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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

### *Levallois Medal Awarded to Professor Reiner Rummel*



Reiner Rummel at IUGG on receiving the Levallois Medal

The Levallois Medal was established in 1979 to honour Jean-Jacques Levallois for his long service from 1960 to 1975 as Secretary General of the International Association of Geodesy (IAG), and is presented every four years “in recognition of distinguished service to the association and/or to the science of geodesy in general”. This year the Levallois Medal was awarded to Reiner Rummel during the opening ceremony of the IAG symposia at the International Union of Geodesy & Geophysics’ General Assembly, 20 June – 2 July 2015, in Prague, Czech Republic.

After he gained his PhD degree in 1974 Reiner became a post-doctoral researcher in the Department of Geodetic Science at the Ohio State University, where he launched his geodetic career. Even at this early stage it was noted that uniquely his profile was “an amalgam of European geodetic theory and US geodetic practice”.

After a period as a researcher in Munich, first with the German Geodetic Research Institute and then with the Geodetic Commission of the Bavarian Academy of Sciences and Humanities, he was appointed Professor of physical geodesy at the Delft University of Technology, where he served for 13 years. In 1993, he was appointed Professor and Head of the Institute of Physical and Astronomical

Geodesy at the Technical University of Munich (TUM), a position he held until his retirement in 2011. Since his retirement, he is a Professor Emeritus at the TUM and a Carl von Linde Senior Fellow of the Institute of Advanced Study.

Reiner’s role in science has been that of a visionary, whose ideas and originality have greatly contributed to modern geodesy. Among his many contributions, three are noteworthy: his central role in the modernisation of the IAG, as an initiator of the IAG’s Global Geodetic Observing System (GGOS), and his role in the realisation of the GOCE satellite gradiometry mission.

The Global Geodetic Observing System (GGOS) is intended to monitor the Earth System by geodetic methods and by all the IAG entities. The GGOS concept is ambitious and its realisation a major challenge, however the original idea is due to Reiner Rummel.

Reiner Rummel devoted more than ten years of his career to the realisation of the European Space Agency’s Gravity field and steady-state Ocean Circulation Explorer (GOCE) mission. Reiner was the Principal Investigator of the GOCE Mission, and the coordinator of the GOCE HPF (High-level Processing Facility) of ten European institutions collaborating to provide the official GOCE products and to scientifically exploit the applications enabled by GOCE.

In addition, Reiner Rummel has been an outstanding teacher. His natural gift of lecturing inspires his audience with stimulating, and at times unconventional presentations. His initiative and ideas led to the establishment of the ESPACE Masters Curriculum at TUM, providing fundamental knowledge in space engineering and satellite applications related to navigation, remote sensing, and Earth System science.

His list of honours include the Heiskanen Award of the Ohio State University (1977), the Vening Meinesz Medal of the European Geophysical Society (1998), and the Bavarian Order of Sciences and Arts (2010). He is a member of the Royal Netherlands Academy of Sciences (1989), the Bavarian Academy of Sciences (1997), an

honorary member of the Hungarian Academy of Sciences (2001), the Deutsche Akademie der Naturforscher Leopoldina (2004) and the Leibniz Sozietät Berlin (2008). He has been awarded Honorary Doctorate degrees from the Technical University of Graz (2005), the University of Bonn (2005), the Ohio State University (2013), and the Aristotle University of Thessaloniki (2014).

Reiner Rummel is one of the outstanding geodesists of the late 20th – early 21<sup>st</sup> century. The award committee concluded its report with the statement "it has been our pleasure and honour to write this citation for Reiner Rummel – an outstanding geodesist and a dear friend".

CHRIS RIZOS

### *Taiwan's new Geodesy Society is born*

Witnessed by about 100 founding members, the Geodesy Society of the Republic of China (GSROC) on Taiwan celebrated her inauguration on June, 17, 2015. Prof. Cheinway Hwang (of the National Chiao-Tung University) was elected the (founding) President at the official gathering. GSROC consists primarily of geodesists in the academia, including those from universities, research institutions and government agencies, and has a strong link to public enterprises and industries. The geodesist community in Taiwan now enjoys a home organization to provide professional services and a formal platform for communications. As an organizational member of the Chinese Geosciences Union (CGU on Taiwan), GSROC will hold annual conferences (a heritage from past informal annual Retreats) in Taiwan, and engage in international contacts and cooperations.

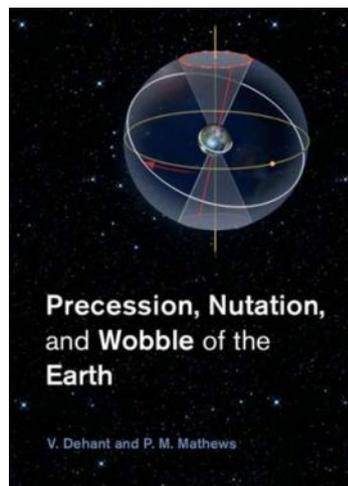
BEN CHAO  
Academia Sinica, Taipei

### *Geodesy section of the National Geophysical Committee of the Russian Academy of Sciences*

To get an introduction to the activities of the Geodesy Section please visit <http://geodesy-ngc.gcras.ru/en/>. For more details see the poster [http://geodesy-ngc.gcras.ru/fiches/Savinyck\\_Kaftan\\_PosterNo53.pdf](http://geodesy-ngc.gcras.ru/fiches/Savinyck_Kaftan_PosterNo53.pdf).

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### *Announcement of a new book on Precession, Nutation, and Wobble of the Earth*



Earth rotation has long been used as a measure of time, together with using the stars as reference points, to determine travellers' whereabouts on the globe. However, the rotation of the Earth is not uniform and its orientation changes with respect to the sky.

Covering both astronomical and geophysical perspectives, this book describes changes in the Earth's orientation, specifically precession and nutation, and how they are observed and computed in terms of tidal forcing and models of the Earth's interior. Following an introduction to key concepts and elementary geodetic theory, the book describes how precise measurements of the Earth's orientation are made using observations of extragalactic radio-sources by Very Long Baseline Interferometry (VLBI) techniques. It demonstrates how models are used to accurately pinpoint the location and orientation of the Earth with reference to the stars and how to determine variations in its rotation speed (length-of-day variations). A theoretical framework is also presented that describes the role played by the structure and properties of the Earth's deep interior.

Incorporating suggestions for future developments in nutation theory for the next generation models, this book is ideal for advanced-level students and researchers in solid Earth geophysics, planetary science and astronomy.

Basic equations are provided for describing and understanding precession, nutation, and wobble; the book explains new concepts of precession and nutation in terms of reference systems, such as the Non-Rotating Origin or the Celestial Intermediate Pole; Precession, nutation, and wobble of the planet Mars are addressed, appealing not only to geodesists and geophysicists, but also to planetary scientists.

**Professor Véronique Dehant** is Senior Research Scientist at the Royal Observatory of Belgium, responsible for the Operation Direction 'Reference Systems and Planetology', and is a part-time professor at the Université

Catholique de Louvain. Her research is focused on the habitability of the terrestrial objects of our Solar System, mostly in relation to the evolution of their interiors and atmospheres. Professor Dehant is also Principal Investigator and Co-Investigator of several instruments in ESA and NASA missions, and has received several awards including the Descartes Prize of the European Union. She is or was involved in several advisory committees such as the ESA Space Science Advisory Committee (SSAC), and is the author of more than 400 publications. She is Member of the Royal Academy of Belgium.

**Professor Piravonu M. Mathews** served as Senior Professor of Theoretical Physics at the University of Madras in India, and is now retired. His main research interests are in the Earth's nutation and precession and other concomitant phenomena, as well as the properties of, and processes in, the Earth's deep interior. Professor Mathews is the lead originator of the Mathews-Herring-Buffett (MHB) theory of nutation adopted by the IAU and IUGG. In recognition of his work on the MHB model of nutation, he was elevated to the Fellowship of the American Geophysical Union (2004). He was elected as a Fellow of the Indian Academy of Sciences in 1975 and of the Indian National Science Academy in 1983. He has published 120 papers in reputed journals.

IAG COB

## Meeting Announcements

### *Meetings Calendar*

#### AOGS 2015

*August 2 – 7, 2015, Singapore*

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

#### Fifth Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)

*August 3– 7, 2015, New York, USA*

URL: [http://ggim.un.org/ggim\\_committee.html](http://ggim.un.org/ggim_committee.html)

#### 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>

#### ESA/JRC International Summer School on GNSS 2015

*August 31 – September 10, 2015, Barcelona, Spain*

URL: <http://congrexprojects.com/2015-events/15m21/registration>

#### VI International Time Scale Algorithms Symposium and Tutorials

*September 9 – 11, 2015, Sèvres, France*

URL: <http://www.bipm.org/en/conference-centre/bipm-workshops/tsas/>

#### ION GNSS+ 2015

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

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

#### Third Space for Hydrology Workshop "Surface Water Storage and Runoff: Modeling, In-Situ data and Remote Sensing"

*September 15 – 17, 2015, Frascati, Italy*

URL: <http://hydrospace2015.org/>

INTERGEO, Geodätische Woche

September 15 – 17, 2015, Stuttgart, Germany

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

ICTRS 2015

September 17 – 18, 2015, Rhodes, Greece

Fourth International (URSI) Conference on Telecommunications and Remote Sensing

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

GRACE Science Team Meeting

September 21 – 23, 2015, Austin, Texas, USA

Fourth International (URSI) Conference on Telecommunications and Remote Sensing

URL: <http://www.csr.utexas.edu/grace/GSTM/>

Wilhelm und Else Heraeus 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/>

DORIS Analysis Working Group Meeting

October 15 – 16, 2015, Greenbelt, Maryland, USA

URL: <http://ids-doris.org/report/meeting-presentations/ids-awg-10-2015.html>

9th Coastal Altimetry Workshop

October 18 – 19, 2015, Reston, Virginia, USA

URL: <https://joss.ucar.edu/meetings/2015/9th-coastal-altimetry-workshop>

OSTST 2015

October 20 – 23, 2015, Reston, Virginia, USA

URL: <https://joss.ucar.edu/meetings/2015/ocean-surface-topography-science-team-meeting>

Earth Observation for Water Cycle Science 2015

October 20 – 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)

COSPAR Capacity Building Workshop on Planetary Data Mission Analysis

October 26 – November 6, 2015, Guaratinguetá, Brazil

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

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>

10th Meeting of the International Committee on Global Navigation Satellite Systems (ICG)

November 1 – 6, 2015, Boulder, Colorado, USA

URL: <http://www1.joss.ucar.edu/>

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

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

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

EuroCarto 2015

November 10 – 12, 2015, Vienna, Austria

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

International Technical Symposium on Navigation and Timing

November 16 – 17, 2015, Toulouse, France

URL: <http://signav.recherche.enac.fr/index.php/events/international-technical-symposium/symposium-2015/>

IS-GNSS 2015

November 16 – 19, 2015, Kyoto, Japan

International Symposium on GNSS

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

4th International VLBI Technology Workshop (IVTW)

November 23 – 26, 2015, Auckland, New Zealand

International Symposium on GNSS

URL: <http://www.irasr.aut.ac.nz/conferences/4th-international-vlbi-Technology-workshop-ivtw>

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/>

United Nations International Meeting on Global Navigation Satellite Systems

December 14 – 18, 2015, Vienna, Austria

URL: [http://www.unoosa.org/oosa/events/data/2015/2015\\_united\\_nations\\_international\\_meeting\\_on\\_gnss.html](http://www.unoosa.org/oosa/events/data/2015/2015_united_nations_international_meeting_on_gnss.html)

ION Precise Time and Time Interval Meeting (PTTI)

January 25 – 27, 2016, Monterey, California, USA

URL: <http://www.ion.org/ptti/>

IGS Workshop

February 15 – 19, 2016, Sydney, Australia

URL: <http://kb.igs.org/hc/en-us/articles/205944657-IGS-Workshop-2016-Information>

9th IVS General Meeting

March 13 – 17, 2016, Ekudeni (Johannesburg), South Africa

URL: <http://ivs2016.hartrao.ac.za/>

JISDM 2016

March 30 – April 1, 2016, Vienna, Austria

3rd Joint International Symposium on Deformation Monitoring

URL: <http://www.jisd2016.org/>

EGU General Assembly 2016

April 17 – 22, 2016, Vienna, Austria

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

### GEOProcessing 2016

April 24 – 28, 2016, Venice, Italy

URL: <http://www.iaia.org/conferences2016/GEOProcessing16.html>

### 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 5 – 9, 2016, Trieste, Italy

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

### GAGER 2016

July 18 – 23, 2016, Wuhan, Hubei, China

Geodesy, Astronomy and Geophysics in Earth Rotation (GAGER2016) – A Joint IAU / IAG / IERS Symposium

URL: <http://main.sgg.whu.edu.cn/gager2016/>

### 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/>

## Reports

### *Executive Summary of the SGI 2015 Workshop*

*July 7-8, 2015, Berlin, Germany*

The Satellite Geodesy and Ionosphere research (SGI 2015) workshop was successfully held at the Technical University of Berlin during 7 and 8 July 2015. The workshop initially aimed at bringing together geodesists and other scientists from all over the world to one meeting, dealing with geodetic sciences and ionospheric research. The workshop organized by the Institute of Geodesy and Geoinformation Science of the Technical University of Berlin and Department 'Geodesy and Remote Sensing' of the German Research Centre for the Geosciences (GFZ) in Potsdam provided a great opportunity for scientists to meet in a friendly atmosphere and to share their research and latest findings.

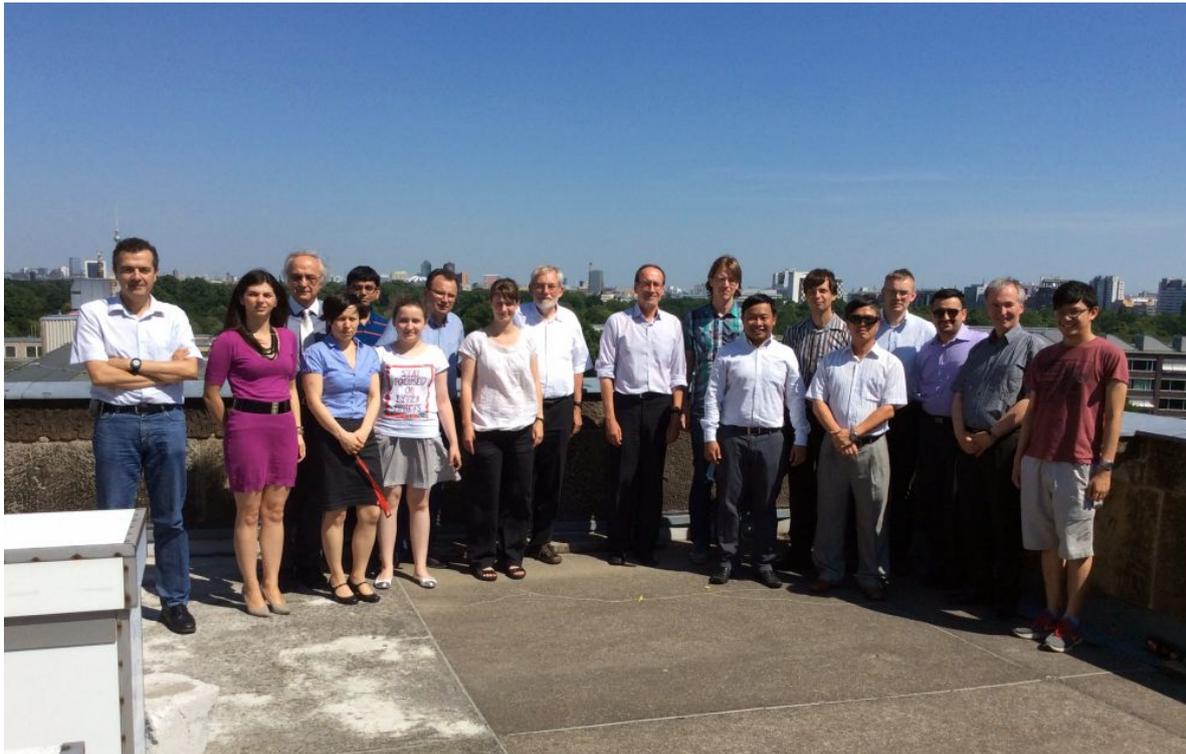
The workshop began with a welcome note from Prof. Harald Schuh, the President of the International Association of Geodesy (IAG). Mahdi Alizadeh, the chair of the L.o.C of the workshop also welcomed the participants and explained the motivations and aims of the workshop. Afterwards two scientific sessions were held in the first day of the workshop dealing mainly with the physics of the ionosphere, ionosphere monitoring and modeling. The last session of the first day was dedicated to general discussion. In this session, Michael Schmidt from DGFI, TU Munich presented the terms of reference of the IAG Sub-Commission 4.3: "The Atmosphere", and discussions were carried out about establishment of ionosphere-related Working Group / Special Study Group within the Sub-Commission. In the second day of the workshop the scientific session focused on the ionospheric scintillation and its effects on GNSS. The workshop was concluded with the second discussion panel related to general topics such as increasing visibility of ionosphere research in geodetic community, seeking an appropriate platform for further collaborations/ joint projects in the field of

ionosphere research, and suggestion of potential candidates for chairing the Working Group / Special Study Group within the IAG Sub-Commission 4.3. The main discussions included:

- increasing the visibility of ionosphere research in geodetic community by presenting the studies in the Global Geodetic Observing System (GGOS),
- including ionosphere/atmosphere studies in the mid-term aims of GGOS,
- seeking possibility of common projects from each individual Working Group/Special Study Group.

It is planned to hold the next workshop under the umbrella of IAG Sub-Commission in about a year, and also the established study/ working groups should present their activities within the IAG Scientific Assembly in Kobe/Japan in 2017.

MAHDI ALIZADEH



SGI 2015 workshop participants from left to right:

Manuel Hernandez-Pajares from UPC Barcelona, Marija Cokrljic from TU Berlin, Roman Galas from TU Berlin, Kinga Wezka from TU Berlin, Mainul Hoque from DLR Neustrelitz, Miss Krankowski, Andrzej Krankowski from UWM Poland, Christina Arras from GFZ Potsdam, Norbert Jakowski from DLR Neustrelitz, Harald Schuh from TU Berlin and GFZ Potsdam, Tobias Nilson from GFZ Potsdam, Ernest Macalalad from NCU Taiwan, Jens Berderman from DLR Neustrelitz, Lung-Chih Tsai from NCU Taiwan, Mathias Fritsche from GFZ Potsdam, Mahdi Alizadeh from TU Berlin, Michael Schmidt from DGFI TU Munich, and Okky Jenie from TU Berlin.