



**INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**  
**UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE**

## **The IUGG Electronic Journal**

**Volume 10 No. 11 (1 November 2010)**

This informal newsletter is intended to keep IUGG Member National Committees informed about the activities of the IUGG Associations, and actions of the IUGG Secretariat. Past issues are posted on the IUGG Web site (<http://www.iugg.org/publications/ejournals/>). Please forward this message to those who will benefit from the information. Your comments are welcome.

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### **1. IUGG President visits the Austrian Adhering Body**

On Friday 22 October, the IUGG President Tom Beer paid a courtesy visit to the headquarters of the BEV, the Federal Office of Metrology and Surveying, which is the Austrian Adhering Body to IUGG. The forthcoming XXV IUGG General Assembly in Melbourne 27 June – 8 July 2011 was a major topic of conversation. Because Vienna was the location of the XX IUGG General Assembly in 1991, President Beer was most appreciative of the conference insights that his hosts proffered.



*Left to right: Norbert Höggerl, Secretary-General of the Austrian National Committee for IUGG, Tom Beer, IUGG President, and Gert Steinkellner, Head of the BEV International Affairs Department.*

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## 2. Corrections and Updates to the IUGG Yearbook

Corrections and updates to the information contained in the 2010 IUGG Yearbook are now being finalized in preparation for the 2011 Yearbook. Please contact the IUGG Secretariat by 30 November ([Simone.Oswald@kit.edu](mailto:Simone.Oswald@kit.edu) or Fax: +49 721 71176) with additions and corrections.

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## 3. Report on the ENHANS Project: Focus on Latin America and the Caribbean

The first ENHANS Project events took place at the Meeting of the Americas in Iguassu, Brazil on 9–10 August 2010. The project “Extreme Natural Hazards and Societal Implications – ENHANS” is sponsored by ICSU and co-sponsored by several international and intergovernmental organizations (<http://www.enhans.org>). The symposium on Natural Hazards and Disaster Risks in Latin America and the Caribbean was convened by O. Cordona (Colombia), A. Ismail-Zadeh (Germany), and V. Kossobokov (Russia). A. Lavell (Costa Rica) spoke about the new multidisciplinary research programme of ICSU “Integrated Research on Disaster Risk” and discussed the content and significance of the programme when looking at concrete examples of the social construction of risk in the Latin American and Caribbean region. T. Gibbs (Barbados) presented his view on meteorological hazards and associated risks in the Caribbean. The talk was followed by the presentation “A scaling criterion to estimate and compare the volcanic hazard among different volcanoes” by S. De La Cruz-Reyna (Mexico). O. Perez (Venezuela) spoke about earthquake activity and associated hazards in South America and the Caribbean and about the socio-economic impact of severe earthquakes in these regions. I. Alcantara-Ayala (Mexico) discussed the anatomy of landslides disasters and presented case studies from Mexico and other South American countries. A. Soloviev (Russia) discussed problems in seismic hazard assessment and earthquake predictability, and V. Kossobokov continued the discussion on the predictability of extreme events presenting the paper “Natural Hazards At Extreme: Predictive Understanding Versus Complex Reality”. O. Cardona (Colombia) spoke about indicators of disaster risk and risk management in the Americas. F. Romanelli (Italy) presented scenario-based seismic hazard assessment methodology and its implication to hazard evaluation in Valparaiso. H. Salmun (USA) discussed the statistical prediction of storm surge in the New York Metropolitan area, and A. Rice (USA) spoke about multiple meteoroid impacts in Antarctica and implications for humanity. Two oral sessions of the symposium were continued as a poster session of 25 papers.

Another exciting ENHANS event was a town hall meeting on “Natural Hazards in Latin America and Caribbean (LAC): From Risk to Opportunity by Partnership of Science and Society”. The meeting focused on the following aspects: How can science (both natural and social) and society form a partnership for disaster reduction? How can a science and society partnership convert natural disaster risk to opportunity? What are the urgent issues of disaster risk in LAC cities and regions under intensifying natural and social pressure? A. Lavell (Latin American Social Sciences Faculty – FLACSO and LA RED, Costa Rica; member of the ICSU Scientific Committee “Integrated Research on Disaster Risk” and ICSU Regional Office for LAC) spoke about the increasing importance of disaster risk management on the political agenda. Disaster Risk Management is still not of sufficient social and political relevance given current and future predicted disaster trends and costs. K. Alverson (Director, Global Ocean Observing System, Intergovernmental Oceanographic Commission of UNESCO) presented how the Global Ocean Observing System (GOOS) develops in Latin America and the Caribbean. The talk focused on the importance of sustained ocean observing systems that need to be in place both to prevent and to mitigate disasters, where possible, but also in

order to rapidly bring observing assets to bear in post disaster relief efforts. Natural coastal inundation hazards, such as storm surge and tsunamis, as well as anthropogenic hazards, such as oil spills, were discussed, focusing where possible on Latin America and the Caribbean, including the Gulf of Mexico. P. Boccardo (Director, ITHACA, and Professor of Politecnico di Torino, Italy) presented at first the ITHACA - Information Technology for Humanitarian Assistance, Cooperation and Action. Through its partnership with the U.N. World Food Programme (WFP) - the world's largest operational humanitarian agency - ITHACA is envisioned as a centre of applied research developing IT products and services in support of humanitarian activities especially during natural disasters. Boccardo also discussed geomatics and disaster management in the case of the recent Haiti earthquake disaster. The presentation highlighted issues and challenges associated with emergencies related to natural disasters. Using an example of the recent catastrophic earthquake in Haiti, Boccardo discussed data acquisition in the region, their processing and information extraction. Milestones gained and issues to be approached have been also discussed, with the aim of setting up effective procedures suitable for technologic assistance to early impact and reconstruction phases.

Jaime Urrutia Fucugauchi (AGU International Secretary) and Alik Ismail-Zadeh (IUGG Secretary General) moderated the town hall meeting's discussion. Two panellists, I. Alcantara-Ayala (Vice-President of the International Geographical Union) and M. McPhaden (President of the American Geophysical Union), mentioned how professional societies can assist in mitigation of natural hazards and disasters. The speakers and panellists answered questions of the attendees.

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#### **4. Report on the IUGG GeoRisk Commission – EuroScience Symposium**

The Symposium “Disaster Prediction and Management”, co-sponsored by IUGG and EUROSCIENCE and organized by the IUGG GeoRisk Commission and the Euroscience Working Group “Science and Urgent Problems of Society”, was held on 6 July 2010 in Turin, Italy. The symposium attracted the attention of the mass media and representatives various fields of knowledge. Contemporary science is responsible for coping with the challenging changes of exposures and vulnerability inflicted by the growing population, its concentration, etc., which result in the observed steady increase of social losses due to natural disasters. Scientists should guide society in problems of natural hazards assimilating a relevant knowledge, educating population and communicating to public and policy makers. The symposium demonstrated that contemporary science can do a better job in disclosing natural hazards, assessing risks, and delivering such info in advance of catastrophic events. Geoscientists initiate the shifting of the minds of the community from pessimistic disbelief to optimistic challenging issues of hazard predictability (based on the recent, enormous progress in real-time data retrieval and monitoring of distributed multiple geophysical characteristics world-wide). Giuliano Panza (Italy) spoke about new approaches in seismic hazard and risk assessment. Jacques Zlotnicki (France) spoke about volcano hazards analysis and mitigation using various geophysical techniques. Vladimir Kossobokov (Russia) spoke about the statistical approach to the analysis of extreme natural events and about their predictability. Alik Ismail-Zadeh (Germany) emphasized the importance of the research on extreme natural hazards and discussed the societal impact of natural disasters. The German Radio SWR2 broadcast the interview with the participants of the symposium on 11 July.

## 5. Awards and Honours



*Sierd Cloetingh* (President of the International Lithosphere Program that is co-sponsored by IUGG and IUGS) has been awarded the 2010 Alexander von Humboldt Prize. Every year, the Alexander von Humboldt Foundation presents this prize to two non-German scientists whom they expect to make an important scientific contribution in the years to come. Recently, Sierd Cloetingh has also been named as the only Earth scientist to be a member of the European Research Council, which is the European funding organization recently set up to support investigator-driven frontier research.

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## 6. UNOOSA and JBGIS Publish Booklet “Geoinformation for Disaster and Risk Management - Best Practices and Examples”

This landmark booklet published by the Joint Board of Geospatial Information Societies (JBGIS) and the United Nations Office for Outer Space Affairs (UNOOSA) outlines the potential uses of geo-information technologies to reduce the impact of natural or manmade disasters and risks. It brings together concise scientific contributions from experts around the world and creates a decision support forum based on their knowledge. The articles in the booklet cover natural disasters like earthquake, flood, volcano outbreak, tsunami, landslide, dust storm and wildfire, as well as societal issues like health care, refugee camps, urban sprawl and traffic infrastructure security. Case related regional studies are complemented by presentations of global information systems.

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## 7. Obituary

*Benoit Mandelbrot* (1924-2010)



Benoit Mandelbrot, who discovered mathematical shapes known as fractals, died at the age of 85 in Cambridge, USA. Mandelbrot, who had joint French and US nationality, developed fractals as a mathematical way of understanding the infinite complexity of nature. The concept has been used to measure coastlines, clouds and other natural phenomena and had far-reaching effects in physics, biology and astronomy. The Mandelbrot’s fractal theory contributed significantly to the development of nonlinear geophysics, in particular hydrology and geomorphology.

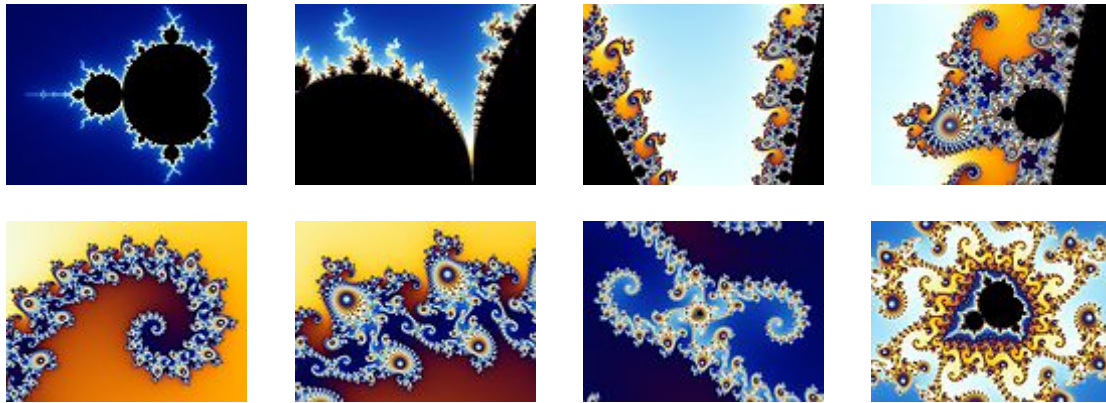
The great interest in fractal and scaling notions has touched almost every geophysical field. In a general manner, it has been a milestone in the quest for simplicity defining complexity and as an impressive use of scale invariance in nonlinear phenomena: complex shapes, which are so common



in geophysics (e.g. clouds, rivers, precipitation and pollution patterns, ice sheets, etc.), could be created and described by simple rules iterated over and over again.

The visionary mathematician was born into a Jewish family in Poland but moved to Paris at the age of 11 to escape the Nazis. He spent most of his life in the US, working for IBM computers and eventually became a professor of mathematical science at Yale University. Mandelbrot also held positions at the Pacific Northwest National Laboratory, the Université Lille Nord de France, the Institute for Advanced Study, and the Centre National de la Recherche Scientifique.

His seminal works, *Fractals: Form, Chance and Dimension* and *The Fractal Geometry of Nature*, were published in 1977 and 1982. In these works, he argued that seemingly random mathematical shapes in fact followed a pattern if broken down into a single repeating shape (see the Mandelbrot set below).



The awards and honours bestowed on Mandelbrot were numerous including a prestigious National Academy of Sciences fellowship, Wolf, Harvey, Humboldt, Honda, and Japan Prizes, Barnard, Franklin and Steinmetz Medals. In 2000 the European Geophysical Society awarded Mandelbrot its Richardson Medal.

In a statement, French President Nicolas Sarkozy praised Mandelbrot for his “powerful, original mind that never shied away from innovation and battering preconceived ideas”. “His work, which was entirely developed outside the main research channels, led to a modern information theory,” he said.

Source: EGU Newsletter 59, p. 36, 1996 & BBC News Europe, 17.10.2010

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## 8. IUGG-related meetings occurring during November 2010 – January 2011

A calendar of meetings of interest to IUGG disciplines (especially those organized by IUGG Associations) is posted on the IUGG web site (<http://www.IUGG.org/calendar>). Specific information about these meetings can be found there. Individual Associations also list more meetings on their web sites according to their disciplines.

### *November 2010*

- 30 October – 2 November, IUGG Bureau Meeting (by invitation of the Egyptian Academy of Scientific Research and Technology), Cairo, Egypt.

- 8-10, IASPEI, IUGG, Hanoi, Vietnam, 8th General Assembly of the Asian Seismological Commission.
- 8-10, IAHS, Hanoi, Vietnam, 5th Conference of the Asia Pacific Association of Hydrology and Water Resources.
- 11-12, PAIGH, IAG, IUGG, Lima, Peru, Meeting of PAIGH joint with the General Meeting of the Geocentric Reference System for the Americas (SIRGAS) and IAG-SIRGAS School “Reference Systems”
- 14-16, IAHS, Kyoto, Japan, Conference “Groundwater as a key for adaptation to changing climate and society”
- 15-17, IUGG, ECGS, Luxembourg City, Luxembourg, International Workshop on Induced Seismicity.
- 16-18, IUGG, Agra, India, International Workshop on Seismo-Electromagnetics and Atmospheric Science (IWSE-AS 2010).
- 19-21, IAHS, Nanjing, China, IWRM 2010, 5th International Symposium on Integrated Water Resources Management: Water Resources Sustainability in a Changing Environment.
- 23-25, eGYAfrica, Accra, Ghana. Workshop: “Better Internet connectivity for research and education in Africa”. Contact: victorchukwuma@yahoo.com.

### ***December 2010***

13-17, AGU, San Francisco, California, USA, Fall Meeting of the American Geophysical Union

### ***January 2011***

- 8-14, Geological Society of Africa, IUGG, Johannesburg, South Africa, 23<sup>rd</sup> Colloquium of African Geology
- 17-20, IUGG, Pretoria, South Africa, International Workshop “Extreme Natural Hazards and Disaster Risk in Africa”
- 22-27, IUGG, Raisan, Gujarat, India, International Symposium “The 2001 Bhuj Earthquake and Advances in Earthquake Science”
- 26-28, IUGG, IAGA, Uglich, Yaroslavl region, Russia, International Workshop “Artificial Intelligence in the Earth’s Magnetic Field Study”.

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End of IUGG Electronic Journal Volume 10 Number 11 (1 November 2010)

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**Note: Contributions to IUGG E-Journal are welcome from members of the IUGG family. Please send your contributions to Alik Ismail-Zadeh by e-mail (insert in Subject line: *contribution to E-Journal*). The contributions will be reviewed and may be shortened by the Editor.**