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IAS General Secretary - Editorial

2008 was proclaimed by the General Assembly of United Nations to be the International Year of Planet Earth (IYPE). This followed an earlier joint initiative of UNESCO and the International Union of Geological Sciences. Geological communities from more than 65 countries are supporting the International Year of Planet Earth, which provides an outstanding chance to promoting Earth Sciences at a worldwide scale.

The message is clear: Earth Sciences are useful, even critical, to safeguard our Planet and the quality of life on it, not only for humankind but also for the whole of ecosystems on which vegetal and animal life is based. Understanding the motto of the IYPE. Earth Sciences for Society, means that we must be aware that a holistic view of the Planet is necessary, and Earth scientists can contribute significantly to this goal. Implementing this theme, we are strongly engaged to stimulate children and young people to view Earth Sciences as a professional issue of collective benefit.

Many international scientific and technological societies have

sponsored the celebration of the IYPE, which actually extends throughout a triennial period (2007-2009). Sedimentogists are an integral part of this effort as our knowledge and skills can contribute decisively to solve some major issues dealing with the health of the Planet. Natural disasters derived from geological processes, groundwater storage controlled by sedimentary lithofacies in the subsurface, dynamics of the ocean systems, distribution of sedimentary mineral and energy resources, soil and palaeosoil features, effects of climate change and its record in the past, movement of natural and anthropogenic pollutants on the Earth surface and recognition of biological communities as biofacies in both recent and very old sedimentary deposits are all of them scientific topics, which are very familiar to sedimentologists. Moreover, the influence of internal processes associated with the interior of our Planet must not be discarded, and sedimentologists working on sedimentary deposits from the remote Archean ages recognise the importance of the earliest Earth for our understanding of Planet Earth.



Even the tenth theme, Megacities, contained in the scientific and outreach programmes of the IYPE needs sedimentological knowledge for its developed in a comprehensive way. To improve our ability to disseminate information about the above mentioned topics represents an additional challenge for the sedimentological community.

The International Association of Sedimentologists (IAS), embracing more than 2,000 scientists and professionals as well as regional and national associations representative of the field of Sedimentology, salutes the initiative of the International Year of Planet Earth. The present IAS Newsletter is devoted to the event. I thank Dr. Gail Ashley, from Rutgers University, USA, and a past member of the IAS Bureau for her effort in writing the article that forms the core of this Newsletter, The title of Gail's article 'Environmental Sedimentology', encapsulates a valuable concept closely linked to the aim of the IYPE.

I am sure that all IAS members and, in general, the World's sedimentological community will take advantage of the numerous opportunities offered during the celebration of the International Year of Planet Earth.

> José-Pedro Calvo IAS General Secretary



View of the travelling big tent used to celebrate the IYPE in Spain.



ENVIRONMENTAL SEDIMENTOLOGY

by G.M. Ashley, Department of Earth & Planetary Sciences, Rutgers University, New Brunswick, NJ 08901 USA

he International Year of Planet Earth (IYPE) 2007-2009 is a global effort initiated by the International Union of Geological Sciences in 2000 representing a quarter of a million geoscientists across 140 countries. The Year, with subtitle Earth Sciences for Society, was proclaimed through the United Nations in 2005 and provided a visual spectacle to the world with the release of 4,567 bio-degradable balloons (one for each million years of planet Earth) in London, January 2007. A myriad of education and outreach programs have been created ranging from Transparent Earth, through 1:1 M World digital geological map (OneGeology) supported by geological surveys around the world, 'Faces of Earth' TV documentary on Earth sciences (produced by AGI and ExxonMobil), and two new journals were launched, «Nature, Geosciences» and «Geoheritage». National committees are operating in 65 countries (Figure 1). The world launch of IYPE was in Paris February 2008. Its purpose will be to focus on the relationship between

humankind and Planet Earth and to demonstrate that the geosciences are key players in creating a balanced, sustainable future for both. At least three years will be needed to realize most of the ambitious science and outreach plans, and the Year's triennium will thus run from 2007 to 2009.

The IYPE focuses on ten broad themes in which **Environmental Sedimentology** is a cornerstone of each one by being crucial to carrying out the basic research and being important to the acquisition of data required to tackle problems facing us. Environmental Sedimentology is critical to finding solutions for a sustainable Earth (Ashley, 2007).

International Year of Planet Earth scientific themes

Earth & Life	Soil
Climate	Hazards
Resources	Megacities
Groundwater	Earth & Health
The Ocean	Deep Earth





Figure 1. Status of national committees of IYPE

The meeting theme for the 25th IAS Meeting of Sedimentology in Patras, Greece (September 2007) was *«Sedimentology and Environment»* reflecting the growing interest within IAS for Environmental Sedimentology.

What is Environmental Sedimentology, exactly?

The term means different things to different people, although most would associate it with the application of sedimentology to modern environments. A number of new publications on this subject have appeared recently, apparently spurred by global climate concerns. The subject is cross-disciplinary and workers come from a wide range of established communities, such as soil science, engineering, biology, geochemistry, and hydrogeology, linked together with the common thread of sedimentology. Environmental Sedimentology is currently struggling for an identity and a unified research community and common voice.

Perry and Taylor (2007) recently defined Environmental Sedimentology as «the study of the effects of both man and environmental change upon active surface sedimentary systems» in their book structured on traditional depositional environments, but with non-traditional chapter on urban environments and a concerted effort to examine the anthropogenic impact on other environments. A successful book series «Key Issues in Environmental Change» by Arnold represents a fresh approach to studying systems in which humans move more material around on the Earth's surface than all natural agents of erosion and deposition put together. IAS is ideal home for this growing field which is expected to continue to expand in coming years.

At the IAS Congress in Copenhagen, a summary was presented in a talk «Wither Sedimentology»? (Ashley, 1999) of the waxing and waning of the subdisciplines of sedimentology over time: Environmental Sedimentology, Geochemistry, Biosedimentology, Marine Studies and Planetary were expected to expand (Figure 2). With the burgeoning population explosion (Figure 3), the impacts of global warming (Figure 4), and prevalent pollution of air and water Environmental Sedimentology could be the key to a sustainable planet Earth. Sedimentology is an important factor in many of issues facing us from coastal erosion (to sea level rise) to the development of adequate groundwater models to avoid pollution of water supplies (Figure 5).



Figure 2. Trends of sedimentology sub-disciplines from a talk at IAS Congress in Copenhagen (Ashley, 1999) inspired by Robert H. Dott, Jr. (1988).



Figure 3. World's population is expected to reach 9 billion by 2050.

IYPE will draw attention to the importance of Earth Science in understanding the complexity of the world we live in and pressures created by a rapidly growing population. In addition, global climate change is expected to have dire consequences on coastal communities as glaciers melt and sea level rises.





Figure 4. Computer cartoon of New York Harbor if global warming is not slowed (artwork J.V.Browning and K.G. Miller, Rutgers University).

All ten scientific themes of International Year of Planet Earth 2007-2009 listed above utilize environmental sedimentology. I choose four of the themes as examples of how indispensable the subject is to advancing the field and provide brief summaries.

IYPE- Groundwater

Nearly all the potentially drinkable water on the Earth exists as groundwater. New techniques of exploration and production, and improved understanding of the dynamics of natural water reservoirs, are helping Earth scientists find this most precious of all commodities. Groundwater flow studies require knowledge of porosity and permeability of the substrate (weathered material and rocks) through which the water is moving. These characteristics are inherited from the depositional and diagenetic history of the deposits (Figure 5).

Grain size variability, bedding, facies variation, and cementation are all familiar properties of sediments, but often ignored by modelers applying uniform hydraulic conductivity values to a layer-cake stratigraphy. Consequently, the sedimentologist and hydro-geologist need to work together to develop the most realistic understanding of the three-dimensional variation at the site in order to develop the most appropriate model of fluid flow.

IYPE-Soil

Soil is Earth's living skin. Soils are the major support systems of human life and welfare. They provide anchorage for roots, hold water long enough for plants to make use of it, and hold nutrients that sustain life. Soils are home to myriad micro-organisms that accomplish a suite of biochemical transformations - from fixing atmospheric nitrogen to the decomposition of organic matter and to armies of microscopic animals. But, soil is only a component of the Earth's surface and of limited scope when studying



Figure 5. The groundwater system is battleground. In areas of development the likelihood of mixing fresh drinking water with plumes from domestic and commercial waste is high. Office of Superfund Remediation Technology Innovation (OSRTI).

the interactive processes. Environmental Sedimentology fits well into the Critical Zone concept.

The Critical Zone

The Critical Zone is a term introduced about a decade ago to describe the dynamic environment of the surface of the Earth and includes the atmosphere-lithosphere and ocean lithosphere boundaries (Ashley, 1998). Specifically it is «a heterogeneous, near surface environment in which complex interactions involving rock, soil, water, air and living organisms regulate the natural habitat and determine availability of life sustaining resources» (NRC, 2001). The Zone extends from the top of the vegetation canopy to the base of the weathering zone. It has been embraced by geochemists (the rock weathering community) because the «weathering engine» hosts a wide range of physical, chemical and

biological processes, as well as hydrologic, carbon and biogeochemical cycles (Figure 6).

Those working in deep time can apply the concept Paleo Critical Zone. Paleo Critical Zones capture and preserve (with burial) the integrated record of what the Earth surface was like at a particular time in the past.

IYPE-Megacities

Megacities are defined as urban areas with greater than 5 million inhabitants. These concentrations of humanity are often concentrated on narrow coastal strips exacerbating the problems of transporting resources to and wastes from city. Megacities stress the environment leading to air, water and soil pollution, water and energy supply shortages, traffic congestion, major health problems and learning disabilities (Figure 7). Sources of urban sediment which may end up in





Figure 6. The Critical Zone, a unifying concept that accommodates a range of processes that include hydrologic, carbon and a range of biogeochemical cycles, gas exchange, life processes, erosion, deposition and diagenesis. (figure from Brantley et al., 2007).

storm water, groundwater and/or air come from a variety of natural and anthropogenic sources (Figure 8). The study of urban sediment in air, water soil and pavement will require new approaches for observation, data collection and analyses.

IYPE-Earth & Health

Everyone who lives in a polluted city appreciates that where you live affects your health. Much, if not most of the control over whether an environment is healthy or not lies



Figure 7. Sao Paulo, Brazil. Population of 18 million people.



Figure 8. Schematic diagram of the sources of sediment comprising-road deposited sediments (Taylor, 2007).

beneath our feet in the environmental geochemistry of our habitat. Lakes and rivers receive water, sediment, organics and pollutants released from point and non-point sources (Figure 9). Environmental Sedimentology is the subject to determine origin of, track movement of and quantify deposition of these materials. Proclamation of an International Year was seen as a potentially powerful means of demonstrating how society could profit from the accumulated knowledge of the solid Earth as part of System Earth. IAS and the newly developing field of Environmental Sedimentology could have an important role.



Figure 9. Lakes are sediment sinks of material from both inside and outside the watershed (Smol et al., 2001).



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Updated information on IYPE can be found at: www.yearofplanetearth.org

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REPORT

The sixteenth meeting of Swiss sedimentologists

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On Saturday, the 23rd of February, 2008, 84 sedimentologists from all over Switzerland and from some of the neighbouring countries undertook their traditional pilgrimage to Fribourg, the small and friendly university town built on Miocene shallow-marine siliciclastic rocks.

This year's SwissSed Meeting was held in honour of Judith A. McKenzie who retires from her professor position at the ETH Zurich but (of course) not from her research. Daniel Ariztegui gave the citation, tracing Judy's career from the United States to Switzerland, naming her vast scientific accomplishments in sedimentology, geochemistry, and geomicrobiology, mentioning her numerous commitments in international organizations including IAS, and finally emphasizing her great human qualities. Judy then gave the keynote address on her favourite subject: dolomite.

Besides the keynote address, the programme included 10 talks and 23 posters presented by MSc and PhD students and by young post-docs. For many of them it was the first scientific presentation, a good training before the jump to bigger international meetings. Despite of the ease with which graphically attractive PowerPoint shows and posters can be manufactured by today's technology, the scientific quality was always manifest and could easily compete with that of any presentation at a big congress. The topics covered a wide range in geologic ages (from Carboniferous to Recent) and sediment types (from pelagic to lacustrine to soils, from siliciclastics to carbonates to microbialites), and all kinds of methods were used (from molybdenum isotope analysis to interferometric sonar). It is just amazing how wide a field sedimentology is. The interpretations were well funded but in many cases cautious, which is natural for ongoing research projects.

During coffee, lunch, and tea breaks, there was time to socialize. Old friends were met, new friends were made, and everybody agreed to come back to Fribourg in early 2009.

> André Strasser Fribourg, Switzerland



ANNOUNCEMENT

Ichnia 2008

o All Friends of Ichnology! he Second Circular for ICHNIA 2008, the Second International CONGRESS ON ICHNOLOGY, CRACOW, POLAND, SEPTEMBER 1-5, 2008, has been posted at www.ing.uj.edu.pl/ ichnia08. This is the most comprehensive international meeting in our field. Representatives of ALL areas of ichnology - modern or ancient; plant, vertebrate, or invertebrate; microscopic or macroscopic; burrow, boring, trail and track - will be heard in 72 talks and seen in tens of posters. To ensure unity, only one talk will be delivered at a time. You may also look forward to keynote talks by respected ichnologists; a poster session; field trips; and opportunities to see the world-class collection of flysch trace fossils at the Jagiellonian University's Institute of Geological Sciences. There is a chance that you will see the famous exhibition «Fossil Art» by Adolf Seilacher during the congress.

The city of Cracow (Kraków) on the Vistula river was Poland's roval seat for several centuries, and through a combination of care and chance its medieval center has been preserved virtually intact. Historic sites include the royal cathedral and castle on Wawel hill, but Cracow is amply supplied with restaurants, taverns and pretzel (bagel) vendors as well as churches and the famous Cloth Market. As you walk streets trodden by Copernicus, you may be surprised by the Mediterranean ambience of this very northern city.

Please register early. Early Registration (including payment) by 15.04.2008 is rewarded by a lower rate (and a broader choice of hotel accommodations in a city that is popular among tourists). Late registration is allowed up to 30.06.2008.

THE ICHNIA ORGANIZING COMMITTEE

IAS Postgraduate Grant Scheme

AS has established a grant scheme designed to help PhD students with their studies. We are offering to support postgraduates in their fieldwork, data acquisition and analysis, visits to other institutes to use specialised facilities, or participation in field excursions directly related to the PhD research subject.

Up to 10 grants, each of about € 1000 are awarded twice a year. These grants are available for IAS members only, and only for PhD students. Students enrolled in MSc programs are NOT eligible for grants. Research grants are NOT given for travel to attend a scientific conference, NOR for acquisition of equipment. Student travel grants for conferences can be usually obtained directly from organizers of the meeting.

The Grant Scheme Guidelines provide a summary of required information needed for successful a Grant Application. Applications are evaluated on the basis of the scientific merits of the problems, the capability of the researcher, and reasonableness of the budget.

Supervisor's Letter Guidelines list the information needed.

IAS Grant Scheme Guidelines

The application should be concise and informative and contains the following information (limit your application to 4 pages): Research proposal - 2 pages maximum Bibliography - ½ page Budget - ½ page Curriculum Vitae - 1 page

Recommendation letter (or email) from the supervisor supporting the applicant is mandatory and the research proposal must be sent directly to the Treasurer of IAS by the application deadline

Guidelines for letter from supervisor

The letter from the supervisor should provide an evaluation of the capability of the student to carry out the proposed research, the significance and necessity of the research, and reasonableness of the budget request. The letter must be sent directly to the Treasurer of IAS by post or e-mail by the application deadline (Patric Jacobs, Department of Geology and Soil Science, Ghent University, Kriigslaan 281/S8, B-9000 Gent, BELGIUM. E-mail: patric.jacobs@ugent.be). An application form is on our website (http://www.iasnet.org).

Grant application

Research Proposal -

Title

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• Introduction: Introduce the topic and provide



relevant background information; summarise previous work by you or others. Provide the context for your proposed study in terms of geography, geology, and /or scientific discipline.

- Motivation: It should have a clearly written hypothesis or a well-explained research problem of geologic significance. It should explain why it is important. Simply collecting data without an objective is not considered wise use of resources.
- Methods: Outline the research strategy (methods) that you plan to use to solve the problem in the field and/ or in the laboratory. Please include information on data collection, data analyses, and data interpretation.
- Facilities: Briefly list research and study facilities available to you, such as field and laboratory

equipment, computers, library.

- **Bibliography:** provide a list of key (5-10) publications that are relevant to your proposed research. The list should show that you have done adequate background research on your project and are assured that your methodology is solid and that the project has not been done already.
- Budget: Provide a brief summary of the total cost of the research. Clearly indicate the amount (in euros) being requested. State specifically what the IAS grant funds will be used for.
- Curriculum Vitae: Name, postal address, e-mail address, university education (degrees & dates), work experience, awards and scholarships, independent research projects, your abstracts and publications.

Application deadlines:	1 st session: 2 nd session:	March 31 September 30
Recipient notification:	1 st session: 2nd session :	before June 30 before December 31

CALENDAR

XII ARGENTINE MEETING OF SEDIMENTOLOGY *

3-6 June, 2008 Buenos Aires, Argentina Dr. Roberto Scasso Departamento de Geología Universidad de Buenos Aires Argentina E-mail: xiiras@gl.fcen.uba.ar Website: www.sedimentologia.org.ar/xiiras

14TH SYMPOSIUM ON THE GEOLOGY OF THE BAHAMAS AND OTHER CARBONATE REGIONS

12-16 June, 2008 Gerace Research Center, San Salvador Island Bahamas Fredrick D. Siewers Western Kentucky University E-mail: fred.siewers@wku.edu Website: http://geraceresearchcenter.com/ geo2008.html

CHEMOSTRATIGRAPHY: APPLICATIONS, LIMITATIONS AND IMPLICATIONS FOR GLOBAL ENVIRONMENTAL CHANGE

(Short course, with accompanying field excursion, to be taught by Prof. Hugh Jenkyns–Oxford)

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7-10 July, 2008 University of Trieste, Italy Prof. Daniele Masetti (E-mail: masetti @unis.it) Website: http://www.unts.it/disgam/jenkyns





26th MEETING OF SEDIMENTOLOGY *

1-3 September, 2008 Bochum, Germany Dr. Adrian Immenhauser Ruhr-University Bochum Faculty of Earth Sciences Institute for Geology, Mineralogy and Geophysics Universitätsstrasse 150 D-44801 Bochum/Germany E-mail: adrian.immenhauser@rub.de Website: http://www.ruhr-uni-bochum.de/sediment/

THE SECOND INTERNATIONAL CONGRESS ON ICHNOLOGY

– 5 September, 2008 Cracow, Poland Prof. Alfred Uchman Institute Nauk Geologicznych Jagiellonian University Cracow, Poland Tel. + 48 126336377 E-mail: alfred.uchman@uj.edu.pl Web-page: http://www.uj.edu.pl/ING/ichnia08/index.html

POKOS'3 - POLISH SEDIMENTOLOGICAL CONFERENCE REGIONAL CONTEXT OF SEDIMENTARY ENVIRONMENTS AND PROCESSES

17-19 September, 2008 Kudowa Zdrój, Sudetes, Poland Dr. Jurand Wojewoda Institute of Geological Sciences, University of Wrocław E-mail: %20pokos3@ing.uni.wroc.pl Web-page: http:// www.pokos.img.uni.wroc.pl/

GEOSED 2008 CONGRESS

23-24 September, 2008 Bari, Italy Prof. Luisa Sabato E-mail: L.sabato@geo.uniba.it Website: http://www.geosed.it/index.php

HAQ COURSE 2008 Sequence Stratigraphy: from source to sink

28 September – 2 October, 2008 Matera, Italy Dr. Marcello Tropeano E-mail: m.tropeano@geo.uniba.it Website: http://www.geosed.it/index.php

XIII LATINAMERICAN CONGRESS OF GEOLOGY & XIV PERUVIAN CONGRESS OF GEOLOGY *

29 September -3 October, 2008 Lima, Perú Contact: José Arce (President of the Organizing Committee) E-mail josearce@geofisicos.com.pe José Daudt (Sedimentology/Stratigraphy/Hydrocarbon Geology) E-mail jose.daudt@petrobras.com Website (under construction) http:// www.congresosgp.com/ Website Sociedad Geológica del Perú http://sgp.org.pe/

5TH INTERNATIONAL CONFERENCE ON DELTA's

26 October – 2 November, 2008 Shanghai – Qingdao, China Yoshiki Saito E-mail: yoshiki.saito@aist.go.jp Website: http://unit.aist.go.jp/igg/rg/ cug-rg/ADP.html

5[™] LATIN AMERICAN SEDIMENTOLOGICAL CONGRESS

15-20 March, 2009 Puerto La Cruz, Venezuela

E-mail: aquinor@pdvsa.com; rosaaquino@cantv.net





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