



# International Association of Geodesy

## Newsletter

May 2014

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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](mailto: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

Books for review are the responsibility of:

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## Meeting Announcements

### *Summer School "GRACE / GRACE-FO applications for the terrestrial water cycle"*

*September 15-19, 2014 Mayschoss, Germany*

Dear Colleagues,

the German DFG1257 "Mass transport" program invites PhD students to participate in a summer school on the topic "*GRACE / GRACE-FO applications for the terrestrial water cycle*". The school will be held from September 15-19, 2014 in Mayschoss, near Bonn (Germany). Registration is possible starting now until July 15th. For more information please see the following website:

<http://www.massentransporte.de/?summerschool>

Please distribute this invitation to potentially interested students.

Kind regards,

Annette Eicker, Jürgen Kusche

### *Meetings Calendar*

#### *30th IUGG Conference on Mathematical Geophysics*

*June 2- 6, 2014, Merida Yucatan, Mexico*

URL: <http://eventos.iingen.unam.mx/IUGG2014/>

#### *EUREF Symposium 2014*

*June 4- 6, 2014, Vilnius, Lithuania*

URL: [http://www.euref.eu/euref\\_symposia.html](http://www.euref.eu/euref_symposia.html)

#### *ICC&GIS 2014*

*June 15-21, 2014, Riviera, Bulgaria*

5th Jubilee International Conference on Cartography & GIS

URL: [www.iccgis2014.cartography-gis.com](http://www.iccgis2014.cartography-gis.com)

#### *IGS Workshop 2014*

*June 23-27, 2014, Pasadena, CA, USA*

URL: <http://igscb.jpl.nasa.gov/pipermail/igsmail/2013/008013.html>

#### *The 3rd International Gravity Field Service (IGFS) General Assembly*

*June 30-July 6, 2014, Shanghai, China*

URL: <http://202.127.29.4/meetings/igfs2014/index.html>

#### *International Symposium on Certification of GNSS Systems & Services*

*July 8 - 9, 2014, Dresden, Germany*

URL: <http://www.dgon-cergal.org/>

#### *GENAH 2014*

*July 22-25, 2014, Matsushima, Miyagi, Japan*

International Symposium on Geodesy for Earthquake and Natural Hazards

URL: <http://genah2014.jpn.org/index.html>

AOGS 11<sup>th</sup> Annual Meeting

July 28-August 1, 2014, Sapporo, Japan

URL: <http://www.asiaoceania.org/aogs2014/public.asp?page=home.htm>

40th COSPAR Scientific Assembly

August 2-10, 2014, Moscow, Russia

URL: <http://www.cospar-assembly.org/>

XXXI General Assembly and Scientific Symposium of the IUGG

August 16-23, 2014, Beijing, China

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

3rd International School on "Least Squares Approach to Modelling the Geoid"

August 18-22, 2014, Stockholm, Sweden

URL: <http://www.kth.se/en/abe/inst/som/avdelningar/geo/geodesi/handelser-1.78120>

18th WEGENER General Assembly: Measuring and Modelling our Dynamic Planet

September 1-4, 2014, Leeds, UK

URL: <http://see.leeds.ac.uk/wegener/>

Summer school on "GRACE/GRACE-FO applications for the terrestrial water cycle"

September 15-19, 2014, Mayschoss, Germany

URL: <http://www.massentransporte.de/?summerschool>

Journees 2014 "Systemes de reference spatio-temporels"

September 22-24, 2014, Pulkovo Observatory, St. Petersburg, Russia

URL: <http://journes2014.gao.su/>

Eighth FORMOSAT-3/COSMIC Data Users' Workshop

September 30 – October 2, 2014, Boulder, USA

URL: [www.cosmic.ucar.edu/workshop\\_2014/](http://www.cosmic.ucar.edu/workshop_2014/)

INTERGEO / Geodätische Woche

October 7-9, 2014, Berlin, Germany

URL: <http://www.intergeo.de>

European VLBI Network (EVN) Symposium

October 7-10, 2014, Cagliari, Italy

URL: <http://www.evlbi.org/meetings/meetings.html>

REFAG2014

October 13-17, 2014, Luxembourg

IAG Commission 1 Symposium 2014 "Reference Frames for Applications in Geosciences"

URL: <http://iag.uni.lu/index.php?id=189>

The Climate Symposium 2014

October 13-17, 2014, Darmstadt, Germany

URL: <http://www.theclimatesymposium2014.com>

8<sup>th</sup> Coastal Altimetry Workshop

October 23-24, 2014, Lake Constance, Germany

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

SARAL/AltiKa Workshop

October 27, 2014, Konstanz, Germany

URL: <http://www.ostst-altimetry-2014.com/>

IDS Workshop

October 27-28, 2014, Konstanz, Germany

URL: <http://www.ostst-altimetry-2014.com/>

19th International Workshop on Laser Ranging

October 27-31, 2014, Greenbelt, MD, USA

URL: <http://ilrs.gsfc.nasa.gov/about/meetings.html>

Ocean Surface Topography Science Team (OSTST) meeting

October 28-31, 2014, Konstanz, Germany

URL: <http://www.ostst-altimetry-2014.com/>

Digital Earth Summit 2014

November 9-11, 2014, Nagoya, Japan

URL: <http://gis.chubu.ac.jp/summit2014/>

Third International VLBI Technology Workshop

November 10-13, 2014, Groningen/Dwingeloo, Netherlands

URL: <http://www.jive.nl/ivtw2014/>

ISPRS Technical Commission I Symposium Sustaining Land Imaging: UAVs to Satellites

November 17-20, 2014, Denver, Colorado, USA

URL: <http://www.commission1.isprs.org/>

ICSU GRC Conference "Improving Geophysical Risk Assessment, Forecasting and Management"

November 18-21, 2014, Madrid, Spain

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

Symposium SIRGAS 2014

November 24-26, 2014, La Paz, Bolivia

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

11th International Conference on Location-based Services

November 26-28, 2014, Vienna, Austria

URL: <http://www.lbs2014.org/>

AGU 2014 Fall Meeting

December 15-19, 2014, San Francisco, CA, USA

URL: <http://sites.agu.org/meetings/>

18. Internationale Geodaetische Woche Obergurgl

February 8 – 14, 2015, Obergurgl, Austria

URL: <http://www.mplusm.at/ifg/>

European Geosciences Union General Assembly 2015

April 12 – 17, 2015, Vienna, Austria

URL: <http://www.egu.eu>

SPACOMM 2015

April 19 – 23, 2015, Barcelona, Spain

URL: <http://www.iaria.org/conferences2015/SPACOMM15.html>

### 22nd Meeting of the European VLBI Group for Geodesy and Astrometry (EVGA)

May 17 – 21, 2015, Ponta Delgada, Azores, Portugal

URL: <http://evga2015.raege.net/>

### XXVI IUGG General Assembly

June 22 – July 2, 2015, Prague, Czech Republic

URL: <http://www.iugg.org/assemblies/>

### XXIXth IAU General Assembly

August 3 – 14, 2015, Honolulu, Hawaii, USA

URL: [http://www.iau.org/science/meetings/future/general\\_assemblies/1024/](http://www.iau.org/science/meetings/future/general_assemblies/1024/)

### 41th COSPAR Scientific Assembly

July 30 – August 7, 2016, Istanbul, Turkey

URL: <http://www.cospar-assembly.org/>

## Reports

### *Recent activities of IAG Commission 4 – The growing importance of PNT for science, engineering, safety, security, and everyday life*

Commission 4 was established to promote research that leverages current and emerging positioning techniques and technologies to deliver practical and theoretical solutions for a wide range of engineering, scientific and mapping applications. Activities carried out by Commission 4 are highly interdisciplinary, and many of these activities are coordinated in close cooperation with IAG sister organisations, US Institute of Navigation (ION), International Society of Photogrammetry & Remote Sensing (ISPRS) and the International Federation of Surveyors (FIG). Recognising the central role of GNSS in providing high accuracy positioning information today and into the future, Commission 4 has a focus on developing tools that enhance and assure the positioning performance of GNSS-based positioning solutions for a range of geodetic, and other scientific, as well as engineering and other societal applications. In addition, Commission 4 promotes the study of backups to GNSS and integrated positioning solutions based on conventional and unconventional sensors to assure positioning, navigation and timing (PNT) in GNSS-challenged environments. In the past few years, the scope of Commission 4 has broadened to include geodetic remote sensing, using synthetic aperture radar (SAR), lidar and satellite altimetry systems for a variety of applications.

One of the primary examples of inter-organisational collaboration is co-sponsorship of professional workshops and seminars, such as the 2012 1<sup>st</sup> International School on Mobile Mapping, and the upcoming 2<sup>nd</sup> International School on Mobile Mapping, taking place at the National Cheng-Kung University, in Tainan, Taiwan, 9-13 June 2014 (<http://conf.ncku.edu.tw/mmt2014/>) – an interdisciplinary event co-sponsored by IAG Commission 4, FIG, ISPRS and ION. Another example of a highly interdisciplinary and inter-organisational event is the Mobile Mapping Symposium series, with the most recent 8<sup>th</sup> Symposium held in Taiwan in 2013, and the upcoming 9<sup>th</sup> Symposium to be held in Sydney, Australia in 2015.

A few recent and upcoming highlights of the numerous activities of Commission 4 include: (1) Sub-commissions 4.1, 4.2 and 4.5 co-sponsored the “2<sup>nd</sup> Joint International Symposium on Deformation Monitoring” held at the University of Nottingham, UK in September 2013; (2) Sub-commission 4.2 co-sponsored the “UAV-g 2013” conference, with a focus on the use of unmanned vehicles in surveying, mapping and precision framing applications, held in September 2013 in Rostock, Germany (see photo); (3) Sub-commission 4.4 co-organised the “17<sup>th</sup> General Assembly of WEGENER” on Earth deformation and the study of earthquakes using geodesy and geodynamics, to be held in Leeds, UK in September 2014; (4) Sub-commission 4.5 co-organised the “10<sup>th</sup> International Symposium on Location Based Services” at Tongji University, Shanghai, China in November 2013; as well as (5) the “International Workshop on GNSS Precise Point Positioning”, held in Ottawa, Canada in June 2013; and (6) Sub-commission 4.6 co-organised the “International Symposium on Planetary Exploration and Sciences” and the “International Summer School on Planetary Remote Sensing and Geodesy”, both held in July 2013 in Shanghai, China.



Flight testing a UAV at the “UAV-g 2013” conference in Rostock, Germany; Commission 4 president Dorota Grejner-Brzezinska

A major upcoming event is the joint symposium “Sustaining Land Imaging: UAS to Satellites” co-organised by the ISPRS Technical Commission I, Sensors and Platforms for Remote Sensing, and IAG Commission 4. This event is part of the William T. Pecora Memorial Remote Sensing Symposium, organised by the American Society for Photogrammetry & Remote Sensing, and will be held in Denver, Colorado on 17-20 November 2014 (<http://www.asprs.org/ASPRS-Conferences/blog.html>). The primary topics of this joint ISPRS/IAG symposium are:

- Data acquisition and pre-processing, and integration of various imaging sensors with other relevant systems on remote sensing platforms.
- Design, construction, characterisation, and installation of imaging and non-optical imaging sensors (IR, SAR, IfSAR, Lidar, RF, etc.) for aerial and spaceborne missions for Earth observation.
- Data quality and performance validation of SAR, Lidar and optical systems for DEM generation.
- Testing, calibration and evaluation of optical and non-optical imaging sensors, including laboratory, in-flight/in-situ, inter-calibration and test fields.
- Data processing techniques, including direct sensor orientation, evaluation of line sensors for DEM generation, and on-board data processing.
- Image technologies and data transfer protocols, standardisation of definitions and measurements of active and passive imaging sensor parameters, geometric and radiometric properties, quality standards, and factors affecting data quality.
- Integrated platform guidance, navigation, direct geo-referencing and integrated sensor orientation.
- Mobile mapping, UAV/UAS, and autonomous system applications.
- Airborne remote sensing applications.

Website: <http://www2.ceegs.ohio-state.edu/IAG-Comm4/>

CHRIS RIZOS  
President of IAG

*Report of 11th International IGES School: heights and datum height  
Universidad Técnica Particular de Loja, Ecuador,  
October 7 – 11, 2013.*

*The 11th International IGES School: heights and datum height has been organized at Geology, Mine and Civil Engineering Department of Universidad Técnica Particular de Loja, Ecuador, from 7 to 11 October, 2013.*

**Organizing Committee:** Prof. Fernando Sansò (IGeS), Prof. Richard Serrano (UTPL)

### **Teachers and lectures:**

The School includes both theoretical lectures and computational exercises on heights and datum height, given by Professors: Fernando Sansò and Riccardo Barzaghi, Politecnico di Milano, Italy; Nikolaos Pavlis, National Geospatial Intelligence Agency, USA; Denizar Blitzkow, Escola Politécnica da Sao Paulo, Brasil; and, Laura Sánchez, DGFI, Germany.

### **Final Program:**

1st day: Monday, October 7, Prof. Sansò F.

08:45 Inauguration 11<sup>th</sup> IGeS School

09:00 – 12:30 Lecture 1: Geodetic Heights, Part 1.

15:00 – 18:30 Lecture 2: Geodetic Heights, Part 2.

2nd day: Tuesday, October 8, Prof. Pavlis N.

09:00 – 12:30 Lecture 3: The Global Gravitational Model EGM2008, Part 1.

15:00 – 18:30 Lecture 4: The Global Gravitational Model EGM2008, Part 2.

3rd day: Wednesday, October 9.

09:00 – 12:30 Lecture 5: Modeling the topographic effect Terrain Correction, Helmert Reduction; from TC to Residual TC, Prof. Blitzkow D.

15:00 – 18:30 Lecture 6: Local improvements of the Geoid, Prof. Barzaghi R.

4th day: Thursday, October 10, Prof. Barzaghi R.

09:00 – 12:30 Exercises:

15:00 – 18:30 free evening.

5th day: Friday, October 11, Prof. Sánchez L.

09:00 – 12:30 Lecture 7: Vertical datum standardization, Part 1.

15:00 – 18:30 Lecture 8: Vertical datum standardization, Part 2.

Coffee breaks: 10:15 – 10:45 / 16:15 – 16:45

Lunch break: 12:30 – 15:00

### **Participants:**

The total number of participant was 15. They come from Brazil, Colombia, Dominic Republic, Ecuador, Egypt, Greece, Mexico, United States of America and Venezuela. The list of participants is:

No.	Name	Country
1.	Almeida Vega Margarita	Mexico
2.	Arciniega Susana	Ecuador
3.	Carranco Oscar	Ecuador
4.	Cioe Pérez Víctor	Venezuela
5.	Coyago Remache Ricardo	Ecuador
6.	Espinosa Cardeña Juan	Colombia
7.	Holteinson Henr Alexander	Dominic Republic
8.	Kelly Kevin	United States of America
9.	Luciene Ferreira Gama	Brazil
10.	Mansi Ahmed	Egypt
11.	Mora Torres Francisco	Colombia
12.	Pilapanta Amagua Christian	Ecuador
13.	Trejo Manuel	Colombia
14.	Vatalis Antonios	Greece
15.	Virla Alvarado María	Venezuela

Table 1: Participants





Picture 1: Schools participants

**Distributed documents:**

Students have been some printed lectures notes, and IGeS CD with software and data for exercises. At the end of School, Local Committee gave a CD with all the lectures presented in the School, photos and Loja city video. Each student and professor received a Participation Certificate.



Figure 1: Participation Certificate Document

**School venue:**

The venue of 11th IGeS School was UTPL Campus, [www.utpl.edu.ec](http://www.utpl.edu.ec). Theoretical morning lectures were held in Virginia Riofrío Auditorium, Electronic Department. The exercises were realized in Informatics Lab of Electronic Department.



Picture 2: UTPL Campus (aerial view)

**11th IGeS Committee:**

President: Riccardo Barzaghi, [riccardo.barzaghi@polimi.it](mailto:riccardo.barzaghi@polimi.it)

IGeS Coordinator: Giovanna Sona, [giovanna.sona@polimi.it](mailto:giovanna.sona@polimi.it)

Local Coordinator: Richard Serrano, [rgserrano@utpl.edu.ec](mailto:rgserrano@utpl.edu.ec)

Official School web site: [www.11iges.utpl.edu.ec](http://www.11iges.utpl.edu.ec)

**Registration fees:**

The registration fee for attending 11th IGeS was USD 350. The fee covered participation to lectures, exercises, professor's notes, CD with all School material, certificate and coffee breaks.

**Sponsors:**

Universidad Técnica Particular de Loja, [www.utpl.edu.ec](http://www.utpl.edu.ec)

International Geoid Service, <http://www.iges.polimi.it/>

Bernoulli Society, International Year of Statistics, <http://www.bs2013.org/>

Instituto Panamericano de Historia y Geografía, <http://www.ipgh.gob.ec/>

Secretaría de Educación Superior, Ciencia, Tecnología e Innovación, <http://www.educacionsuperior.gob.ec/>

**Feedback questionnaire:**

A questionnaire (taken from 9 th IGeS School) was completed by 7 of students (50%). The results of this survey are:

	Topic	very poor	poor	sufficient	good	very good
1	Length of School			2	5	
2	Scientific level				1	6
3	Quality of lectures/ notes			1	2	4
4	Quality of teachers/lectures					7
5	Quality of computer exercises		1	4	1	1
6	Overall School evaluation				2	5

**Other pictures**



RICCARDO BARZAGHI