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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

## General Announcements

### *UN General Assembly urges sharing of geospatial data to benefit people and planet*

*The remarkable news came through...*

**26 February, United Nations, New York –**

The science that supports the precise positioning and mapping of people and places should be shared more widely, according to the United Nations General Assembly as it adopted its first resolution recognising the importance of a globally-coordinated approach to Geodesy.

It was acknowledged that Geodesy plays an increasing role in people's lives, from finding disaster victims to finding directions using a smart phone. The General Assembly resolution, [A Global Geodetic Reference Frame for Sustainable Development](#), outlines the value of ground-based observations and satellite remote sensing when tracking changes in populations, land use, ice caps, oceans, the atmosphere, and the environment over time. Such geospatial measurements, when referred to a high quality geodetic reference frame, can support sustainable development policymaking, climate change monitoring and natural disaster management, and also have a wide range of applications for transport, preserving the natural and built environments, supporting agriculture and resource exploitation, and for land use planning, infrastructure provision and construction.

Emphasising that “no one country can do this alone”, the General Assembly called for greater multilateral cooperation on Geodesy, including the open sharing of geospatial (including geodetic) data, further capacity-building in developing countries, and the creation of international standards and conventions. Recognition was also given to the ad hoc nature of the establishment and operation of ground-based geodetic infrastructure such as GNSS permanent receivers, radio telescopes supporting baseline interferometry measurements, satellite laser ranging stations, geodetic control networks, and gravity reference stations. Without such infrastructure, the basic data used to maintain the International Terrestrial Reference Frame (ITRF) would not be available. Space-based infrastructure is also important, and the data from a wide range of Earth Observation satellites make crucial contributions to geodetic applications for science and society.

Co-sponsored by 52 Member States, the resolution was originally put forward by Fiji. Ambassador Peter Thomson, Fiji's Permanent Representative to the United Nations, explained that, as a Small Island Developing State, Fiji is vulnerable to increasingly severe natural disasters, sea-level rise and other problems triggered by climate change, but uses geodesy data to plan as best as it can. “We fully realise the importance of critical geospatial infrastructure and information in helping countries and decision-makers make more informed, evidence-based decisions on mitigation and preparedness”, Ambassador Thomson stated.

Fiji also highlighted the power of precise positioning for United Nations peacekeeping, for which it contributes troops. “We believe that additional accurate geospatial data will help the blue helmets take decisions in an often volatile operational context, leading to greater effectiveness of UN missions”, Ambassador Thomson added.

Wu Hongbo, the United Nations Under-Secretary-General for Economic and Social Affairs, praised Member States' efforts to “discuss, deliberate and decide on issues relevant to geospatial information” and, noting that Geodesy is fundamental for monitoring changes to the Earth, “stressed the significance of the global geodetic reference frame in supporting sustainable development”.

“[2015 is a crucial year](#) in which world leaders will be called upon to determine the global course of action to improve people's lives and protect the planet. With key finance, sustainable development and climate change conferences approaching, the focus on practical solutions and international cooperation in today's resolution sets the right tone.”

In short, what is needed is upgraded geodetic infrastructure, sustained global operations of these facilities, open data sharing policies, the launch of improved geospatial satellite technologies, and greater education and out-reach to less developed countries so that they may be able to take advantage of the products and services of Modern Geodesy.

**For more information:**

Committee of Experts on Global Geospatial Information Management (<http://ggim.un.org>) and the Working Group on Global Geodetic Reference Frame ([http://ggim.un.org/UN\\_GGIM\\_wg1.html](http://ggim.un.org/UN_GGIM_wg1.html)).



**GGIM**  
UNITED NATIONS INITIATIVE ON  
GLOBAL GEOSPATIAL  
INFORMATION MANAGEMENT

The IAG has worked tirelessly with other geospatial societies, and geodetic agencies in UN Member States, to promote the UN GA resolution on the Global Geodetic Reference Frame (GGRF)

CHRIS RIZOS

## Meeting Announcements

### *2015 ILRS Technical Workshop*

*Network Performance and Future Expectations for ILRS Support of GNSS, Time Transfer, and Space Debris Tracking, October 26 – 30, 2015, Matera, Italy*

Periodically the ILRS conducts Technical Workshops to focus on a few timely topics that impact the quality of our data products and our operations. These workshops are held in intervening years between the full International Workshops on Laser Ranging and are intended to provide time to articulate the issues carefully, allow for careful discussion and formulate a path forward. The 2015 ILRS Technical Workshop, sponsored by the Italian Space Agency (ASI) and the ILRS, will be held in Matera, Italy, October 26 – 30 to address (1) Network performance on GNSS and present and future user expectations, (2) Present performance and future expectations for time transfer, and (3) Present performance and future expectations for space debris tracking.

#### *Guidelines for the Workshop*

Each session should:

- Stimulate discussions and information exchange;
- Start with defined questions to be addressed and close with recommended resolutions and a path forward;
- Start off with an overview talk setting the framework for the topic and the process to be used in the session;
- Actively encourage and recruit participants to bring short comments (few charts) to address the session issues;
- Give a summary of its session meeting with its issues, outcomes, recommendations for steps forward at the final Workshop Session and provide a 1-2 page write up for the proceedings.

Posters will be allowed, but they must refer to one of the session topics and be approved by the chair of that session. Material from the posters may be presented in the session if appropriate.

Time will be allocated for the ILRS Governing Board and Working Group meetings. A trip is also planned to the Matera site during the week.

URL: [http://ilrs.gsfc.nasa.gov/about/2015\\_ILRS\\_Technical\\_Workshop.html](http://ilrs.gsfc.nasa.gov/about/2015_ILRS_Technical_Workshop.html)

CAREY NOLL

### *CSNC 2015*

*6th China Satellite Navigation Conference, May 13 – 15, 2015, Xi'an, China*

The 2015 China Satellite Navigation Conference and technology and applications exhibition will be held at the Xi'an Qujiang International Conference Center on May 21, 22 and 23, 2015 in Xi'an, China. Registration information can be found on the conference website. The deadline for abstracts has passed. This year, conference topics include:

- BDS/GNSS Navigation Applications
- Satellite Navigation Signal System, Compatibility & Interoperability
- Precise Orbit Determination and Positioning
- Atomic Clock Technique and Time-Frequency System

- Satellite Navigation Augmentation and Integrity Monitoring
- BDS/GNSS Test and Assessment Technology
- BDS/GNSS User Terminal Technology
- Satellite Navigation Models and Methods
- Integrated Navigation and New Methods

The conference is sponsored by the China Satellite Navigation Office and a number of other official PRC agencies. The official language of the conference is Mandarin Chinese with simultaneous English translation.

Web: <http://182.92.190.247/english/index.asp>

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## JISDM 2016

*3rd Joint International Symposium on Deformation Monitoring, March 30 – April 1, 2016, Vienna, Austria*

The 3rd Joint International Symposium on Deformation Monitoring (JISDM) follows the more than 40 years old tradition of the FIG Symposium series on Deformation Measurements and of the IAG Symposium series on Geodesy for Geotechnical and Structural Engineering. The actual denomination JISDM was introduced five years ago in Hong Kong and expresses the tight collaboration between the two of the most important geodetic organisations the FIG and the IAG in the fields of deformation measurements and deformation analysis. The organising commissions within the two associations are:

FIG	Commission 6 Working Group 6.1	Engineering Surveys Deformation Measurements and Analysis	Chair: Dr. Ivo Milev, Bulgaria Chair: Prof. Dr. Wolfgang Niemeier, Germany
IAG	Commission 4  Sub-Commission 4.2  Joint Working Group 0.2.1	Positioning and Applications  Geodesy in Geospatial Mapping and Engineering New Technologies for Disaster Monitoring and Management	Chair: Prof. Dr. Dorota Grejner- Brzezinska, USA Chair: Prof. Dr. Jinling Wang, Australia Chair: Prof. Dr. Ioannis Doukas, Greece

During the three days of the symposium the entire spectrum of deformation studies is covered. The latest methodological developments at theoretical level, modern sensors and measurement technologies as well as applications on man-made structures and natural objects are contents of the program. One aim of the symposium is to reflect contributions from different fields of Geodesy, like Engineering Geodesy, Spatial Geodesy, Photogrammetry or Remote Sensing, to all topics related to deformation studies. Following the motto of the denomination contributions showing the benefit obtained from the interaction of the abovementioned geodetic fields are welcome. Also contributions resulting from the interdisciplinary activity with related disciplines, like Civil and Mechanical Engineering, are encouraged. The official language of the conference is English.

To align the proceedings to actual trends in science and to increase their scientific quality a peer-review process is introduced for the first time. However, the participation to the review process is optional. This opportunity maximises the attractiveness of an active contribution to the symposium for scientists and practitioners as well.

The location is beyond scientific scopes a major argument to attend the symposium. Vienna is one of the most beautiful cities in Europe. It offers a large number of highlights in architectural, historical and cultural sense. The early spring amplifies the impact of these highlights, which can be enjoyed at temperatures that are usually moderate in March. The Technische Universität Wien (TU Wien) is the largest technical university in Austria and includes faculties dedicated to all technical and natural sciences. In 2015 the TU Wien is celebrating its bicentenary.

On behalf of the organising FIG- and IAG-Commissions and of the Local Organising Committee it is our great pleasure to welcome you at the 3rd JISDM in Vienna 2016, 30. March – 01. April.

Dr. Ivo Milev  
Prof. Dr. Wolfgang Niemeier

Prof. Dr. Dorota Grejner-  
Brzezinska  
Prof. Dr. Jinling Wang  
Prof. Dr. Ioannis Doukas

Prof. Dr. Hans Neuner  
Asc. Prof. Dr. Günther Retscher



## Meetings Calendar

### European Navigation Conference ENC 2015

April 7 – 10, 2015, Bordeaux, France

URL: <http://www.enc2015.eu/>

### IFCS-EFTF 2015

April 12 – 16, 2015, Denver, Colorado, USA

Joint Conference of the IEEE International Frequency Control Symposium & European Frequency and Time Forum

URL: <http://ifcs-eftf2015.org/>

### European Geosciences Union General Assembly 2015

April 12 – 17, 2015, Vienna, Austria

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

### SPACOMM 2015

April 19 – 24, 2015, Barcelona, Spain

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

### RESENS 2015

April 19 – 24, 2015, Barcelona, Spain

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

### Eighth IVS Technical Operations Workshop (TOW 2015)

May 4 – 7, 2015, Westford, Massachusetts, USA

URL: <http://ivscc.gsfc.nasa.gov/meetings/tow2015/>

### 36th International Symposium of Remote Sensing of Environment (ISRSE)

May 11 – 15, 2015, Berlin, Germany

URL: <http://www.isrse36.org/>

### 8th Workshop on GNSS Reflectometry (GNSS+R 2015)

May 11 – 13, 2015, Potsdam, Germany

URL: <http://www.gnssr2015.org/>

### CSNC 2015

May 13 – 15, 2015, Xi'an, China

6<sup>th</sup> China Satellite Navigation Conference

URL: <http://182.92.190.247/english/index.asp>

### 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/>

### FIG Working Week 2015

May 17 – 21, 2015, Sofia, Bulgaria

URL: <http://www.fig.net/fig2015/>

### GIA Modeling 2015

May 26-29, 2015, Fairbanks, Alaska

URL: <http://www.gia2015.org/>

### Ilulissat Climate Days 2015

June 2-5, 2015, Ilulissat, Greenland

URL: <http://www.polar.dtu.dk/english/Ilulissat-Climate-Days>

### Sentinel-3 for Science Workshop

June 2-5, 2015, Venice, Italy

URL: <http://seom.esa.int/S3forScience2015>

### EUREF Symposium 2015

June 3-5, 2015, Leipzig, Germany

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

### TransNav 2015

June 17 – 19, 2015, Gdynia, Poland

URL: <http://transnav2015.am.gdynia.pl>

### XXVI IUGG General Assembly

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

Information about registration and accommodation will be available from June 2014. Call for abstracts will be open during summer 2014.

URL: [www.iugg2015prague.com](http://www.iugg2015prague.com)

### EVN TOG Meeting

June 26, 2015, Robledo, Spain

URL: <http://iag.dgfi.badw.de/index.php?id=291>

### AOGS 2015

August 2 – 7, 2015, Singapore

URL: <http://www.asiaoceania.org/aogs2015/>

### 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/)

### 2015 APSG International Symposium

August 24 – 28, 2015, Moscow, Russia

Geodesic Datum and Regional and Terrestrial Reference Frame Realization

URL: <http://apsg2015.inasan.ru>

### ION GNSS+ 2015

September 14 – 18, 2015, Tampa, Florida, USA

URL: <http://www.ion.org/gnss/index.cfm>

### INTERGEO, Geodätische Woche

September 15 – 17, 2015, Stuttgart, Germany

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

### ICTRS 2015

September 17 – 17, 2015, Rhodes, Greece

Fourth International (URSI) Conference on Telecommunications and Remote Sensing

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

### geo-Q International Autumn School

October, 4-9 2015, Bad Honnef, Germany

Global gravity field modeling from Satellite-to-Satellite Tracking data

URL: <http://www.geoq.uni-hannover.de/autumnschool.html>

### ISDE 2015

October 5 – 9, 2015, Halifax, Nova Scotia, Canada

URL: <http://digitalearth2015.ca/>

### Earth Observation for Water Cycle Science 2015

October 10 – 23, 2015, ESA-ESRIN, Frascati, Italy

URL: <http://www.eo4water2015.info/>

### 2015 ILRS Technical Workshop

October 26 – 20, 2015, Matera, Italy

URL: [http://ilrs.gsfc.nasa.gov/about/2015\\_ILRS\\_Technical\\_Workshop.html](http://ilrs.gsfc.nasa.gov/about/2015_ILRS_Technical_Workshop.html)

### 5th International Colloquium Scientific and Fundamental Aspects of the Galileo Programme

October 27 – 29, 2015, PTB Braunschweig, Germany

URL: <http://congrexprojects.com/2015-events/15a08/introduction>

### 2nd Symposium of COSPAR: Water and Life in the Universe

November 9 – 13, 2015, Foz do Iguacu, Brazil

URL: <http://cosparbrazil2015.org/>

### IS-GNSS 2015

November 16 – 19, 2015, Kyoto, Japan

International Symposium on GNSS

URL: <http://www.isgnss2015.org/>

### MMT 2015

December 9 – 11, 2015, Sydney, Australia

The 9th International Symposium on Mobile Mapping Technology

URL: <http://www.mmt2015.org/>

### AGU 2015 Fall Meeting

December 14 – 18, 2015, San Francisco, California, USA

URL: <http://fallmeeting.agu.org/2015/>

### JISDM 2016

March 30 – April 1, 2016, Vienna, Austria

3rd Joint International Symposium on Deformation Monitoring

URL: <http://www.jisdmsymposium2016.org/>

### EGU General Assembly 2016

April 17 – 22, 2016, Vienna, Austria

URL: <http://www.egu2016.eu/>

### FIG Working Week 2016

May 2 – 6, 2016, Christchurch, New Zealand

URL: <http://www.fig.net/fig2016/>

### 18th Geodynamics and Earth Tide Symposium 2016

June 6 – 9, 2016, Trieste, Italy

URL: <http://www.lithoflex.org/g-et/>

### 41st COSPAR Scientific Assembly

July 30 – August 7, 2016, Istanbul, Turkey

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



INTERGEO, Geodätische Woche

October 11 – 13, 2016, Hamburg, Germany

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

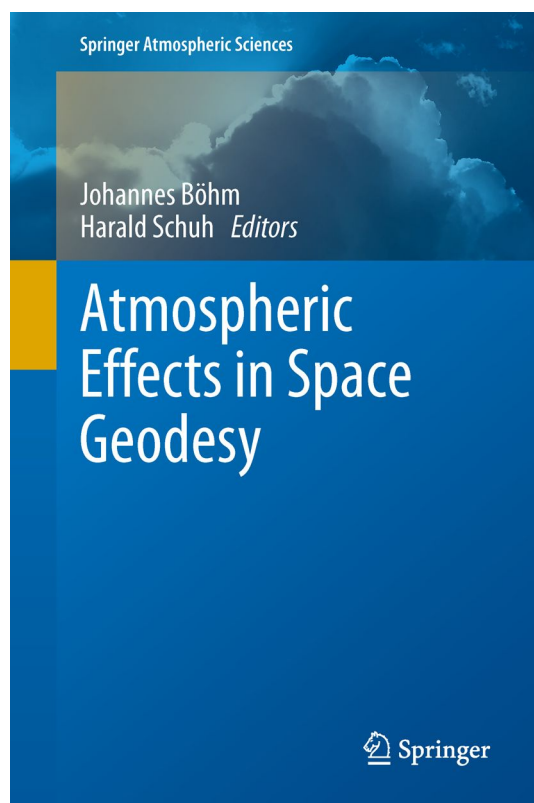
AGU 2016 Fall Meeting

December 12 – 16, 2016, San Francisco, California, USA

URL: <http://meetings.agu.org/upcoming-meetings/>

## Book Review

*Johannes Böhm and Harald Schuh (Editors): Atmospheric Effects in Space Geodesy*



Title: Atmospheric Effects in Space Geodesy  
Editors: Johannes Böhm and Harald Schuh  
Publisher: Springer  
ISBN: 978-3-642-36931-5 (Print) 978-3-642-36932-2 (Online)  
Year: 2013  
Price: 74.89 €/ 59.49 €(eBook)  
Details: Hardcover, 234 pages  
Other: available also as eBook

The focus of book is on the atmosphere in terms of the subject areas where the atmosphere is important for space geodesy. As far as I know this is a unique approach in the sense that the atmosphere plays several different roles in this aspect: (1) it delays the signals from space used for the accurate estimation of positions on the surface of the Earth, (2) its mass affects the Earth's crust through loading as well as the observed gravity, and (3) its motion interacts with the rotation of the Earth. Of course these subjects have often been treated earlier in the literature but then the focus is typical of one of these mentioned applications only.

Given this structure the book consists of six chapters starting with an introductory chapter on geodesy and a general description of the atmosphere.

The following two chapters deal with the atmosphere as an error source affecting the arrival time of the signals used in space geodesy. The ionosphere mainly affects signals at microwave frequencies and this is treated in one chapter. The neutral atmosphere, however, affects signals both in the microwave as in the optical part of the spectrum. Although the relative effect is much smaller in the latter both areas are described in detail.

The next two chapters deal with the mass of the atmosphere in terms of pressure loading and gravity. The term pressure loading arises from the fact that the ground pressure is a measure of the atmospheric mass above. The chapter includes several examples of pressure variations, which have a strong dependence of latitude, as well as on the structure of moving weather systems. Models for calculation of displacements of the Earth's crust given the ground pressure distribution, are described. The effect is typically of the order of many millimetres. There is a dependence between the pressure variations and the sea level. This is discussed in the next chapter on how the atmosphere affects gravity observations in space missions.

The final chapter describes the interactions between the atmosphere and the rotation of the Earth. Variations in the Earth rotation, and its oceans and the atmosphere are related to each other. For example, the space geodetic techniques observe variations in the Earth rotation rate, often presented in terms of the length of the day. In order to explain such variations several different models using data for the state of the atmosphere are described.

There are plenty of references for each chapter, meaning that the book is a good starting point in case one wants to dig deeper into a specific subject, although I miss a detailed Table of Content at the beginning, listing chapters, sections, subsections, and sub-subsections. A similar suggestion is that the alphabetical index at the end of the book would benefit from more entries. Such logistical issues may be worthwhile to consider in a future edition.

The overall impression is that the book fulfils a need. I am not aware of any other such complete summary on the research relevant to the interplay between space geodesy and the atmosphere.

Gothenburg 2015-03-09

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