPC	Circum Pacific Council
EFG	European Federation of Geologists
GSAf	Geological Society of Africa
IAGOD	International Association on the Genesis of Ore Deposits
IAH	International Association of Hydrogeologists
ICSU	International Council for Science
IGCP	International Geoscience Programme IGCP
IOC	Intergovernmental Oceanographic Commission
IPA	International Palaeontological Association
IPA	International Permafrost Association
ISPRS	International Society of Photogrammetry and Remote Sensing
NACSN	North American Committee on Stratigraphic Nomenclature
NESF	North Eastern Science Foundation
ProGEO	European Association for the Conservation of the Geological Heritage
SEG	Society of Economic Geologists
SEPM	Society for Sedimentary Geology
SCA	Science Council of Asia
SGA	Society for Geology Applied to Mineral Deposits
UN/ISDR	United Nations International Strategy for Disaster Reduction
UNU	United Nations University



International Year of Planet Earth: International Partners

	American Geophysical Union
	Geological Survey of Italy
	British Geological Survey
	European Geoparks Network
	EuroGeoSurveys
	European Geoscience Union
	Geological Society of America
	Geological Survey of Ireland
	Geological Survey of Japan
	International Association for Mathematical Geosciences
	Geological Survey of Spain
	National Aeronautics and Space Administration
	Norwegian Geological Survey
	Society of Exploration Geophysicists
	Springer Verlag
	Geological Survey of Poland
	Caixa Economica Cape Verde
	ENACOL, Cape Verde
	Centrais Electricas di Santa Catarina, Brazil
	Banco Espírito Santo de Angola
	Banco Keve

	Banco Africano de Investimentos
	Banco de Desenvolvimento de Angola
	QUATTOR
	TAAG Linhas Aereas de Angola, EP
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	Grupo Gema
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