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The *IAG Newsletter* is under the editorial responsibility of the *Communication and Outreach Branch (COB)* of the IAG.

It is an open forum and contributors are welcome to send material (preferably in electronic form) to the IAG COB (newsletter@iag-aig.org). These contributions should complement information sent by IAG officials or by IAG symposia organizers (reports and announcements). The *IAG Newsletter* is published monthly. It is available in different formats from the IAG new internet site: <http://www.iag-aig.org>

Each *IAG Newsletter* includes several of the following topics:

- I. news from the Bureau Members
- II. general information
- III. reports of IAG symposia
- IV. reports by commissions, special commissions or study groups
- V. symposia announcements
- VI. book reviews
- VII. fast bibliography

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General Announcements

Future of the International Comparison of Absolute Gravimeters (ICAG)

For many years, the BIPM took on the responsibility of organizing international comparisons of absolute gravimeters (ICAGs), supported by the Working Group on Gravimetry of the Consultative Committee for Mass (CCM WGG) and by the Study Group 2.1.1 on Comparison of Absolute Gravimeters (SGCAG) of Sub-Commission 2.1 of International Association of Geodesy.

The measurements for ICAG-2009 were made at the BIPM in September and October 2009, with the participation of twenty-one absolute gravimeters. For the first time ICAG-2009 constituted a metrological key comparison for those instruments from institutes participating to the Mutual Recognition Arrangement of the International Committee for Weights and Measures (CIPM MRA), and a pilot comparison for the others. The final report of the comparison is under completion.

In October 2009, the CIPM decided to discontinue the activities on gravimetry at the BIPM, and during its 2010 meeting held on 12-15 October, its members supported the idea that the next ICAG, in 2013, should be held at the Geodynamic and Seismology Laboratory (Walferdange, Luxembourg), with the Federal Office of Metrology (METAS) as the pilot laboratory.

The host for ICAGs after 2013 would be the subject of further discussion within the Consultative Committee for Mass Working Group on Gravimetry.

25 October 2010

ELISA FELICITAS ARIAS
Director of the BIPM Time, Frequency and Gravimetry Department

Vacant position at Astronomical Institute, Faculty of Science, University of Bern

Applications are invited for a full professorship in Fundamental Astronomy/Space Geodesy including the Directorate of the Astronomical Institute,

opening August, 1, 2011, at the Astronomical Institute, University of Bern, Switzerland (<http://www.aiub.unibe.ch>). Candidates should have a strong research record in fundamental astronomy, e.g., **space geodesy** and **astrodynamics** in the broadest sense. Current research activities of the institute include space geodesy using GNSS and satellite laser ranging, gravity field determination and optical surveys for natural and artificial bodies in the solar system. Future research might be extended towards the study of the orbital and rotational motion of planets including their natural and artificial satellites, and to other planetary system bodies such as asteroids, and comets. The institute develops and operates the Zimmerwald Observatory. The successful candidate is expected to direct the institute's research activities, to attract external funding, and to actively participate in the teaching and supervision of Bachelor and Master students, as well as Ph.D. students.

The University of Bern particularly encourages women to apply for this position.

Applications including a curriculum vitae, a publication list, copies of the five most important publications, a brief outline of past and future research, and a list of external funds raised, should be sent either as a hard copy to Prof. S. Decurtins, Dean of the Faculty of Science, University of Bern, Sidlerstrasse 5. CH-3012 Bern, Switzerland, or as a single PDF-file via e-mail to: dekan@natdek.unibe.ch, by **31 January 2011**.

Meeting Announcements



2011 IAG General Assembly
at IUGG2011: "Earth on the Edge: Science for a Sustainable Planet"
Melbourne Convention and Exhibition Centre, Australia
 28th June – 7th July, 2011

- Registrations opened 16th August, 2010
- Abstract submission period 16th August, 2010 – 17th January, 2011
- Conference website now open: <http://www.iugg2011.com>
- Scientific program of symposia, workshops, fieldtrips, symposia convenors, plenary and keynote speakers already available on website

The next IAG General Assembly will be held as part of the major IUGG2011 international conference at the new Melbourne Convention and Exhibition Centre from 28th June to 7th July, 2011. IUGG (or the International Union for Geodesy and Geophysics) is a collaborative grouping of eight scientific learned societies or associations, as follows:

- International Association of Geodesy (IAG)
- International Association for Cryospheric Sciences (IACS)
- International Association of Geomagnetism and Aeronomy (IAGA)
- International Association of Hydrological Sciences (IAHS)
- International Association of Meteorology and Atmospheric Sciences (IAMAS)
- International Association for the Physical Sciences of the Ocean (IAPSO)
- International Association of Seismology and Physics of the Earth's Interior (IASPEI)
- International Association for Volcanology and Chemistry of the Earth's Interior (IAVCEI)

Each association has organised its own comprehensive program of symposia, which is already available on the conference website. In addition, there will be many symposia organised by two or more associations on topical, inter-disciplinary themes, there is a conference plenary speakers program, and most symposia will have invited keynote.

The IAG Scientific Program consists of the following program of symposia:

IAG ONLY SYMPOSIA (see website www.iugg2011.com under Scientific Program for symposia descriptions, convenors names and Keynote Speakers)

- G01** Reference Frames from Regional to Global Scales
- G02** Monitoring and Modelling of Mass Displacements by Geodetic Methods
- G03** Monitoring and Modelling Earth Rotation
- G04** Multisensor Systems for Engineering Geodesy
- G05** Geodetic Imaging Techniques
- G06** Towards a Unified World Height System
- G07** High Precision GNSS

IAG - JOINT ASSOCIATION SYMPOSIA (see website www.iugg2011.com under Scientific Program for symposia descriptions, convenors names and Keynote Speakers)

- J-G01** Space Geodesy-based Atmospheric Remote Sensing as a Synergistic Link between Geodesy and Meteorology
- J-G02** Application of Geodetic Techniques in Cryospheric Studies
- J-G03** History of Geosciences from Terrestrial to Spaceborne Observations

J-G04 Structure and Deformation of Plate Interiors
J-G05 Integrated Earth Observing Systems
J-G06 Tectonic Geodesy and Earthquakes

The theme for the IUGG2011 conference at large is “*Earth on the Edge: Science for a Sustainable Planet*”. IUGG2011 will be the largest multi-disciplinary geophysical meeting to be held in Australia, and in excess of 3,000 delegates are expected to attend. In addition to the IAG specific program outlined above, the scientific program will address many of the environmental, sustainability and hazard issues facing the Earth, including climate change, extreme weather events, melting glaciers and ice-caps, rising sea-levels, water in arid countries, earthquake hazards and tsunamis, and volcanic hazards, processes and natural resources. It should thus be a fantastically stimulating conference.

The conference website is now open at <http://www.iugg2011.com>, with information about the conference, the scientific program of symposia, workshops and fieldtrips, and listings of the symposia convenors and Keynote Speakers. On-line registration for the conference opened on the website on 16th August, as well as for fieldtrips, social touring, and accommodation.

The call for on-line abstract submission has also now opened, with the deadline for abstract submission being **17th January, 2011**.

The Organising Committee of IUGG2011 looks forward to welcoming the international volcanology and geoscience community to the 2011 IAG and IUGG General Assembly in Melbourne.

RAY CAS
Chair, Joint Australia and New Zealand Organising Committee IUGG2011

IAG Sponsored Meetings

Second SIRGAS School on Reference Systems

November 8-10, 2010, Lima, Peru

URL: <http://www.sirgas.org>

SIRGAS 2010 General Assembly

November 11-12, 2010, Lima, Peru

URL: <http://www.sirgas.org>

17th International Workshop on Laser Ranging and 23rd General Assembly of the International Laser Ranging Service

May 15-20, 2011, Bad Kötzing, Germany

URL: <http://www.fs.wetzell.de/veranstaltungen/slr/17thlaserworkshop/index.html>

EUREF 2011 Symposium

May 25-28, 2011, Chisinau, Republic of Moldova

URL: <http://www.euref-iag.net/>

XXV IUGG General Assembly

June 27 – July 8, 2011, Melbourne, Australia

URL: <http://www.iugg2011.com/>

2011 IAG General Assembly

at IUGG2011: “*Earth on the Edge: Science for a Sustainable Planet*”

Melbourne Convention and Exhibition Centre, Australia

June 28 – July 7, 2011

The next IAG General Assembly will be held as part of the major IUGG2011 international conference at the new Melbourne Convention and Exhibition Centre from 28th June to 7th July, 2011. IUGG (or the International Union for Geodesy and Geophysics) is a collaborative grouping of eight scientific learned societies or associations. The conference website is now open at <http://www.iugg2011.com>. On-line registration for the conference opened on the website on 16th August.

IAG Related Meetings

ACM SIGSPATIAL GIS 2010

November 2-5, 2010, San Jose, CA, USA

The 18th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems provides a forum for original research contributions covering all conceptual, design, and implementation aspects of GIS ranging from applications, user interfaces, and visualization to storage management and indexing issues. This conference is the premier annual event of the ACM Special Interest Group on Spatial Information (ACM SIGSPATIAL). URL: <http://acmgis2010.cs.ucsb.edu/>.

IWGS 2010

November 2, 2010, San Jose, CA, USA

1st International Workshop on GeoStreaming (IWGS2010) is to be held in conjunction with the 18th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL GIS 2010).

URL: <http://infolab.usc.edu/iwgs10/>

5th International Workshop on 3D Geo Information

November 3-4, 2010, Berlin, Germany

URL: <http://www.3dgeoinfo.org/>

AGU Fall Meeting

December 13-17, 2010, San Francisco, USA

URL: <http://www.agu.org>

Cryosat Validation Workshop

February 1-3, 2011, Frascati, Italy

URL: <http://www.cryosat2011.org/>

GEOProcessing 2011

February 23-28, 2011 - Gosier, Guadeloupe, France

The Third International Conference on Advanced Geographic Information Systems, Applications, and Services. The abstract submission deadline has been extended to October 15, 2010

URL: <http://www.iaria.org/conferences2011/GEOProcessing11.html>

EGU General Assembly 2011

April 3-8, 2011, Vienna, Austria

URL: <http://meetings.copernicus.org/>

JURSE 2011 - Joint Urban Remote Sensing Event (URBAN 2011 + URS 2011)

April 11-13, 2011, Munich, Germany

Contact: jurse2011@bv.tum.de

Third Conference on Earth Observation for Global Changes (EOGC2011)

April 13-15, 2011, Munich, Germany

URL: <http://www.pf.bv.tum.de/eogc2011/>

1st International Workshop on The Quality of Geodetic Observation and Monitoring Systems

April 13-15, 2011, Garching/Munich, Germany

URL: <http://www.gih.uni-hannover.de/qugoms2011/>

SPACOMM 2011

April 17-22, 2011, Budapest, Hungary

The Third International Conference on Advances in Satellite and Space Communications

URL: <http://www.iaria.org/conferences2011/SPACOMM11.html>

Geoinformation for Disaster Management (Gi4DM)

May 3-8, 2011, Antalya, Turkey

URL: <http://www.gi4dm2011.org/>

7th International Symposium on Mobile Mapping Technology

June 13-16, 2011, Krakow, Poland

The Symposium MMT' 2011 will be held on 13 – 16 June 2011, in the Sheraton hotel Cracow, Poland. We strongly invite and encourage all professionals, researchers and academics, business and industry partners, students to participate in this important event. Science Chair: Dorota Grejner-Brzezinska.

The MMT2011 web site is up and running: <http://www.mmtcracow2011.pl/>.

TransNav 2011

June 15-17, 2011, Gdynia, Poland

URL: <http://transnav.am.gdynia.pl/>

ISPRS - PIA11 Photogrammetric Images Analysis

October 5-7, 2011, Munich, Germany

URL: <http://www.pia11.tum.de/>

Reports

First International School on "The KTH Approach to Modelling the Geoid"

The 1st International School on *The KTH Approach to Modelling the Geoid* was held at Yildiz Technical University, Istanbul, on 20-24 of September 2010. The school consisted of a mixture of lectures and laboratory work. There were 21 participants from 7 countries. A questionnaire answered by the participants showed that the students were generally very satisfied by the training and services provided.



Many different methods have been proposed through the years for regional geoid determination by gravimetric data, each based on its own technique and philosophy. Today, each such method combines a long-wavelength Earth Gravity Models (EGMs) with local gravity data, and they mainly differ in the way they combine these data sets. The KTH approach is unique in the sense that it uses least squares technique in the spectral domain to combine the data in an optimum way by considering the errors of the EGM, the gravity data and the truncation of Stokes' integral to a cap around the computation point. Another feature that distinguishes the KTH method from others is the way corrections for topography, atmosphere and ellipsoidal shape of the earth are applied: in contrast to other methods, which all apply these corrections both to the gravity anomaly (direct effects) and to the preliminary computed geoid heights (indirect effects), it only corrects the preliminary geoid

heights by so-called additive corrections. Any of the additive corrections can be added afterward at any time when better data are available for its improvement (without the need to repeat all the computations). The method, called Least Squares Modification of Stokes Formula with Additive corrections (LSMSA), is the result of 30 years of research and several M.Sc. and Ph.D. theses at KTH. The LSMSA is an accurate, simple and practical method of determining the geoid. The theoretical and practical aspects of this method have been developed since 1980 to present mainly by and under the supervision of Prof. Lars E. Sjöberg. (See numerous papers, e.g. in J. of Geodesy.) The method has been successfully applied in the determination of several high-resolution regional geoid models in different areas. Through the LSMSA approach, various data, such as an EGM, gravity anomalies and a high-resolution photogrammetric/SRTM Digital Elevation Model are combined to a gravimetric geoid model, and the method can be (and usually is) designed to match with GPS/levelling data by using the least-squares principle. This method was successfully applied in the determination of several regional geoid models: over Sweden, the Baltic countries, Greece, Iran, Sudan, Zambia, Ethiopia and Tanzania. (See the M.Sc. and Ph.D. theses at www.infra.kth.se/geo.) Notable among these studies are the applications in very rough topographic areas and in several developing countries with only limited gravity anomaly data. The results of comparisons clearly show that the LSMSA is advantageous to other methods.

The major part of the course material has been presented at KTH by Prof. Lars Sjöberg and Dr. Ramin Kiamehr as one- and two-week workshops, and this was the first time the material was delivered as an international school.

Organizers

The geoid school was lead by

Lars E. Sjöberg
Head of Geoid School
Head of Division of Geodesy
Royal Institute of Technology (KTH)

Serif Hekimoglu
Head of Local Organization Committee
Yildiz Technical University

Bahattin Erdoğan, Yildiz Technical University (local committee member)
Deniz Öz, Yildiz Technical University (local committee member)

Stockholm, 5 October 2010

MOHAMMAD BAGHERBANDI