



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

## **The IUGG Electronic Journal**

**Volume 14 No. 7 (1 July 2014)**

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: 95 years of international cooperation in Earth and space sciences (Editorial)**

On 28 July 1919 delegates of eleven countries gathering at the first General Assembly of the International Research Council (now the International Council for Science – ICSU) in Brussels, Belgium, finalized the establishment of the International Union of Geodesy and Geophysics (IUGG) as an international, non-governmental organization<sup>1</sup>. IUGG included several branches of science for which international associations have existed for years. They were reconstituted as six IUGG Sections (each with its own executive committee) for geodesy, terrestrial magnetism and electricity, meteorology, physical oceanography, seismology, and volcanology. The hydrology section was established three years later in 1922 at the first General Assembly of IUGG in Rome, Italy. The term “section” was replaced by “association” at the fifth IUGG General Assembly held in Lisbon, Portugal, in 1933. The eighth association of cryospheric sciences was added at the XXIV IUGG General Assembly in Perugia, Italy, in 2007.

Today IUGG is one of the prominent international scientific unions of ICSU providing the roof to the geophysical colonnade that is supported by the eight pillars - IUGG International Scientific Associations (IACS, IAG, IAGA, IAHS, IAMAS, IAPSO, IASPEI, and IAVCEI). The IUGG family operates through more than 100 scientific divisions, commissions, committees, working groups, and services. The Union plays a special role in bringing state-of-the-art science to the developing countries of the world. This is done primarily through workshops, summer schools, symposia and assemblies that are often held in countries that normally do not attract such scientific

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<sup>1</sup> Lyons, H. G. (1919). The Brussels meeting of the International Research Council. *Nature*, **103** (2598), 464-466.

meetings. IUGG encourages young scientists, particularly those from developing countries, and nurtures their participation as scientists and as leaders by subsidizing their participation in scientific meetings. In addition to facilitating science through scientific publications and meetings, IUGG Associations work to set standards for research and agree on definitions, equations, and algorithms, such as the International Classification for Seasonal Snow on the Ground, the International Terrestrial Reference Frame, the International Geomagnetic Reference Field, the International Thermodynamic Equation of Seawater, the Manual of Seismological Observatory Practice, and many others. IUGG makes research visible to the international scientific community, to government agencies, to industry, and to the public in general through their education and outreach activities. These activities include classes, workshops, handbooks, manuals, guides for accepted practice, maps, videos, and published surveys. In addition, associations work to have important printed materials translated into several languages to increase their applicability. In these ways, IUGG and its associations work to justify public support for research in Earth and its space environment<sup>2</sup>.

IUGG has initiated and/or vigorously supported collaborative efforts that have led to many highly productive world-wide interdisciplinary research and outreach programs such as the International Geophysical Year (IGY, 1957-58); the International Project on the Upper Mantle of the Earth (1964-70) (which continued as the Geodynamics Project, 1971-79), the International Hydrological Decade (1965-74), the Global Atmospheric Research Programme (1967-80), the World Climate Research Programme (WCRP, 1980-present), International Lithosphere Program (ILP, 1980-present), the International Geosphere-Biosphere Program (IGBP, 1987-present), the International Polar Year (2007-08), the International Heliophysical Year (2007-08), the Electronic Geophysical Year (2007-08), the International Year of Planet Earth (2007-10), and others. Many programs were very successful and attracted the attention of the entire scientific community and the public, for example, “the spectacularly successful International Geophysical Year, run by the International Union of Geodesy and Geophysics, had received acclaim from the scientific world at large”<sup>3</sup>. Knowledge and data on the Earth and its space environment gained during international research collaboration provide the information necessary for the discovery and responsible use of natural resources, sustainable management of the environment, and reducing the impact of natural hazards. We should always remember that it is through international cooperation that scientists satisfy the world’s curiosity about the Earth and the consequences of human activities.

Established 95 years ago, IUGG is changing to meet scientific and organizational needs. For the last several years, IUGG established several important Union Committees to deal with issues related to the Union membership, visioning, capacity building and education, honors and recognition. IUGG set up Union Commissions on Geophysical Data and Information, on Climatic and Environmental Change, and Union Working Group on History. IUGG introduced an Affiliate and Honorary membership, established the Gold Medal and Early Career Scientist Award. The Union develops two major programmes: Grants Programme to provide seed funding for innovative multi-disciplinary international research, and Science Education Program to promote capacity building in geodesy and geophysics in developing countries. IUGG will continue to foster international cooperation and research in Earth and space sciences for the benefit of society.

Alik Ismail-Zadeh

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<sup>2</sup> Ismail-Zadeh, A. T., and Beer, T. (2009). International cooperation in geophysics to benefit society. *EOS, Transactions of the American Geophysical Union*, **90**(51), 493, 501-502.

<sup>3</sup> Harrison, J. M. (1978). The roots of IUGS. *Episodes*, **1**(1), 20-23.

## 2. Report on the Bureau Meeting of IUGG

The IUGG Bureau met in Baku, Azerbaijan, from 10 to 12 June 2014 and was hosted by the Azerbaijan National Academy of Sciences (ANAS).



*H. Gupta (left) and I. Guliev (right)*



*A. Ali-Zadeh*



*At the conference*



*G. Babayev*



*From left (1<sup>st</sup> row): P. Hubert, K. Satake, and I. Ansonge*



*From left (1<sup>st</sup> row): A. Hansen, A. Ismail-Zadeh, M. Sideris*



*I. Ansonge delivers a lecture*



*At the conference (all photos: G. Babayev)*

On 10 June IUGG, the Azerbaijan National Committee for Geodesy and Geophysics (ANCGG), and the ANAS Presidium organized the conference “Future Earth, Disaster Risk and Sustainability” held in the historical building (*Ismailiyya Palace*) of the ANAS Presidium. I. Guliev, ANCGG President and ANAS Vice President, opened the conference. The participants were welcomed by H. Gupta, IUGG President, and A. Ali-Zadeh, ANAS President. G. Babayev, ANCGG Secretary General, presented a report on the recent activity of the National Committee. The official part of the meeting was followed by six lectures delivered by IUGG scientists: *The Global Geodetic Observing System and its Applications* by M. Sideris (University of Calgary, Canada); *Ocean Observations - Opportunities and Challenges* by I. Ansorge (University of Cape Town, South Africa); *The 2011 Great East Japan Earthquake and Tsunami and the Lessons We Learned* by K. Satake (University of Tokyo, Japan); *Kinematics and Deformation of Earth’s Crust of Azerbaijan and Adjacent Territories* by F. Gadirov (Institute of Geology and Geophysics, ANAS, Baku, Azerbaijan); *Features of Seismicity in Azerbaijan for 2004-2013* by G. Yetirmishli (Republican Seismic Survey, ANAS, Baku, Azerbaijan); and *Potential Space Weather Impacts on Technological and Biological Systems* by E. Babayev (The Nasraddin Tusi Shemakha Astrophysical Observatory, ANAS, Shemakha; also, the Azerbaijan Science Foundation, Baku, Azerbaijan).

On 11-12 June the Bureau convened its sessions in the plenary hall of the ANAS Institute of Geology and Geophysics. The Bureau considered several important topics related to scientific development and promotion, membership and recognition. The reports of the President, Vice President, Secretary General, Treasurer and Executive Secretary were presented and approved. The activities of the Union Commissions, ad-hoc and Standing Union Committees were reviewed, and the memberships of several Standing Committees were renewed. The Bureau considered a proposal to set up an IUGG Outreach Committee and approved the Terms of Reference of the Committee. The Bureau paid special attention to an individual membership issue to compliment National membership, which is actively discussed by the Executive Committee (EC) since the last EC meeting in Prague. The Bureau decided to ask the Associations for their opinion about individual membership answering several basic questions: how would National and Individual memberships complement each other and contribute constructively to IUGG activities? What would be the benefits to IUGG of having individual members and the benefits to individuals of becoming members of IUGG? How would a geoscientist become an individual member of the IUGG, and should individual membership be fee-based or free?

The Bureau also considered (i) the current status and future development of the Grants Programme and Science Education Programme, (ii) Special publication series of IUGG; (iii) a draft Budget for 2016-2019; (iv) updates of the XXVI IUGG General Assembly in Prague; (v) a draft Agenda of the 2015 Council Meeting; (vi) relationships with ICSU, its Committees (including WDS, CODATA, IRDR and others), and Regional Officers; and (vii) cooperation of IUGG with international and intergovernmental organizations. The next meeting of the Bureau is scheduled to be held in Prague on 21 June 2015.

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### **3. IUGG grant awards for international multidisciplinary cooperation**

The IUGG Grants Programme aims to support projects of importance to the international geophysical and geodetic community, which will explore new scientific ideas and develop future international initiatives. For 2014-2015, IUGG awarded the following projects:

- “*Future Earth: The Geodetic and Geophysical Perspective*” (Lead Applicant: CCEC; Supporting Applicants: IAMAS, IAHS and the Future Earth initiative).

- “Active Deformation, Faults and Earthquakes: From Measurements to Models” (Lead Applicant IAG; Supporting Applicants: IASPEI, GRC).
- “Exploring the Connection between Earthquakes and Volcanoes” (Lead Applicant: IAVCEI; Supporting Applicant: IASPEI).
- “Future of Earth-Space Sciences and Education” (Lead Applicant: IUGG; Supporting Applicants: Union Associations).

The total amount of funds allocated to the projects is US\$ 80,000.

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#### **4. Report on the International High Energy Particle Precipitation in the Atmosphere Workshop**

The HEPPA/SOLARIS-2014 workshop was held on 5-9 May 2014 in Baden-Baden, Germany, and was the fifth meeting in a series which started in Helsinki, Finland (2008) and continued in Boulder, USA (2009, 2012), and Granada, Spain (2011). Since 2012, the workshop has been organized in conjunction with the SPARC/SOLARIS-HEPPA community. The theme of the workshop was the mechanisms by which energetic particles and solar irradiance affect the atmosphere and climate. The workshop covered the following topics: i) variability of energetic particle precipitation and solar irradiance; ii) uncertainties in their measurements; iii) observed and modelled impacts of solar forcing on the atmosphere (thermosphere to surface) and climate; and iv) predictions for future scenarios under a weakening sun. The impact of the solar cycle on the European winter climate via the influence on the North-Atlantic oscillations seems now to be a robust feature produced in climate models. One of the scientific highlights was the finding that the impact of energetic particle precipitation on regional North Atlantic climate can be similar in magnitude to solar irradiance forcing, leading to the conclusion that energetic particle precipitation cannot be ignored any longer in climate modelling. The controversy around solar spectral irradiance measurements cannot be considered solved at the current time. Predictions for climate development under a potential future grand solar minimum revealed only minor impact on surface temperature that cannot compensate for the temperature increase due to greenhouse gas emissions.



*Workshop participants, Baden-Baden, Germany (photo: G. Stiller)*

HEPPA/SOLARIS-2014 ([http://www.imk-asf.kit.edu/english/HEPPA\\_SOLARIS\\_2014.php](http://www.imk-asf.kit.edu/english/HEPPA_SOLARIS_2014.php)) was attended by 72 participants. During the first three days, the contributions were presented as posters, while the topics were introduced by twelve 30/45-min overview talks given by invited speakers. Topics for the poster sessions were: A) Solar and Particle Variability; B) Solar and Particle Effects on the Stratosphere and Above; C) Solar and Particle Effects on the Troposphere and Climate; D) Atmosphere and Ocean/Atmosphere Coupling; E) Tools for Assessing Solar and Particle Influences (new or improved measurements, models, etc.) In order to provide enough time for poster presentations and related discussions, three hours each day were allocated for the poster sessions. The last two days were dedicated to an overview of on-going international activities and projects, and working meetings of the SPARC/SOLARIS-HEPPA working groups (SolarMIP and HEPPA-II). There was also substantial discussion about future work and the outstanding questions in the field. An upcoming data gap of middle/upper atmosphere observation was identified due to the lack of planned limb sounding missions. The participants of the workshop came from North America, Europe, and Asia. The generous financial support to the HEPPA/SOLARIS-2014 workshop was provided by IUGG/IAMAS, which helped to organize a lively and exciting meeting and brought together the communities of solar irradiance and energetic particle impact on the atmosphere. The next HEPPA/SOLARIS meeting will be held in two years in Helsinki, Finland, while the SPARC/SOLARIS-HEPPA working group will meet in fall 2015 in Boulder, USA.

Received from Gabriele Stiller, Chair of the Workshop LOC

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## **5. Joint Declaration of Data Citation Principles**

A group of experts and organizations, including ICSU-CODATA and ICSU-WDS and building on the work of the ICSTI-CODATA Task Group on Data Citation, developed a common set of high-level principles on data citation, which is recognized as a key missing element of the research data infrastructure. There are many improvements that can and should be made to make communicating research data more efficient and effective so that the work developing and sharing research data is better recognized and rewarded. The group issued the Joint Declaration of Data Citation Principles (<http://www.force11.org/datacitation>). As the preamble to those eight short consensus principles states, they are not meant as a blueprint for implementation of data citation policies and practices, but as high-level guidance for scientific organizations and sectors to develop and then implement a data citation protocol. These principles integrate the emerging consensus of several different international groups working in the data citation arena. The principles were broadly reviewed and discussed over the past several months. The full record of review comments and other supporting information may also be found at the link above. Based on the recommendations of the IUGG Union Commission on Geophysical Data and Information and Liaison Officer to CODATA, IUGG formally endorsed the declaration (<http://www.force11.org/datacitation/endorsement>).

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

### ***Disaster risk conference kicks off in China***

The Second Integrated Research on Disaster Risk (IRDR) Conference was held in Beijing, China, 7-9 June 2014. The event with the theme ‘Integrated disaster risk science: a tool for sustainability’ attracted the participation of around 200 scientists from over 40 countries. In addition to plenary sessions with presentations from keynote speakers dealing with natural hazards and disaster risks,

some 20 moderated breakout sessions were offered, covering subjects as diverse as the forensic investigations of disasters, through meteorological issues, to communications and the media.

### ***New head of IRDR appointed***

ICSU appointed Dr. Rüdiger Klein as the new Executive Director of the Integrated Research on Disaster Risk programme (IRDR). Previously Dr. Klein worked at the Royal Netherlands Academy of Arts and Sciences, the European Federation of National Academies (ALLEA), and the European Science Foundation.

Source: ICSU webpage

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## **7. Awards and Honors**

***Gary Glatzmaier*** (University of California, Santa Cruz, USA), Advisory Committee Member of IUGG Commission on the Study of the Earth's Deep Interior (SEDI), was awarded the 2014 Fleming Medal of the American Geophysical Union (AGU).

***Thorne Lay*** (University of California, Santa Cruz, USA), Second Vice-President of IASPEI, was awarded the 2014 AGU Lehmann Medal.

***Mioara Mandea*** (CNES - French National Center for Space Studies, Paris, France), Secretary General of IAGA and EGU, was awarded the 2014 AGU International Award.

The Medals and the Award will be presented at the 2014 AGU Fall Meeting. Congratulations to Mioara, Gary and Thorne!

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## **8. IUGG-related meetings occurring during July – September**

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.

### ***July***

- 30 June – 11 July, ICTP, IUGG, Kigali, Rwanda, African School on the Impact of the Sun on Ionosphere: Physics and Applications.  
Web: [http://cdsagenda5.ictp.trieste.it/full\\_display.php?smr=0&ida=a13251](http://cdsagenda5.ictp.trieste.it/full_display.php?smr=0&ida=a13251)
- 7-11, IAVCEI, Madeira, Portugal, 1st International Workshop on Volcano Geology.  
Web: [http://www.iavcei.org/IAVCEI\\_meetings/MADEIRA/Workshop\\_Volcano\\_Geology/Welcome.html](http://www.iavcei.org/IAVCEI_meetings/MADEIRA/Workshop_Volcano_Geology/Welcome.html)
- 21-23, GCOS, GOOS, WCRP, Barcelona, Spain, OOPC-17: Seventeenth Session of the GCOS/GOOS/WCRP Ocean Observations Panel For Climate.  
Web: [http://ioc-unesco.org/index.php?option=com\\_oe&task=viewEventRecord&eventID=1402](http://ioc-unesco.org/index.php?option=com_oe&task=viewEventRecord&eventID=1402)
- July 21 - August 1, ICTP, IUGG, WCRP, Trieste, Italy. Summer School on Attribution and Prediction of Extreme Events.

- Web: [http://cdsagenda5.ictp.trieste.it/full\\_display.php?smr=0&ida=a13211](http://cdsagenda5.ictp.trieste.it/full_display.php?smr=0&ida=a13211)
- 22-26, IAG, Matsushima, Miyagi, Japan, International Symposium on Geodesy for Earthquake and Natural Hazards (GENAH 2014).  
Web: <http://genah2014.jpn.org/index.html>
  - 23-25, IUGG, IASPEI, Bogota, Colombia, Latin American and Caribbean Seismological Commission (LACSC) – Regional Assembly 2014. Web: <http://geoslac.org/english/>
  - July 28 - August 1, AOGS, Sapporo, Japan, 11th Annual Meeting.  
Web: <http://www.asiaoceania.org/aogs2014/public.asp?page=home.htm>

### **August**

- 2-10, COSPAR, Moscow, Russia, 40th Scientific Assembly.  
Web: <https://www.cospar-assembly.org>
- 3-8, IUGG-SEDI, Kanagawa, Japan, 14th Symposium of SEDI.  
Web: <http://www.sedigroup.org/>
- 5-12, IUCr, Montreal, Canada, 23rd International Congress and General Assembly of the International Union of Crystallography. Web: <http://www.iucr2014.org/>
- 11-14, the YES Network, Dar es Salaam, Tanzania, 3rd Young Earth Scientists (YES) Congress. Web: <http://www.yescongress.org/2014>
- 11-14, GSAf, Dar es Salaam, Tanzania, 25th Colloquium of African Geology (CAG25).  
Web: <http://www.cag25.or.tz/>
- 11-15, SCAR, Singapore, 22nd IAHR International Symposium on Ice.  
Web: <http://www.iahr-ice2014.org/>
- 16-21 ICSU, WMO, Montreal, Canada, The World Weather Open Science Conference.  
Web: <http://www.wwosc2014.org/>
- 16-23, URSI, Beijing, China, URSI General Assembly and Scientific Symposium GASS 2014. Web: <http://www.chinaursigass.com/>
- 22 - 27, SCAR, Auckland, New Zealand, XXXIII SCAR Meetings and Open Science Conference. Web: <http://www.scar2014.com/>
- 24-29, IASPEI, Istanbul, Turkey, General Assembly of the European Seismological Commission, ESC2014. Web: <http://www.2eceedistanbul.org/>
- 24-30, IUGG, IAGA, Weimar, Germany, 22nd International Workshop on Electromagnetic Induction in the Earth. Web: <http://www.emiw2014.de/index.php?id=58>
- 27-29, SCAR, Christchurch, New Zealand, COMNAP AGM.  
Web: <https://www.comnap.aq/SitePages/AGM2014.aspx>
- August 30 - September 3, ICSU, Auckland, New Zealand, 31st ICSU General Assembly.  
Web: <http://www.icsu.org/general-assembly>
- 9-13, IAVCEI, Yogyakarta, Indonesia, Cities on Volcanoes 8.  
Web: <http://citiesonvolcanoes8.com>

### **September**

- 9-13, IAVCEI, Yogyakarta, Indonesia, Cities on Volcanoes 8.  
Web: <http://citiesonvolcanoes8.com>
- 15-20, IUGG, IAGA, ESA, EGU, Rhodes, Greece, Geospace revisited: a Cluster/MAARBLE/Van Allen Probes Conference. Web: <http://geospacerev.space.noa.gr/>.
- 22-26, IUGG, IAMAS, WCRP, WMO, Natal, Brazil, 13th Quadrennial iCACGP Symposium and 13th IGAC Science Conference on Atmospheric Chemistry.  
Web: <http://igac-icacgp2014.org/>
- 22-26, EMSEV, Warsaw, Poland, International Workshop on Electromagnetic Studies of Earthquakes and Volcanoes. Web: <http://emsev2014.cbk.waw.pl/>



- 22 - October 1, IUGG, IAG, Santa Cruz, Bolivia, School on Reference Systems - Escuela en Sistemas de Referencia and Symposium on Geocentric Reference System for the Americas (SIRGAS)

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End of IUGG Electronic Journal Volume 14 Number 7 (1 July 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.**