INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS
UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE

The IUGG Electronic Journal

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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 website (http://www.iugg.org/publications/ejournals/). Please forward this message to those who will benefit from the information. Your comments are welcome.

Contents

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1. IUGG Nominating Committee names the candidates for the IUGG Bureau and Finance Committee (2015-2019)

On 22 October 2014 the IUGG Nominating Committee selected the candidates named in the list for consideration for the election of the IUGG officers at the 26th IUGG General Assembly in Prague, Czech Republic.

President
Michael Sideris (Canada, IAG)
Vice-President
Kathy Whaler (United Kingdom, IAGA)
Secretary General
Alik Ismail-Zadeh (Germany/Russia, IASPEI)
Treasurer
Aksel W. Hansen (Denmark, IAMAS)
Bureau Members
***Positions* #1, #2, and #3**
Pierre Hubert (France, IAHS)
Jianping Li (China, IAMAS)
Chris Rizos (Australia, IAG)

Kenji Satake (Japan, IASPEI/ IAPSO)
Constantin Sava (Romania, IASPEI)

Finance Committee
Position #1:
Corina Risso (Argentina, IAVCEI)
Position #2:
Virendra Tiwari (India, IAG)
Positions #3 and #4:
David Collins (United Kingdom, IACS/IAHS)
Zoltan Hajnal (Canada, IASPEI)
Jan Krynski (Poland, IAG)

Curriculum Vitae and resumés of the candidates are posted on the IUGG website: http://iugg.org/elections/candidates2015_19.php.

The officers of the Union and Associations, and the National Committees for IUGG may make further nominations and/or recommendations to the Nominating Committee. If new nominations for a given position are supported by at least three Presidents or equivalent officers of National Committees of Member Countries, and if they are accompanied by the written acceptance of possible nomination and a resumé outlining the position, research interests and Union related activities of the candidates, they shall be added to the list above. The deadline for adding nominations is **22 March 2015**. The resulting final list of nominations will be completed and distributed by 22 April 2015. Any questions concerning the nomination procedure should be sent to Uri Shamir, Chair of the Nominating Committee (shamir@technion.ac.il).

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2. Corrections and updates to the 2015 IUGG Yearbook

Corrections and updates to the information contained in the 2015 IUGG Yearbook are now being finalized in preparation for the 2015 Yearbook. Please contact Dr. Franz Kuglitsch at the IUGG Secretariat by **15 November 2014** (by e-mail fgkugl@gfz-potsdam.de or Fax: +49 331 288 1759) with additions and corrections.

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3. IUGG Bureau teleconference

On 29 October the IUGG Bureau held a teleconference to discuss several urgent issues. Agenda topics covered (i) an IUGG individual membership proposal, (ii) the reports of the Union Visioning Committee and the Union Capacity Building and Education Committee, (iii) the Terms of Reference of the proposed IUGG Outreach Committee, (iv) cooperation of IUGG with the Group on Earth Observations (GEO), (v) the approval of the Early Career Scientist Award recipients, and some other issues. Considering the opinions expressed by Association Presidents on IUGG individual membership proposal and after intensive discussion, the Bureau decided to approach IUGG National Members with a request to express their opinion on an individual membership of the Union. The Bureau approved the Terms of Reference of the proposed IUGG Outreach Committee and discussed the activities toward setting up the Committee. The Bureau set up an ad-hoc group of experts in Earth observations to work out the basic principles of cooperation between IUGG (and its bodies) and GEO, and appointed Claude Boucher (IAG) and Mioara Mandea

(IAGA) to co-chair the group. The Bureau considered and approved two interim reports of (i) the Visioning Committee on development of the Strategic Plan for 2016-2023, and (ii) the Capacity Building and Education Committee on development of the IUGG Science Education Policy. The Bureau approved the recommendation of the IUGG Early Career Scientist Award Selection Committee. The recipients of the Award will be announced on 5 November 2014.

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4. Administrative meetings at the 26th IUGG General Assembly

The schedule of IUGG administrative meetings during the 26th IUGG General Assembly in Prague, Czech Republic, is set as follows. Please mark the meetings in your calendar.

Opening Ceremony of the 26th IUGG General Assembly
Tuesday, 23 June, 16:30-18:00 (followed by Reception)

IUGG Bureau Meeting
Session 1: Sunday, 21 June, 9:00-12:00
Session 2: Wednesday, 24 June, 12:00-14:00
Session 3: Sunday, 28 June, 9:00-12:00

IUGG Executive Committee Meeting
Session 1: Sunday, 21 June, 14:00-18:00
Session 2: Wednesday, 24 June, 14:00-18:00
Session 3: Sunday, 28 June, 15:00-18:00

IUGG Council Meeting
Session 1: Monday, 22 June, 13:30-18:00
Session 2: Thursday, 25 June, 8:30-12:00
Session 3: Monday, 29 June, 15:00-18:00

Closing Ceremony of the 26th IUGG General Assembly
Wednesday, 1 July, 16:30-18:00 (followed by a Farewell)

IUGG Bureau & Executive Committee (2015-2019) Meetings
Thursday, 2 July, 9:00-12:00 – meeting of the new Bureau
Thursday, 2 July, 14:00-16:00 – meeting of the new Executive Committee

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5. Call for invitations to host the 27th IUGG General Assembly

Invitations to host the 27th IUGG General Assembly in 2019 are being accepted and must be received by **22 December 2014** (six month before the next General Assembly, consistent with IUGG By-Law 6). The Guidelines for proposals are posted on the IUGG web site (http://www.iugg.org/assemblies/) or can be received directly from the IUGG Secretariat [secretariat@iugg.org]. The IUGG Site Evaluation Committee appointed for that purpose will evaluate all invitations, and a report will be given to the IUGG Council before their final vote.

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6. Report on the 2013 ICTP workshops co-sponsored by IUGG

The Abdus Salam
International Centre
for Theoretical Physics
50th Anniversary 1964–2014

Workshop on Water Resources in Developing Countries: Planning and Management in a Climate Change Scenario

The workshop was held from 6 to 17 May 2013 at ICTP, Trieste, Italy and co-sponsored by IUGG. Water is one of the main resources that are threatened by climate change. According to the last IPCC climate model projections several regions of the world are considered to be hot spots of climate change and globally, the negative impact of climate change on water resources is expected to outweigh the benefit. This requires the development of adaptation and mitigation strategies in many regions of the world. Despite the large amount of climate data from many research projects, often the data resolution is not sufficient to investigate hydrological changes on a local scale. The main purpose of the workshop was to make the participants aware of all the available climate data and to understand how to downscale these data to a resolution needed for hydrological simulations. The morning lectures covered several topics including (1) the use and uncertainty of the main observational hydrological data; (2) the use and uncertainty of the main climate model dataset; (3) impact modeling for hydrological simulation; and (4) bias correction techniques for filling the gap between climate and hydrological model resolution. The hydrological model lectures covered the following topics: state of the art of hydrological climate models; problems and limitations of hydro-climate simulations; and data requirements for hydrological model validation. The workshop participants attended the lectures in the morning and lab sessions in the afternoon, where they learned how to use specific hydrological models. In the lab sessions each participant could choose his/her area of interest where to downscale the climate data and choose for which drainage basin he/she wants to run the hydrological simulation. The participants were divided in groups of 3-4 persons to work together on a topic, and they were asked to present their work at the end of the second week.

Summer School on Fundamentals of Ocean Climate Modeling at Global and Regional Scales

The Summer School co-sponsored by the Abdus Salam International Centre for Theoretical Physics (ICTP), the Indian National Centre for Ocean Information Services (INCOIS), and the International Union of Geodesy and Geophysics (IUGG) took place in Hyderabad, India between 5 and 14 August 2013.The School attracted some of the best ocean modelers from the USA, Australia and India, and around 30 students and young scientists who were selected to participate in the two-weeks activity. Attendants came from several countries, including India, Australia, Iran, Kenya, Nigeria, Togo and Ivory Coast. The emphasis of the School was on both, global and regional ocean modeling - from the theory to the practical aspects - with a focus on the Indian Ocean and its potential for regional ocean modeling and forecasting. To the best of our knowledge this was the first comprehensive School on basic training in ocean modeling, especially so in a developing country. The Indian Ocean was chosen as an example of regional modeling for several reasons. The Indian Ocean is a large but confined ocean basin, with a particularly important role in air-sea interactions and climate variability at intraseasonal-to-interannual time scales. The Indian Ocean plays a significant role as the driving force for monsoons and for the origin of cyclones. It is also a potential source of food and energy, a cost effective medium for transport and a strategic space. Furthermore, the Indian Ocean is believed to have a large impact on human activities and societies from Africa to South East Asia and beyond, thus providing us with the best example for a

regionalization of ocean climate modeling. Nevertheless, both the theoretical and practical aspects of the regional Indian Ocean modeling can be applied to any other oceanic region. The ocean model chosen for this training activity was the NOAA/Geophysical Fluid Dynamics Laboratory (NOAA/GFDL) Modular Ocean Model (MOM). MOM is a numerical representation of the ocean's hydrostatic primitive equations. It is designed primarily as a tool for studying the ocean climate system. Additionally, MOM has been used in regional and coastal applications, with many new features in the latest version of the model aimed at supporting this work. The model is developed by researchers from around the world, with the main algorithm development and software engineering provided by NOAA/GFDL. This world-leading model is freely available. Present and earlier versions of MOM have been used in hundreds of scientific papers by authors from around the world, and thousands of users are actively using MOM for different applications. For example, MOM is used as the basis for the El Nino prediction system employed by the National Centers for Environmental Prediction, USA. The activity was based on lectures from world experts in ocean modeling and forecasting.

The School was organized in daily morning sessions with key lectures divided into two main streams (Part A: Fundamentals and Part B: Applications), and daily afternoon sessions devoted to practical training (Part C: Hands-on sessions). Practical sessions were the backbone of the School, with hands-on training in the use of ocean models. The students were guided through the necessary steps for setting up a simulation, from generating the input fields to choosing the appropriate physical settings, to finally analyzing and post processing the data. As all ICTP activities, the School was intended for students and young researchers from developing countries and provided them with a great knowledge and understanding on the subject, leading to improvements in their research, knowledge transfer and capacity building. The students had the chance to acquire both the theoretical and the practical necessary knowledge for using ocean climate models. It is of primary importance to train and foster research in ocean modeling and forecasting in developing countries since those regions tend to be associated with large coastal areas and problems related to climate change. It is thus necessary to provide scientists from developing countries with the necessary tools to establish and promote their own ocean modeling studies and projects. A sound knowledge of ocean physics, improved forecast of weather and climate as well as sustainable development of ocean ecosystems and coastal areas are essential to improve the quality of life in many developing countries. The School benefited from the input of leading experts in the field, local scientists and technical staff, as well as motivated and talented participants. The overall success was finally achieved by the fantastic international and multicultural environment, and the generous Indian hospitality.

Workshop on GNSS Data Application to low Latitude Ionospheric Research

The Workshop was held from 6 to 17 May 2013 at ICTP, Trieste, Italy, under an international partnership between the Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, and Boston College (BC), Chestnut Hill, USA, with the participation of the European Space Agency (ESA). The Workshop was designed with activities to give an in-depth view, particularly of science applications of GNSS technology and ionospheric research in low latitude regions. International experts in the field have generously donated their time to participate in this Workshop as lecturers. They were 17 persons from nine countries. 198 persons applied for the Workshop. From this number, 66 were selected to participate, and five cancelled their participation. Finally, participants from 26 countries were represented: Africa (26 participants); Asia (16 participants); Latin America (10 participants) and Europe (9 participants). The following topics were covered during the lectures, and computer laboratory work done in 18 sessions: Fundamentals and Applications of GNSS; Basics on the ionosphere and space weather effects; Low Latitude Ionosphere; GNSS derived ionospheric data; Ionospheric models; Ionospheric irregularities in low latitudes; Data assimilation in ionospheric models; Ionospheric specification and forecast in low

latitudes; Longitudinal differences in low latitude ionosphere; Low latitude ionosphere effects on Satellite Navigation Systems. A session of the Workshop was dedicated to the European Space Agency ALCANTARA Initiative on Ionospheric Ground Based Monitoring Networks in Low-Latitudes Regions.

It has to be noted that the training and awareness efforts undertaken for Africa in the framework of the partnership between ICTP and BC, and in other similar contexts, are showing clearly the benefits. ICTP and BC have promoted the participation of African professors and their students in the series of Workshops carried out in Trieste, and have also promoted, and supported, similar Workshops in Africa. The number of universities involved in Space Weather and Ionospheric research in Africa has increased substantially in the last 4/5 years. Several graduate students are now involved, or have already taken their degrees in these fields, and this has led to a substantial increase in the scientific level of the participants attending the Workshops. This has been particularly evident in the Workshop run this year in Trieste. To make this trend sustainable, it is evident that both new-born and already well-established research groups in Africa need to be supported through well-planned collaborative projects that should involve active participation by African scientists.

The workshop was funded by ICTP, IUGG, BC, ESA, the International Committee for GNSS, the Institute of Navigation, the Federal Aviation Administration (FAA), the U.S. Air Force, and the European Office of US Air Force Research and Development (EOARD).

Winter School on Earthquake and Tsunami Hazards and Risks

The ICTP winter school on earthquake and tsunami hazards and risks held in Algiers, Algeria from 9 to 20 December 2013 was attended by 108 participants spanning all North African countries. The participants were graduate students, post-doctoral fellows and early career scientists. The school was co-funded by CRAAG-centre de Recherche en Astronomie Astrophysique et Geophysique in Algeria, NAGET-North African Group for Earthquake and Tsunami studies, Regione Friuli-Venezia Giulia (LG 19), and IUGG, and covered a full spectrum of teaching in earthquake sciences going from earthquake mechanics to mitigation issues as well as tsunami physics and geology. The school combined intensive and interactive teaching together with panel and group discussion sessions. The school tackled recent developments in disaster management issues by looking at the recent earthquakes that affected Algiers, Algeria, in 2003 and L'Aquila, Italy, in 2009.

The Abdus Salam International Centre for Theoretical Physics (ICTP) acknowledges the IUGG co-sponsorship of the workshops and targeted training activities in 2013 (photo: K. Aoudia).

Source: The ICTP report to IUGG

7. IACS Early Career Scientist Prize

The Early Career Scientist Prize of the International Association of Cryospheric Sciences (IACS) of IUGG is an annual prize (EUR 1000) awarded to a nominated early career scientist, who is assessed as having published the best scientific paper on a cryospheric subject published during the previous calendar year in a peer-reviewed international journal.

The objective of the prize is to recognize excellence in cryospheric science by honoring and promoting someone in early stages of her/his career, and to draw attention to IACS activities. The Selection Committee will announce the first winner in March next year. The 2015 Prize will be presented during the IACS Plenary Administrative Session at the 26th IUGG General Assembly in Prague, Czech Republic, 22 June – 2 July 2015. For the guidelines and the deadlines for nomination, please visit the IACS webpage at: http://www.cryosphericsciences.org.

Charles Fierz, IACS President

8. Awards and Honors

The European Geosciences Union (EGU) awarded ***Hubert Savenije*** (President of IAHS) the 2015 Alexander von Humboldt Medal, ***Gregory Houseman*** (Co-Chair, IASPEI Commission on Earth Structure & Geodynamics) the 2015 Augustus Love Medal, and ***Daniel Schertzer*** (Chair, IAHS Working Group on Precipitation) the 2015 Lewis Fry Richardson Medal. Congratulations to Hubert, Greg and Daniel!

Joyce Penner (Vice President of IAMAS) was elected President-elect of the Atmospheric Sciences Section of the American Geophysical Union (AGU). ***Ramesh Singh*** (Honorary Member of the IUGG GeoRisk Commission (GRC) and the past GRC Vice-Chair) was elected the AGU's Natural Hazards Focus Group President-elect. Congratulations to Joyce and Ramesh!

9. Obituary

Hans Berckhemer (1926 - 2014)

Professor Dr. Hans Berckhemer, an outstanding geophysicist and seismologist, passed away on 21 July 2014. Hans Berckhemer was born in Stuttgart, Germany, where he grew up and received his academic education at the University of Stuttgart - Diploma in Physics in 1951 and PhD (German Dr. rer. nat.) in 1954. His scientific career started as a Research Associate at the Geophysical State Institute in Stuttgart (1951-1963) and focused in seismology. Hans Berckhemer spent a year in USA as a Fulbright Research Fellow at the Lamont Geological Observatory, Columbia University, New York, and also visited the Seismological Laboratory of CALTECH in Pasadena, California.

During this time, he cooperated with distinguished geophysicists Maurice Ewing, Beno Gutenberg, Jack Oliver, and Frank Press. Later, Hans Berckhemer spent some time as an invited scientist at the University of Tehran, Iran. In 1958 he started lecturing (as an external lecturer) at the Johann Wolfgang Goethe University in Frankfurt am Main, Germany, and in 1961 he received his Habilitation (venia legendi) in Geophysics from the same university. Hans Berckhemer became in 1963 a full Professor in Geophysics and held this position for the next 31 years, when he retired as a Professor emeritus.

During his long career, Hans Berckhemer worked on a broad variety of topics, such as dynamic processes in the earthquake focus, seismometry (especially broadband seismology), laboratory experiments on seismic wave propagation, deep seismic sounding profiles, and experimental rock physics (high temperature anelasticity, fracture processes). Hans Berckhemer was one of the first seismologists who promoted the advantages of digital broadband recordings and was one of the key persons behind the decision to build the first broadband array worldwide. In the 1970-80s, the main research focus of Hans Berckhemer slowly changed to rock physics. He built up a high temperature, high pressure laboratory in Frankfurt to investigate rock material from the crust and the mantle. Topics under investigation were seismic wave velocities, their anisotropy, scattering and attenuation, and the processes for the formation of micro-cracks. One of the largest specimens of Moon rock from the APOLLO 16 mission, as well as hundreds of rock samples from the German deep drill experiment (KTB Windischeschenbach) were investigated in his lab in Frankfurt.

Hans Berckhemer was President of the German National Committee for Geodesy and Geophysics (NKGG), Vice President and President of IASPEI (1971-75, 1975-79), Chairman of the International Geodynamics Project Working Group 3 (Alpine-Mediterranean Region) (1973-79), and President of the German Geophysical Society (DGG, 1979-81). He was a DGG honourable member, an elected member of the Deutsche Akademie der Naturforscher Leopoldina (German National Academy of Sciences) and was honored with the Otto Yuljevich Schmidt Medal of the Institute of Earth Physics of the Russian Academy of Sciences.

Hans Berckhemer was a widely acknowledged academic teacher, who influenced generations of students in Frankfurt. He was always interested in the physical answer behind the question under investigation and gave many practical hints based on his long experience with physical experiments. Beside all his scientific interests, he will be remembered by his students as a friendly and sociable person, with humor, who helped insightfully when some of them struggled with their advancement. I met Hans Berckhemer for the first time, when I came to Frankfurt to study geophysics in the 1970s. The last time we met was in September 2013, when he participated in the 100-year celebrations of the seismic station (Taunus Observatory) of the University of Frankfurt. He enjoyed speaking about the old times, when he visited Gutenberg in Pasadena and when he came to Frankfurt and renovated the seismic station about 50 years ago.

Prof. Dr. Hans Berckhemer will be remembered by IUGG, IASPEI and many geophysicists as a highly respected scientist and teacher, who influenced, both nationally and internationally, research in seismology, experimental rock physics, and deep seismic sounding for many decades.

Johannes Schweitzer, IASPEI Deputy Secretary General (*Photo: Fang Yang*)

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10. IUGG-related meetings occurring during November 2014 – January 2015

A calendar of meetings of interest to IUGG disciplines (especially those organized by IUGG Associations) is posted on the IUGG website (http://www.IUGG.org/calendar). Specific

information about these meetings can be found there. Individual Associations also list more meetings on their websites according to their disciplines.

November

- 2-5, CODATA, WDS, New Delhi, India, 24th International CODATA Conference and 29th CODATA General Assembly. Web: http://www.scidatacon2014.org/
- 10-11, IAHS, Abu Dhabi, United Arab Emirates, 5th STAHY International Workshop. Web: https://www.stahy2014.org/ehome/index.php?eventid=88946&
- 10-14, Second Meeting of the Intergovernmental Board for Climate Services (IBCS-2), WMO, Geneva, Switzerland, http://www.wmo.int/gfcs/node/457
- 12-14, UNISDR, WMO, Guayaquil, Ecuador, 3rd International Conference on ENSO. Web: http://www.ciifen.org/index.php?option=com_content&view=category&layout=blog&id=117&Itemid=172&lang=es
- 16-24, IAVCEI, Atacama, Chile, 12th Field Workshop on Volcanic Gases. Web: http://iavcei12.campoalto.cl/
- 17-20, IAG, Denver, CO, USA, PECORA 19. In conjunction with the Joint Symposium of ISPRS Technical Commission I and IAG Commission 4. Sustaining Land Imaging: UAVs to Satellites. Web: http://pecora.asprs.org/index.php
- 17-20, IASPEI, ASC, Makati City, Philippines, 10th ASC General Assembly, Web: http://asc2014ph.phivolcs.dost.gov.ph
- 17-21, UNESCO-IOC, Barcelona, Spain, 2nd International Ocean Research Conference. Web: http://www.iocunesco-oneplanetoneocean.fnob.org
- 17-22, IAVCEI, Queretaro, Mexico, 5th International Maar Conference. Web: http://maar2014.geociencias.unam.mx/venue-and-access
- 18-21, IUGG, GRC, Madrid, Spain, GEORISK 2014 “Improving Geophysical Risk Assessment, Forecasting, and Management”. Web: http://georisk2014.com/Home.html
- 24-26, IUGG, IAG, La Paz, Bolivia, Symposium SIRGAS 2014. Web: http://www.sirgas.org/index.php?id=193&L=2
- 26-28, IAG, ICA, ISPRS, FIG, Vienna, Austria, 11th Symposium on Location-Based Services. Web: http://lbs2014.org/

December

- 7-11, IAVCEI, Taupo, New Zealand, 5th International Workshop on Collapse Caldera. Web: http://www.iavcei.org/documents/Caldera%20Workshop%202014%20Second%20circular%20Final.pdf
- 11-14, IAHS, New Orleans, LA, USA, IAHS/ICCE International Symposium – Sediment Dynamics: Form the Summit to the Sea. Web: http://www.rnr.lsu.edu/icce2014/
- 15-19, AGU, San Francisco, USA, AGU Fall Meeting. Web: http://fallmeeting.agu.org/2014/

January

- 9-10, URSI, Hooghly, West Bengal, India, International Conference on Foundations and Frontiers of Computer, Electrical Engineering : commemorating 150 years of Maxwell's Equations. Web: http://www.ursi.org/en/event_item.asp?id=315
- 10-13, IMU, San Antonio, Texas, USA, 2015 Joint Mathematics Meetings. Web: http://jointmathematicsmeetings.org/jmm
- 14-16, IRDR, Science Council of Japan, Tokyo, Japan. The Tokyo Conference on International Study for disaster Risk Reduction and Resilience. Web: http://monsoon.t.u-tokyo.ac.jp/AWCI/TokyoConf/en/index.htm
- 19-23, GCW CryoNet and Steering Group Joint Meeting, Copenhagen, Denmark

End of IUGG Electronic Journal Volume 14 Number 11 (1 November 2014)

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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.