



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

## **The IUGG Electronic Journal**

**Volume 13 No. 2 (1 February 2013)**

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. Decade on Prediction in Ungauged Basins**

The Prediction in Ungauged Basins (PUB) has been major research initiative of the International Association of Hydrological Sciences (IAHS) during the last decade (2003-2012). PUB was the agenda setting for the world hydrological community, has led to significant international and regional initiatives to foster the science of hydrology for the benefit of the society and finished at a conference in Delft, The Netherlands, in October 2012.

Sustainable management of river basins requires a variety of predictive tools that can generate runoff predictions, over a range of time and space scales. The most widely used predictive tools for runoff predictions are data-driven, i.e. they are estimated from gauged data. Unfortunately, globally only a small proportion of the catchments possesses a stream gauge, where runoff is measured. This often hampers a sustainable management of river basins and causes unpredictable hydrological impacts. The lack of universal theories or equations applicable to the catchment scale has led to a number of models being developed and used for predicting runoff. These models differ considerably in their concepts and structure, their parameters, and the inputs they use. Models are developed by people with different disciplinary backgrounds and usually rely on local observations, personal experiences and practices that are influenced by local climate conditions and unique catchment characteristics. Consequently, they tend to have certain features, which are not applicable to other places, i.e. hydrological research groups realize their studies on different objects in their local catchment. The result is considerable fragmentation and a waste of efforts that does not benefit further progress.

PUB aimed at achieving major advances for making predictions in ungauged basins, through understanding climatic and landscape controls on hydrologic processes. The vision of PUB was to support a transformation “from cacophony to a harmonious melody”. PUB addressed the fragmentation of modeling approaches through a comparative evaluation by “classifying model performances in terms of time and space scales, climate, data requirements and type of application, and exploring reasons for the model performances in terms of hydrological insights and climate-soil-vegetation-topography controls.” PUB focused on theoretical advances in hydrology and associated Earth system sciences to address the immediate needs of the society. In other words, PUB was the vehicle to advance and revitalize the science of hydrology. Indeed, over the past decade, the PUB community has made huge strides in advancing both, predictive capability and fundamental understanding of hydrological processes by working together in a concerted and coordinated manner. The PUB effort has helped to challenge long held assumptions and question common paradigms, and has increased the constructive dialogue between different sub-disciplines.

The PUB Symposium marked the closing conference of the IAHS Decade on Prediction in Ungauged Basins and was held together with the celebration for the 90<sup>th</sup> anniversary of IAHS in Delft from 23-25 October 2012. The PUB achievements were reported at the meeting, and the challenges were discussed. Also this conference hosted an important meeting of scientists to discuss the contours of the IAHS science plan for the coming decade. The conference attracted more than 200 delegates from 37 countries. The plenary sessions on the first day of the conference included reports and visions of the previous PUB chairs (Murugesu Sivapalan, Jeff McDonnell, Günter Blöschl, and John Pomeroy), and Kuni Takeuchi, past IAHS President, who initiated PUB. A special lecture was held by Dominic Mazvimavi of the University of Western Cape in South Africa, who presented the PUB achievements in southern Africa, where there is a long tradition of estimating runoff in catchments with little information. Another important issue of the conference was the presentation of the PUB Synthesis book by Günter Blöschl, who was the lead editor of the synthesis process. In this study, Blöschl and his team assessed the outcome of an impressive number of reported case studies, on the basis of which a synthesis was made with recommendations for procedures and approaches to handle predictions in ungauged basins. Another focus of the conference was a research subject for the next decade. An inspiring keynote lecture was delivered by Johan Rockström of the Stockholm Resilience Centre, who outlined the boundaries of our planetary system and the contributions of science toward sustainable development of society. This lecture was highly appreciated by the audience and was a perfect introduction to the work of Alberto Montanari, who presented the outline of the new decade, which is likely to be named *Panta Rhei* (everything flows). The ideas of *Panta Rhei* were discussed in plenary with the participation of about 100 delegates, under the chairmanship of Alberto Montanari. The present outline of the plan can be found on the IAHS web site under the New Science Initiative ([iahs.info](http://iahs.info)). The conference was a very dynamic and memorable event, full of active participants who allowed a worthy closure of the IAHS science decade and a festive celebration of the 90th anniversary of IAHS (see E-Journal, Vol. 12, No. 12, the feature article).

Received from Hubert Savenije, IAHS President-Elect and PUB Chair (2011–2012)

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## **2. News from the IUGG Secretariat**

From 1 January 2013 Mrs. Katrin Gundrum started to work for the IUGG Secretariat providing administrative support and assistance to the Executive Secretary. We wish Mrs. Gundrum all the best and welcome her to the IUGG family. IUGG is very grateful to the German Science Foundation (DFG) for the financial support of the Secretariat and the German Research Centre for

Geosciences (GFZ) for providing the office. For more information about the Secretariat, please visit: <http://www.gfz-potsdam.de/portal/gfz/Struktur/Departments/Department+1/IUGG+Secretariat>

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### **3. Report on the Statistical Hydrology Topical Workshop (STAHY'12)**

The workshop “Statistical Methods for Hydrology and Water Resources Management” (STAHY'12) organized by the International Commission on Statistical Hydrology (ICSH) of the International Association of Hydrological Sciences (IAHS) was held in Tunis, Tunisia, 1-2 October 2012. 56 people from 17 countries attended the workshop; 17 talks and 31 posters were presented. The main topics were: (i) regional frequency analysis and modeling, (ii) estimation of extremes, (iii) reservoir management, multivariate flood statistics and its practical use, and (iv) rainfall simulation and disaggregation models and non-stationarity in hydrologic observations. The workshop was opened by messages from the local committee (Emna Gargouri, ICSH Vice-President), the University Rector (Chiheb Bouden), the IAHS President (Gordon Young), the ICSH President (Salvatore Grimaldi), the IAHS representative (Zoubeida Bargaoui), and the Chair of the IAHS Task Force on the new Scientific Decade (Alberto Montanari). Two invited lectures were held by Taha Ouarda “Non-Stationarity frequency analysis of hydrological variables” and Andreas Schumann “Gumbel distribution, ARMA, copulas – The importance of stochastic tools for water management”. A round table was held in memory of the legacy of Vít Klemeš to hydrological sciences. It was moderated by Demetris Koutsoyiannis (Hydrological Science Journal Editor). Gordon Young, Henny Colenbrander (former IAHS Secretary General), and Alberto Montanari (President-elect, International Commission on Water Resources Systems, ICWRS-IAHS) presented aspects of the life of Vít Klemeš. In addition, a video message from Christine Klemeš (Vit's granddaughter) was presented. Alberto Montanari talked about the IAHS Decade 2013-2022: a Perspective on the Research Challenges in Hydrology for the next ten years. All the participants delivered interesting presentations underlined by a rich discussion. The poster session was characterized by video interviews posted on the web site of ICSH (<http://www.stahy.org>).

Received from Salvatore Grimaldi and Emna Gargouri.

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### **4. Report on the Chapman Conference on the Agulhas system**

The Chapman Conference on the Agulhas system and its role in changing Ocean Circulation, Climate, and Marine Ecosystems was held in Stellenbosch, in the Western Cape of South Africa, from 8-12 October 2012. The conference generated a great deal of excitement among participants, particularly African scientists, some of whom had not previously attended an international conference. The conference attracted 108 participants from 20 different countries. 35 came from seven different African countries and 27 were PhD students. They covered the fields of ocean and climate modeling, physical and biological oceanography, marine ecology, paleoceanography, meteorology, and marine and terrestrial paleoclimatology.

Growing interest in the Agulhas system is related to its leakage of warm and salty waters from the Indian Ocean into the Atlantic via Agulhas rings. Paleoclimate data and simulations suggest that changes in Agulhas leakage are related to changes in the Atlantic meridional overturning circulation (AMOC) and the global climate. The conference was organized into four thematic sessions: the state and dynamics of the Agulhas system under present and past boundary conditions; the effects of the system on regional weather, ecosystems, and fisheries; the mechanisms that link the Agulhas

to changes in ocean circulation and climate; and the impact of the system on the AMOC and the global climate. The Agulhas system was shown to have significant impacts on marine ecosystems largely due to mesoscale eddies and dipoles, which propagate southwestward from the source regions of the Agulhas Current. These eddies affect the distribution of plankton and top predators, facilitate connectivity between remote ecosystems, and may impact the strength of the annual Natal sardine run. The Agulhas Return Current was shown to help maintain and guide the southern hemisphere storm track, which feeds into the polar front jet and Mascarene High, affecting regional weather and rainfall over Africa. Most climate models perform poorly in the Agulhas region: retroflexion is too early and the Agulhas ring corridor in the Atlantic too narrow. As a consequence there is too little mixing of Agulhas waters into the AMOC and the so-called salt advection feedback is not simulated well. The development of coupled climate models with high-resolution oceans is ongoing to address some of these issues. Observational evidence for the global effects of Agulhas leakage comes from paleo-proxies from marine sediment cores, which show peaks in leakage just prior to each glacial termination. Further study is proceeding (e.g. GATEWAYS program) to resolve variability on multi-centennial time scales.

A major recommendation from the conference is to develop sustained observations of the Agulhas system. The Western Indian Ocean Sustainable Ecosystem Alliance (WIOSEA) could serve as an integrating framework for the cooperation of international and regional scientists towards sustained observations. Capacity building and training of regional technicians and scientists are essential, and the conference was an important contribution towards that goal. The conference was realized jointly by the SCOR/WCRP/IAPSO (Scientific Committee on Oceanic Research / World Climate Research Program / International Association for the Physical Sciences of the Oceans) Working Group 136 on the Climatic Importance of the Greater Agulhas System. The conference was co-sponsored by AGU, IAPSO, IUGG, Intergovernmental Oceanographic Commission (IOC), U.S. National Science Foundation, National Oceanic and Atmospheric Administration (NOAA), Nature Publishing Group, Scientific Committee on Oceanic Research (SCOR), and several other institutions. Particularly, IUGG contributed US\$17,000 to support the attendance of early career scientists and women scientists from Africa.

Received from Lisa Beal (USA), Wilhelmus de Ruijter (The Netherlands), Arne Biastoch (Germany), and Rainer Zahn (Spain).

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## **5. Report on the CODATA Conference and General Assembly**

The 23<sup>rd</sup> International CODATA Conference “Open Data and Information for a Changing Planet” was held in Taipei, China, 28-31 October 2012. The event was hosted by the Academia Sinica in Taipei. Major topics of the Conference included (i) the best practices and future directions in data sharing, (ii) planet under pressure: data challenges from local to global, (iii) what do we mean by open access to data?, and (iv) ethics of data in sciences. About 50 oral and poster sessions were organized during the conference. For the first time CODATA Task Group activities were presented at a dedicated public session (normally this topic is on the General Assembly agenda). The session was attended by a big number of participants, which demonstrated common interest to the subject being an essential part of CODATA operation.

Keynote speakers and high level participants at the Conference included Yuan Tseh Lee (ICSU President, Nobel Laureate), Geoffrey Boulton (Chair, Royal Society’s Science Policy Advice Group), Sálvano Briceño (Chair, Science Committee of the Integrated Research on Disaster Risk – IRDR), David Carlson (former Director of the International Polar Year), Chen Hesheng (Director,

Beijing Electron Positron Collider National Laboratory), Ovid Tzeng (Panel member of the European Research Council, Fellow of the Association for Psychological Science), Der-Tsai Lee (President of National Chung Hsing University). Professor Michael F. Goodchild was selected as the CODATA Prize Award recipient for 2012.

The 28th General Assembly of CODATA (1-2 November) followed the Conference. The highlights of the General Assembly are listed:

- Three new national members were accepted – Finland, Mongolia and Czech Republic.
- By the voting results it was decided that a Working Group on Early Career Scientists should be set up.
- The General Assembly decided on the formation of a Working Group to address ethical issues in data science.
- By the voting results constitutional changes regarding membership were agreed. The changes include introduction of two new kinds of membership: Affiliate Member and At-Large Member.
- The General Assembly of CODATA voted for all existent Task Groups (TGs) to continue and the following new TGs were approved: Linked Open Data for Global Disaster Risk Research; Advancing Informatics for Microbiology; and Mining Space and Terrestrial Data for Improved Weather, Climate and Agricultural Predictions.
- The General Assembly decided to move the Data Science Journal (DSJ) to an established open access publisher to increase the visibility of the Journal and CODATA.
- The CODATA General Assembly accepted the invitation from India to hold the next CODATA Conference in 2014 in New Delhi. It was agreed that the World Data System Conference and CODATA Conference will be merged.
- Sara Graves was elected Secretary General, and John Broome was elected Treasurer of CODATA.

Received from Anatoly Soloviev, IUGG Delegate to the 2012 CODATA General Assembly

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## **6. News from the International Council for Science (ICSU)**

### ***IRDR Scientific Committee gets new Chair***

IRDR is an international, multidisciplinary research initiative of ten years' duration sponsored by ICSU, in company with the International Social Science Council (ISSC) and the UN International Strategy for Disaster Reduction (UN-ISDR). On 1 January 2013, David Johnston, Senior Scientist at GNS Science (New Zealand's Geological Survey) and Director of the Joint Centre for Disaster Research in the School of Psychology at Massey University, Wellington, assumed the role of Chair of the Scientific Committee of the Integrated Research on Disaster Risk (IRDR) programme, a body on which he has served since 2008. David's own research has developed as part of a multi-disciplinary theoretical and applied research programme, involving the collaboration of natural and social scientists from several organizations and countries. It focuses on human responses to volcano, tsunami and weather warnings, crisis decision-making and the role of public education and participation in building community resilience and recovery. David is a Member (National Representative of IAVCEI) of the New Zealand National Committee for IUGG. David Johnston takes over from Dr Sálvamo Briceño (Venezuela) who stepped down for personal reasons to become one of three IRDR Vice-Chairs.



### ***CFRS recommendations for meeting organizers, sponsors and participants***

The free and responsible practice of science necessitates freedom of movement and of association. Accordingly, international scientific meetings arranged or sponsored by IUGG, Union Associations and their bodies must be free from discrimination in attendance. This implies rights and responsibilities on the part of both organizers and participants at such international scientific meetings. The Committee on Freedom and Responsibility in the conduct of Science (CFRS) of the International Council for Science (ICSU) issued in 2013 the recommendations for meeting organizers, sponsors and participants regarding international scientific meetings and visa issues. Scientific meeting organizers are advised to read the [recommendations](#).

### ***The World Data System (WDS) Scientific Committee meeting***

The ICSU-WDS Scientific Committee (SC) held their 7th biannual meeting in Taipei, 1-2 November 2012. The first meeting of the renewed WDS-SC was tasked with developing the framework that will position ICSU-WDS as the *premium global multidisciplinary network for quality-assessed scientific data* and enable WDS to significantly contribute to projects such as Future Earth, ICSU's flagship programme. The Summary Report of the meeting is posted on the WDS ([http://www.icsu-wds.org/images/files/Summary\\_Report\\_7th\\_WDS-SC\\_Meeting.pdf](http://www.icsu-wds.org/images/files/Summary_Report_7th_WDS-SC_Meeting.pdf)).

### ***ICSU Science Officer Position***

ICSU is seeking a Science Officer for a fixed term contract (18 months) to assist with the planning and implementation of ICSU's initiatives in the ICSU Secretariat in Paris. *Closing date for applications:* 17 February 2013. The Science Officer will assist with the planning and implementation of ICSU's activities, with a particular focus on the major new interdisciplinary initiative, *Future Earth: research for global sustainability*. Examples of work tasks include support to scientific committees, networking with partners and members, and coordination of international meetings and actions. For more information on the position, please visit: <http://www.icsu.org>.

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## **7. Awards and honors**

***Kathryn Whaler***, IAGA President, received the 2013 Price Medal of the Royal Astronomical Society for her distinguished career in geomagnetism and international leadership in geophysics. Her research has treated all aspects of the geomagnetic field, from the core, and its associated flow, through its passage through the mantle to the Earth's surface.

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## **8. Obituaries**

### ***Mark Meier (1925–2012)***

Professor Mark F. Meier, prominent American glaciologist, passed away in Boulder, Colorado, on Sunday, 25 November 2012. He had been a resident of Boulder since 1985, where he was Professor of Geological Sciences and Director of the Institute of Arctic and Alpine Research (INSTAAR) from 1985 to 1994.

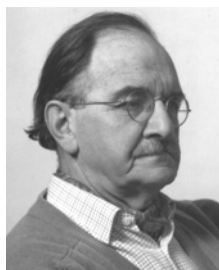


Prof. Meier was a seminal leader of the modern geophysical study of glaciers, receiving his PhD from the California Institute of Technology in 1957, participating in glaciological studies during the International Geophysical Year (1957-58), then directing the U.S. Geological Survey's Project Office – Glaciology in Tacoma, Washington until assuming the Directorship of INSTAAR in 1985. During the International Geophysical Year and International Hydrological Decade (1965-1975), Prof. Meier was a principal organizer of systematic measurements and assessment of glacier mass balance in North America. He was also a pioneer in the use of remote sensing in glaciology, and the leader of investigations of tidewater glacier dynamics in Alaska. In addition to his work on glaciers, Meier was also an international leader in hydrology and the role of glaciers in sea level rise.

Prof. Meier has been very active within the International Association of Hydrological Sciences (IAHS), Vice-President of the International Commission on Snow and Ice (ICSI) in 1963-1967 and President of ICSI in 1967-1971. Prof. Meier was elected IAHS President (1979-1983), during which time he was ex officio an IUGG Executive Committee Member. He received the International Hydrology Prize in 1999 bestowed by IAHS-UNESCO-WMO. Among his many other awards and honors, Meier was made an honorary member of the International Glaciological Society in 1985 and awarded the Society's Seligman Crystal in 1985. He was the recipient of the American Geophysical Union's Horton Medal, the Distinguished Service Award of the U.S. Department of the Interior and three medals from the USSR Academy of Sciences. (*Adapted from the obituary of the International Glaciological Society*).

Received from Christophe Cudennec, IAHS Secretary General

### **Nicholas Ambraseys (1929-2012)**



Nicholas (Nick) Ambraseys was born in Athens (Greece) on 19 January 1929 and died peacefully at his home in Putney (United Kingdom) on 28 December 2012 at the age of 83. Ambraseys studied rural and surveying engineering at the National Technical University of Athens and then civil engineering at the Imperial College London (ICL) specialising in soil mechanics and engineering seismology. He obtained his PhD degree in 1958 from ILC and joined the College's staff in 1958 as a Lecturer.

He became Professor of Engineering Seismology at ICL in 1974. In 1968 he established the Engineering Seismology Section in the Department of Civil Engineering, and from 1971 to 1994 he led this section. In 1994 Prof. Ambraseys officially retired from this position but he remained very active as an Emeritus Professor.

His research covered many problems associated with earthquakes and their effects on the ground, structures and populations. Particularly Prof. Ambraseys studied historical accounts of earthquakes, particularly those occurring in the eastern Mediterranean region, and it is in this field where he arguably made his greatest contributions. His meticulous study of historical documents on earthquakes that occurred in the eastern Mediterranean and elsewhere (e.g. Central America) is second-to-none and he published many dozens of articles and books on this painstaking work. His book "Earthquakes in the Mediterranean and Middle East: a multidisciplinary study of seismicity up to 1900", comprising almost 1000 pages and summarizing the research on the topic, was published by Cambridge University Press in 2009. Also he made significant advances in the collection and analysis of strong-motion (accelerometric) data.

In recognition of his lifetime of achievements Prof. Ambraseys was given numerous awards and fellowships from prestigious institutions including fellowships of the Royal Academy of

Engineering, the Academia Europaea, the Geological Society, and the Royal Geographical Society, and Honoris Causa from the University of Athens, Award of the Freedom of the City of Skopje, Harry Fielding Reid Medal of the Seismological Society of America. From his election in 2003, he was an active member of the Academy of Athens, and he divided his time between London and Athens. He served as Secretary General of the Greek National Committee for Geodesy and Geophysics from 2008 to 2012. (*Adapted from the obituary of the IASPEI Newsletters for February 2013*).

Received from Peter Suhadolc, IASPEI Secretary General

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## 9. IUGG-related meetings occurring during February – April

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.

### *February*

- 13-16, IGBP, Goa, India, 4th PAGES Open Science Meeting, The Past: A Compass for Future Earth. Web: <http://www.pages-osm.org/>
- 24-25, IAHS, Algiers, Algeria, 5th International Conference on Water Resources and Sustainable Development (CIRED 2013)
- 25- 1 March, WCRP, Buenos Aires, Argentina, Workshop on the Climatic Effects of Ozone Depletion in the Southern Hemisphere. Web: <http://www.uca.edu.ar/index.php/site/index/es/uca/investigacion/pepacg/wcrp-special-workshop/>

### *March*

- 2-5, IAG, Helsinki, Finland, IVS-EGU Training School for the Next Generation Geodetic and Astrometric VLBI. Web: [http://www.evga.org/vlbi\\_school.html](http://www.evga.org/vlbi_school.html)
- 6-8, IAG, Helsinki, Finland, 21st European VLBI for Geodesy and Astrometry (EVGA) Working Meeting. Web: <http://ivscc.gsfc.nasa.gov/pipermail/ivsmail/2012/001311.html>
- 11-15, IAMAS/ICMA, Thessaloniki, Greece, School on Impact of Solar Variability on Climate. Web: <http://sun2climate.sciencesconf.org>

### *April*

- 4-5, SCAR/SCOR, London, United Kingdom, Holocene Climate Change Meeting. Web: <http://www.geolsoc.org.uk/holocene13>
  - 7-12, EGU, Vienna, Austria, EGU General Assembly. Web: <http://www.egu2013.eu/>
  - 15-19, IAG, Warsaw, Poland, 17<sup>th</sup> International Symposium on Earth Tides. Web: <http://www.cgs.wat.edu.pl/ETS2013>
  - 16-17, IAMAS, Beijing, China, Expert Assessment Workshop on climate variability and predictability. Web: <http://iccl2013.csp.escience.cn/>
  - 21-26, IAHS, Gainesville, Florida, USA, IAHS Groundwater Quality Conference (GQ13). Web: <http://conference.ifas.ufl.edu/GQ13/index.htm>
  - 24-28 IAVCEI, Görlitz, Germany, Basalt 2013 – Cenozoic Magmatism in Central. Web: <http://www.senckenberg.de/basalt2013>
  - 29 - May 1, IAMAS, Exeter, UK, SPARC Reanalysis/Analysis Intercomparison Project (S-RIP) Planning Meeting. Web: <http://www.sparc-climate.org/activities/emerging-activities/>
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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.**