



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

## **The IUGG Electronic Journal**

**Volume 15 No. 5 (1 May 2015)**

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.

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### **1. IUGG extraordinary Executive Committee meeting**

To analyze several urgent issues related to modernization of the Union, IUGG President Harsh Gupta called for an extraordinary Executive Committee (EC) meeting, which was held in Vienna, Austria, on 18 April 2015. The meeting agenda included the following important topics: IUGG and Association individual membership; participation of scientists from non-Member countries in the IUGG/Associations governance; strengthening the linkage between National Correspondents and the IUGG Associations; draft Strategic Plan for 2016-2023; operations of IUGG and the Union Associations, and some other topics.

The discussion on individual membership was based on the overview of the opinions of all IUGG Associations and 27 National Members of the Union (which submitted their response on the request of the IUGG President). The opinions showed two common points: (i) no support for introducing an IUGG individual membership, but support for allowing Associations to introduce an individual membership (note that three Union Associations introduced their own individual membership some time ago); and (ii) IUGG key officer positions should be only eligible to individuals from IUGG member countries. The proposal for changes of the IUGG Statutes and By-Laws recently submitted to the IUGG Council Delegates (in advance of the Council meeting) was discussed and enthusiastically endorsed by the EC. Among the changes proposed are the nomination of permanent delegates to the IUGG Council, electronic voting, definition of National Committees, gender criterion, individual scientists and their eligibility for election, and permission for Associate Members to speak at Council Meetings.

Although the relations between National Correspondents and IUGG Associations have been developing well, some concerns were expressed about the linkage between the some National Correspondents and the Associations. Particularly, Association Presidents mentioned that sometimes their inquiries for help in identifying a National Correspondent to Union Associations failed to get a response from National Committees. Another issue mentioned was that sometimes the National Correspondent to an Association appointed by a Member country does not belong to the field of that Association and hence does not participate in the Association's activities. The EC agreed that IUGG Associations and National Committees should strengthen the existing links. Association officers expressed their readiness to provide advice to IUGG National Committees related to national experts who are actively participating in the Associations and who could be an ideal correspondent between Associations and National Committees.

A draft IUGG Strategic Plan for 2016-2023 was presented by Chris Rizos, Chair of the Visioning Committee, and was commented on by the EC members. A revised draft Strategic Plan will be considered by the IUGG Council at its meeting in Prague in June 2015. Also, the EC discussed principal operational activities (including administration and outreach) of the Associations and the IUGG, and agreed that Associations should continue their operations under the umbrella of the Union, which provides inter-, multi-, and trans-disciplinary links between Associations and the Union and between the Union and other international and inter-governmental organizations.

The EC meeting was hosted by the Department of Geodesy and Geoinformation, Vienna University of Technology, and the IUGG EC expressed its sincere gratitude to the host organization for the hospitality.

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## **2. New Affiliate Members**

The IUGG Secretariat received applications for admission to IUGG as an Affiliate Member from *the International Association for Mathematical Geosciences (IAMG)*, and *the International Consortium on Landslides (ICL)*. The IUGG Executive Committee examined these applications. Considering that both organizations activities are related to the IUGG activities, the Executive Committee approved both applications and recommended that IAMG and ICL should be accepted as Affiliate Members. The applications were placed before the IUGG Adhering Bodies for a vote by correspondence. Based on the votes the applications were accepted. The Affiliate membership of IAMG and of ICL is provisional until the next meeting of the IUGG Council in Prague, Czech Republic, on 22 June 2015, when the vote will be approved.

IAMG is a professional multidisciplinary society with about 800 members in over 40 countries. The mission of the IAMG is to promote worldwide the advancement of mathematics, statistics, and informatics in the geosciences. To achieve this aim, IAMG issues publications in cooperation with other publishing partners; organizes meetings with short courses, field excursions and other activities; cooperates with other professional organizations concerned with applications of mathematics and statistics in science and engineering. IAMG distributes a newsletter twice a year, holds annual conferences and publishes three international journals – *Mathematical Geosciences*, *Computers & Geosciences* and *Natural Resources Research*. Geoscience books are published in the IAMG Monograph Series. The IAMG promotes research in mathematical geosciences by graduate students and postdoctoral fellows at universities worldwide by supporting IAMG Student Chapters, annual Student Research Grant Awards, and IAMG Student Travel Grants. IAMG is governed by a Council of 12 voting members plus 4 non-voting journal editors. For more information on IAMG: <http://www.iamg.org>.

The International Consortium on Landslides (ICL) was established during the UNESCO - Kyoto University Joint Symposium in January 2002 with participants from UNESCO, UNISDR, WMO, and the Japanese government. Members of ICL are from different disciplines, different countries and different types of organizations (universities, institutes, governments and local governments, societies, and private sector). As of October 2014, 59 organizations from 35 countries/regions are ICL Members, 8 organizations (relevant UN entities and Governmental entities) are ICL Supporting Organizations, and also 12 other organizations and many individuals support the activities of ICL. The consortium participates in UN-Global Platforms for Disaster Risk Reduction (Geneva) as an ISDR Thematic Platform on Landslides, and at international meetings. Over the last decade ICL produced 48 issues of the Journal “Landslides”, as well as 14 full color books, numerous additional publications, and organized three “World Landslide Forums” (in Tokyo in 2008, Rome in 2011, and in Beijing in 2014). The consortium established 15 “*World Centers of Excellence on Landslide Risk Reduction*” at the last World Landslide Forum 3 in Beijing (June 2014) and “*3 Regional and 5 Thematic Networks*”. For more information: <http://icl.iplhq.org/category/home-icl/>

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### 3. Final Slate of the IUGG Bureau and Finance Committee (2015-2019)

Given below is the list of nominations for the IUGG Bureau and the Finance Committee as submitted by the Nominating Committee on 3 April 2015. The Committee received the additional nomination of Isabelle Ansorge (South Africa). The positions and the nominated candidates are:

<b>President</b>	Michael Sideris (Canada, IAG)
<b>Vice-President</b>	Kathy Whaler (United Kingdom, IAGA)
<b>Secretary General</b>	Alik Ismail-Zadeh (Germany/Russia, IASPEI)
<b>Treasurer</b>	Aksel W. Hansen (Denmark, IAMAS)

#### **Bureau Members (*Positions #1, #2, and #3*)**

Isabelle Ansorge (South Africa, IAPSO)  
 Pierre Hubert (France, IAHS)  
 Jianping Li (China, IAMAS)  
 Chris Rizos (Australia, IAG)  
 Kenji Satake (Japan, IASPEI)  
 Constantin Sava (Romania, IASPEI)

#### **Finance Committee**

<i>Position #1:</i>	Corina Risso (Argentina, IAVCEI)
<i>Position #2:</i>	Virendra Tiwari (India, IAG)
<i>Positions #3 and #4:</i>	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](http://iugg.org/elections/candidates2015_19.php).

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#### **4. Report on IUGG-cosponsored Science Education events**

##### ***Workshop on the Theory and Use of Regional Climate Models***

Regional climate models (RCMs) are widely used tools to produce high resolution climate simulations at regional scales. The ICTP regional climate modeling system, RegCM, is one of the most used RCMs worldwide, with applications ranging from regional process studies to paleoclimate, climate changes, chemistry, climate and biosphere – atmosphere interactions. A new version of the model, RegCM4, was completed and released in 2012, but new features were included for release during this workshop, such as the CLM4.5 land surface scheme, a new cloud microphysics scheme and coupling with the MIT Ocean model.

The workshop was held on 12-23 May 2014, ICTP, Trieste, Italy and directed by F. Giorgi and E. Coppola (both ICTP, Italy), X. Gao (China), and S. K. Dash (India). This event provided lectures and extensive hands-on sessions on the theory of regional climate change and regional climate modeling as well as on the use of the RegCM4 modeling system. The focus of the present workshop was on the application of the RegCM4 within the international program CORDEX (COordinated Regional Downscaling EXperiment). The primary aim of CORDEX was to produce a new generation of large multi-model ensembles of regional climate change projections over domains covering all continental areas of the world for use in impact assessment and adaptation studies. The RegCM community contributes to CORDEX through the completion of numerical experiments over different CORDEX domains. The workshop was thus intended to provide a forum to assess and inter-compare these experiments within the context of the goals of CORDEX.



The workshop provided a forum for current and future model users to discuss relevant issues and formulate needs and priorities for further model development and dissemination. A limited number of participants was envisioned, with proven experience in climate modeling and a strong interest in using the RegCM4 system for regional climate studies. IUGG funds supported participation of three female scientists from Vietnam, Ghana, and Cote D'Ivoire. For detailed information on the event see ICTP agenda page link at [http://cdsagenda5.ictp.it/full\\_display.php?ida=a13197](http://cdsagenda5.ictp.it/full_display.php?ida=a13197)

##### ***Summer School on Attribution and Prediction of Extreme Events***

The Summer School on *Attribution and Prediction of Extreme Events* co-sponsored by the Abdus Salam International Centre for Theoretical Physics (ICTP), the World Climate Research Programme (WCRP), the International Union of Geodesy and Geophysics (IUGG), the International Council for Science (ICSU), the Asia-Pacific Network for Global Change Research (APN), the Australian

Research Council's Centre of Excellence for Climate System Science (ARC), the US National Oceanic and Atmospheric Administration (NOAA), the US Department of Energy (DoE), the International and US Climate Variability, Predictability and Change Projects (CLIVAR, US CLIVAR) and the Institut Pierre Simon Laplace (IPSL) took place in Trieste, Italy between 21 July and 01 August 2014. The school website, with list of participants, agenda, reading and research project material, lecture videos and photos can be found here: <http://www.wcrp-climate.org/ictp2014-about>.

The 35 participants, Ph.D., postdoctoral researchers and early career scientists selected from 236 applicants, represented all regions of the world and were carefully selected to form tight, high-quality participant groups for the research component of the course. They were taught and mentored by 11 leaders of the international research community, as well as seven teaching assistants that worked in support of their faculty colleagues. The purpose of the school was to train students with outstanding research potential in emerging analytic techniques required to better understand observed and future changes in extremes, addressing prominent and important societal and scientific questions about extreme events that are receiving increasingly intense attention from the public and policy makers. The school was based around three broad topic areas: (i) Statistical theory underpinning extreme value analysis; (ii) Detection and attribution of observed changes in the frequency and/or intensity of extremes, and (iii) Event attribution, and the physical mechanisms that are involved in amplifying and/or extending the duration of some specific extreme events such as heat waves.

In addition, the school trained students in the development of some of the key data resources that are used to place current extremes into a historical context, and provided insights into some of the emerging thinking on the near term prediction of the likelihood of extreme events, where by “near term” we intend up to seasonal time scales. The school also taught the importance of understanding the physical mechanisms that produce many of the most impactful extreme events, with lectures on “complex” hydrologic extremes such as drought and the role of coupled land-atmosphere feedback mechanisms in amplifying extreme temperature events.

The material covered in the lectures was consolidated through structured tutorials, and its practical application was accomplished through a suite of research problems that formed the core of the school and are an important part of the school's long term legacy. The participants worked in teams lead by the faculty and advisors throughout the two weeks, presenting their progress mid-way and at the end of the course. The teams have continued to work on their research projects since the summer school, with the support of their mentors.

A core objective of the school was to enable the participants to continue to pursue new research avenues based on the training acquired through the school. The course material is freely available on the website, also for the benefit of those who could not attend. The lectures were all professionally filmed. All data processed for the research projects is freely available and the analysis tools were purposely developed with open source software. Another key aspect was to foster lasting relationships with the faculty and other participants. The research component of the school created close, informal conditions to develop ideas and relationships, and various social events that were organized, including a closing dinner paired with a mentor-led discussion on career development. The IUGG funds were used to support students and young scientists from developing countries in their travel and daily expenses.



## ***Second TOSCA Training School: Solar Variability and Climate Response***

COST Action ES1005 TOSCA (Towards a more complete assessment of the impact of solar variability on the Earth's climate, [www.tosca-cost.eu](http://www.tosca-cost.eu)), the FP7 collaborative project SOLID ([projects.pmodwrc.ch/solid](http://projects.pmodwrc.ch/solid)), and ICTP, organized the Second TOSCA training school on "Solar variability and climate response" at ICTP, Trieste, Italy, from 13 to 17 October 2014. The school provided participants with a global understanding of the role of solar variability in climate change. Various topics were covered, including the basic properties (solar, heliospheric, and atmospheric physics), diagnostic techniques, errors and uncertainties, needed research, and socio-economic aspects.

The school was open to young scientists (PhD, young post-doc and 2nd year master students) from all countries. Travel, accommodation, and subsistence expenses of the participants were covered with funding by the institutions supporting the school (COST, ICTP, SCOSTEP, IUGG, and INAF). Most of budget was available to support the attendance by students coming from countries that are participating in the COST Action TOSCA, and those that are members of the United Nations and UNESCO or IAEA. Some funds were also available for participants that are nationals of, and working in, a developing country. 85 applications were received in response to the school announcement and a severe selection was applied to identify the invited participants on the basis of their qualifications and the likely benefit to their research from attending the school. 28 students attended the school, coming from 16 countries.



The program was run from Monday to Friday with three main modules consisting of lectures, computer classes, and team work. All activities were led by internationally recognized and expert scientists from the solar physics, space physics and atmospheric physics communities. All of them are involved in the COST action TOSCA. The educational material employed by the lecturers and tutors was made available to the participants via a dedicated folder in dropbox before or just after the relevant activity.

During the lectures, as well as all other school activities, the students were invited to actively participate in them, by asking the speakers for details and clarifications. The lectures addressed various aspects of the Sun-climate connection, with a focus on fundamental physical issues, key questions, and practical aspects. With the school announcement, and with a reminder sent out two weeks before the school, the participants were informed of the team work expected

to be carried out during the school and of the details of this activity. The students were divided into three teams. In the first part of the week, each team was asked to concentrate on a specific subject, and work under guidance of a tutor. During the second part of the week, each team was asked to prepare a research proposal, and defend it in front of a panel of scientists. The team work activity was aimed at training the participants in the identification of an interesting research topic, stimulating their team work skills, letting them practice with data and methods employed in research, and training them to outline a research project.

During the school, each day from Monday to Wednesday before the lunch break, there was also some time devoted to each participant for an individual presentation of his/her research field and expertise. Each participant was invited before the school to arrange a presentation with up to three slides to be run in less than five minutes. The school program included an ice-breaker on the evening of the first school day and a dinner downtown the last school evening. Both events were very pleasant. More information on the event can be found at <http://tosca.sciencesconf.org>.

### ***Advanced School on Megathrust Earthquakes and Tsunamis***

The ICTP advanced school on megathrust earthquakes and tsunami held at ICTP from the 12 to the 25 of October 2014 was attended by 83 participants spanning 31 different countries. The participants were graduate students, post-doctoral fellows and early career scientists. The school was co-funded by Regione Friuli Venezia Giulia (LG 19) and the IUGG.



The school covered a full spectrum of complementary fields like seismology, geodesy, mechanics of megathrust earthquakes and related time-dependent deformations as well as the physics of tsunami. The school consisted of intensive and interactive teaching with hands-on computer exercises together with long-lasting panel and group discussion sessions. The school tackled very recent science developments and results related to the destructive Japan and Chile megathrust seismic events and related tsunami. More information on the event can be found at the following web site: <http://indico.ictp.it/event/a13230>

### ***Workshop on Geophysical Monitoring and Modeling for Sustainable Energy and Geohazard Solutions***

The Workshop was held in Kigali, Rwanda, from 15 to 25 September 2014 in the University of Rwanda's College of Business and Economics and organized by M.-C. Gasingirwa (MINEDUC



Rwanda), C. Ebinger (University of Rochester USA); A. Ayele (University of Addis Ababa Ethiopia), and A. Aoudia (ICTP Italy).

The training workshop in Sub-Saharan Africa was designed to build capacity in the detection, understanding, and mitigation of natural geohazards, and in the development of alternative energy solutions. The 10-day training course for African geoscientists provided intensive teaching on consolidated techniques in the field of earthquake and volcano monitoring as well as in renewable energy. Real case studies were based on lessons learned from natural hazards and sustainable energy exploration in sub-Saharan Africa.



The event was attended by 77 participants from 19 different countries. IUGG funds supported participation of three female (including young) scientists from Sudan, Malawi, and Uganda. For detailed information on the event, see ICTP agenda page link: <http://indico.ictp.it/event/a13244/>

### ***African School on the Impact of the Sun on Ionosphere: Physics and Applications***

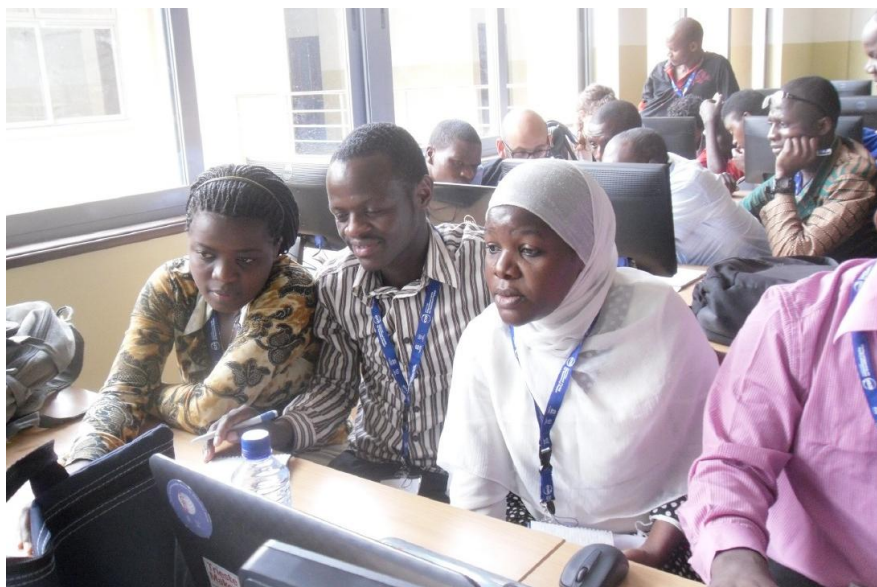
The School took place in the University of Rwanda, in Kigali, Rwanda, from 30 June to 11 July 2014. The School was jointly organized by ICTP, the Institute of Scientific Research of Boston College (B.C, USA) and the University of Rwanda (UR) College of Science and Technology (CST). The Organizers of the School were C. Amory (LPP-CNES), P. Doherty (ISR-Boston College), S. M. Radicella, B. Nava (both ICTP); J. Uwamahoro (Rwanda).

The school obtained financial support from various institutions and space science programs including the IUGG award, which was directed to support young and female scientists. The school gathered 15 Lecturers and 48 students from different countries with the majority of students coming from Rwanda and the East-African Region. The School covered topics related to the physical phenomena of the solar -magnetosphere - ionospheric interactions and their effects on technological systems. In detail the technical sessions were devoted to the following topics: (i) Solar Phenomena; (ii) The ionosphere; (iii) Space Weather and Magnetometers; (iv) GNSS Calculations; (v) Integrated GNSS Techniques and Tools; and (vi) Results of Students Research Projects

The school created an opportunity for senior and young space scientists to interact and share knowledge in space science. Also the school strengthened the vision and understanding of the importance of research in space science with particular focus on space weather and its impact on everyday life. In addition to the scientific understanding of the physical phenomena, the students



were able to acquire knowledge on how solar activity can influence the functioning and reliability of space-borne and ground-based systems and services. Services that can be disrupted by extreme solar phenomena include telecommunications and Global Navigation Satellite Systems (GNSS) related applications.



*A group of students during their Research Project activity*

The school included hands-on exercises in data analysis. In addition the students were divided into groups in order to analyze different space weather events as small “research projects”. Each group reported their finding in a special session of the School. It should be noted that during this workshop, one space research instrument was donated and installed at the College of Education, University of Rwanda. The instrument is now fully functioning and will be operated by local space scientists to monitor solar bursts and thereby be able to predict their potential influence on the near-Earth environment. The closing ceremony of the School was honored by the presence of the Honorable Minister of Education of the Republic of Rwanda.

(Photos, courtesy by ICTP)

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## **5. News from the International Lithosphere Program**

The International Lithosphere Program (ILP) was founded by the International Union of Geodesy and Geophysics (IUGG) and the International Union of Geological Sciences (IUGS) in 1980 and consequently celebrates its 35th anniversary in 2015. ILP has been since incubator for a number of worldwide acting flagship projects and programs, e.g. the International Continental Drilling Program (ICDP), World Stress Map (WSM), and many others. To celebrate the 35th birthday ILP will hold its meeting “Celebrating Excellence in Solid Earth Sciences” in GeoForschungsZentrum, Potsdam, Germany, 21-23 September 2015. As most of ILP’s acting task forces and coordinating committees will be at the end of their current funding period in 2015, the meeting offers them the ideal opportunity to present their results, especially their networking activities. New initiatives will also have the change to present their ideas and to receive an immediate feedback from the ILP community. The target group: members and friends of ILP, scientists participating in the working groups, lead personal from IUGG and IUGS, and every solid sciences enthusiast. More information on the meeting can be found at: <http://www.scl-ilp.org/events/35-ilp/>

The deadline for submission of proposals for new ILP Task Force or Coordinating Committee proposals is 31 May 2015. Submit a proposal considering the criteria named in the call for proposals: <http://www.scl-ilp.org/call-for-proposals/>. At the 35th anniversary meeting these proposals will be presented and decided upon during the Bureau Meeting on 23 September 2015. Those accepted will receive the first funding in 2015.

Proposals of candidates of the “Edward A. Flinn-Pembroke J. Hart Award” can also be submitted before 31 May 2015. The Bureau will decide after evaluating all proposed candidates via email and the Award will be presented at the 35th anniversary meeting of ILP.

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## 6. Awards and Honors

**Mathieu Morlighem** (University of California Irvine, USA) is the recipient of 2015 Early Career Scientist Prize of the International Association of Cryospheric Sciences (IACS). The Prize is an annual cash prize of EUR 1000 plus a certificate awarded to a nominated early career scientist who is assessed as having published the best scientific paper on a cryospheric subject during the previous calendar year (2014). The 2015 Prize will be presented to the recipient at the IACS Plenary Administrative Session on 26 June 2015 during the XXVI IUGG General Assembly in Prague (see details at <http://www.cryosphericsscience.org/iacsAwards.html>).

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## 7. Meeting calendar

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.

### May

- 3-7, AGU, CGU, GAC, MAC, Montreal, Canada, 2015 Joint Assembly. Web: <http://ja.agu.org/2015/>
- 11-13, IAG, Potsdam, Germany, GNNS+R 2015 Workshop. Web: <http://www.gnssr2015.org>
- 11-15, IAU, Atlanta, Georgia, USA, Young Stars & Planets Near the Sun, IAU Symposium 314. Web: <http://youngstars.gsu.edu/>
- 11-15, ISPRS, Berlin, Germany, 36th International Symposium on Remote Sensing of Environment (ISRSE-36). Web: <http://www.isrse36.org/>
- 17-21, IAG, IVS, Ponta Delgada, Azores, Portugal, 22nd Meeting of the European VLBI Group for Geodesy and Astrometry (EVGA). Web: <http://evga2015.raege.net/>
- 18-22, URSI, Gran Canaria, Spain, URSI AT-RASC 2015 (URSI Atlantic Radio Science Conference 2015). Web: <http://www.at-rasc.com>
- 25-26, IAHS, Blida, Algeria, 6th International Conference - Water Resources and Sustainable Development. Web: <http://ciredd2015.ensh.dz/en/>

### June

- 1-4, IUSS, Madison, WI, USA, IUSS Global Workshop on Digital Soil Morphometrics. Web: <http://digitalsoilmorphometrics.org/inaugural-global-workshop-2015/>
- 2-4, IUSS, Keszthely, Hungary, Land Quality and Landscape Processes Conference and Workshops. Web: <http://lq2015.georgikon.hu>

- 3-5, IAG, Leipzig, Germany, European Reference Frame (EUREF) Symposium 2015. Web: [http://www.euref.eu/euref\\_symposia.html](http://www.euref.eu/euref_symposia.html)
- 14-18, AGU, Hong Kong, China, AGU Chapman Conference on Evolution of the Asian Monsoon and its Impact on Landscape, Environment and Society: Using the Past as the Key to the Future. Web: <http://chapman.agu.org/monsoon/>
- 15-20, IAGA, Prague, Czech Republic, 2nd IAGA Summer School. Web: [http://www.iugg.org/IAGA/iaga\\_pages/assemblies/iaga\\_assemblies.htm](http://www.iugg.org/IAGA/iaga_pages/assemblies/iaga_assemblies.htm)
- **June 22 - July 2, IUGG, Prague, Czech Republic, IUGG General Assembly 2015, Earth and Environmental Sciences for Future Generations.**  
Web: <http://www.iugg2015prague.com/>

## July

- 5-10, IUSS, AQSSS, CSSS, Montreal, Canada, ISMOM 2015 (Interactions of Soil Minerals with Organic Components and Microorganisms). Web: <http://ismom2015.conference.mcgill.ca/indexOf50.html>
- 7-10, ICSU, UNESCO, Future Earth, Paris, France, Our Common Future Under Climate Change. Web: <http://www.commonfuture-paris2015.org/>
- 13-17, SCAR, Goa, India, SCAR International Symposium on Antarctic Earth Sciences (XII ISAES 2015). Web: <http://www.isaes2015goa.in>
- July 27 - August 2, INQUA, Nagoya, Japan, XIX INQUA Congress - Quaternary Perspectives on Climate Change, Natural Hazards and Civilization. Web: <http://inqua2015.jp>

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End of IUGG Electronic Journal Volume 15 Number 5 (1 May 2015)

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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.**