



IUGG



International Association
of Geodesy

Newsletter

August 2017

Editor: Gyula Tóth

IAG Communication and Outreach Branch
Department of Geodesy and Surveying
Budapest University of Technology and Economics
H-1521 Budapest, Hungary

Information Service of the International Association of Geodesy

<http://www.iag-aig.org>

newsletter@iag-aig.org

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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

General Announcements

UN Subcommittee on Geodesy established

August 4th the UN-GGIM seventh session in New York endorsed the terms of reference and formally established the first permanent UN-GGIM Subcommittee on Geodesy.



SUBCOMMITTEE ESTABLISHED: Co-chair Gary Johnston presented the GGRF report at the UN-GGIM seventh session in New York. Photo: Anne Jørgensen.

Last August the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) decided to elevate the Global Geodetic Reference Frame (GGRF) Working Group to a permanent Subcommittee on Geodesy.

Following this decision the GGRF Working Group drafted the Terms of Reference (TOR) for the subcommittee and developed a transition plan from Working Group to Subcommittee on Geodesy. This August, during the UN-GGIM seventh session, the Terms of Reference and transition plan were endorsed by the UN-GGIM Committee of Experts. The transition phase will end at the inaugural meeting of the subcommittee where co-chairs will be elected in line with the TOR's . Until then the subcommittee will continue to be co-chaired by Australia (represented by Geoscience Australia) and Norway (represented by the Norwegian Mapping Authority).

Long term priority

"The creation of this subcommittee in the United Nations System, the first for UN-GGIM, sends a very clear message to Member States, and other global geodetic entities, that enhancement of geodetic reference frames should be a long term strategic priority for governments," says Gary Johnston, co-chair of the UN-GGIM Subcommittee on Geodesy.

IAG supports UN

The IAG has been a member of the GGRF Working Group from the start and will be an associate member of the new Subcommittee on Geodesy.

"The International Association of Geodesy supports the transition to the new Subcommittee on Geodesy. We also applaud the continued progress in developing an implementation plan for the GGRF road map. The International Association of Geodesy, through its geodetic services as well as the Global Geodetic Observing System, will continue its long-standing support of developing a global geodetic reference frame for the benefit of science and society," says Dr. Michael Pearlman, who represented the IAG in New York.

Aligned with NASA goals

"The activities of the UN-GGIM, specifically its Subcommittee on Geodesy and the implementation of the recommendations described in the road map on the Global Geodetic Reference Frame, are well aligned with NASA geodesy goals," says Dr. Benjamin Phillips, program scientist for NASA's Space Geodesy Program in Washington and also present at the UN-GGIM seventh session in New York.

"The Subcommittee on Geodesy will help to facilitate the international collaboration that is critical to realizing the objectives of the global geodesy community, and further the associated scientific and societal benefits," says Phillips.



GGRF CO-CHAIRS: Gary Johnston (Australia) and Laila Løvhøiden (Norway) at UN-GGIM seventh session in New York.
Photo: Anne Jørgensen.

Inaugural meeting in November

The inaugural meeting of the subcommittee is planned in the margins of the 2017 UN-GGIM High Level Forum in Mexico City in November.

Along with the planning of the inaugural meeting the subcommittee is working on the development of the implementation plan for the GGRF roadmap.

"The work is progressing and the intention is to present the plan to the UN-GGIM Committee of Experts at its eight session in August next year", says Laila Løvhøiden, co-chair of the UN-GGIM Subcommittee on Geodesy.

"The ambition is that the implementation plan will be the first step on the road towards an accurate, accessible and sustainable Global Geodetic Reference Frame to support science and society, which also is the vision of the implementation plan," says Løvhøiden.

Appropriate governance arrangements

The framework for an appropriate governance mechanism is beginning to take shape. The focus group assigned to develop the position paper agrees that in order to effectively implement the road map for the global geodetic reference frame, some kind of intergovernmental arrangement must be established. "Recognizing the critical importance of such a governance structure, it's imperative that we engage in broad consultations before we conclude," says Laila Løvhøiden, team lead of the UN-GGIM GGRF governance focus group.

More information: Follow the subcommittee on twitter @unggrf.org and study <http://www.unggrf.org> and http://ggim.un.org/UN_GGIM_wg1.html



UN, NEW YORK: The creation of this subcommittee in the United Nations System is the first for UN-GGIM. Photo: Anne Jørgensen

ANNE JØRGENSEN

NASA – Norway to Develop Arctic Laser-Ranging Station

NASA and the Norwegian Mapping Authority are partnering to develop a state-of-the-art satellite laser ranging station 650 miles from the North Pole that will produce high-precision locations of orbiting satellites, help track changes in the ice sheets and improve the efficiency of marine transportation and agriculture. For more information, please visit <https://www.nasa.gov/feature/goddard/2017/nasa-and-norway-to-develop-arctic-station>.



Karen Feldstein, Deputy Associate Administrator for International and Interagency Relations at NASA, and Per Erik Opseth, director of the Geodetic Institute of the Norwegian Mapping Authority, sign the Space Geodesy Agreement at NASA Headquarters in Washington, D.C. on Aug. 7, 2017. (NASA/Bill Ingalls)

MARIA-JOSE VINAS
NASA Goddard Space Flight Center

Meeting Announcements

International Comparison of Absolute Gravimeters 2017 and Workshop on Absolute Gravimetry in China

The next key comparison of absolute gravimeters CCM.G-K2.2017 and pilot study is organized by the National Metrology Institute of China (NIM). The measurements will take place in the Changping Campus of NIM, from 16th to 31st October 2017.

A Workshop on Absolute Gravimetry will be held in the Changping Campus during the measurement campaign, on 23-24 October. It is a good opportunity for Metrology and Earth Science communities to work and cooperate together, and a challenge towards a new era of absolute Gravimetry instrumentation and its applications.

Information and registration forms are available at <http://icag2017.nim.ac.cn/>.

FELICITAS ARIAS, WU SHUQING

42nd Scientific Assembly of the Committee on Space Research (COSPAR) and Associated Events "COSPAR 2018"

Date: 14 - 22 July 2018

Place: Pasadena, CA, USA

Contact:

COSPAR Secretariat

Tel: +33 1 44 76 75 10

cospar@cosparhq.cnes.fr

<http://www.cospar-assembly.org> or <http://cospar2018.org/>

Scientific Program Chair:

Prof. Thomas Prince, California Institute of Technology

Abstract Deadline: 9 February 2018

Topics: 130 meetings covering the fields of COSPAR Scientific Commissions (SC) and Panels (full list available at <http://www.cospar-assembly.org>):

- SC A: The Earth's Surface, Meteorology and Climate
- SC B: The Earth-Moon System, Planets, and Small Bodies of the Solar System
- SC C: The Upper Atmospheres of the Earth and Planets Including Reference Atmospheres
- SC D: Space Plasmas in the Solar System, Including Planetary Magnetospheres
- SC E: Research in Astrophysics from Space
- SC F: Life Sciences as Related to Space
- SC G: Materials Sciences in Space
- SC H: Fundamental Physics in Space
- Panel on Satellite Dynamics (PSD)
- Panel on Scientific Ballooning (PSB)
- Panel on Potentially Environmentally Detrimental Activities in Space (PEDAS)
- Panel on Radiation Belt Environment Modelling (PRBEM)
- Panel on Space Weather (PSW)
- Panel on Planetary Protection (PPP)
- Panel on Capacity Building (PCB)
- Panel on Education (PE)
- Panel on Exploration (PEX)
- Panel on Interstellar Research (PIR)
- Special events: Interdisciplinary lectures, space agency round table, etc.

Selected papers published in *Advances in Space Research* and *Life Sciences in Space Research*, fully refereed journals with no deadlines open to all submissions in relevant fields.

AARON JANOFSKY

IX Hotine-Marussi Symposium

The IX Hotine-Marussi Symposium will be held at the Faculty of Civil and Industrial Engineering of the University of Rome "La Sapienza", Italy on 18-22 June 2018, under the scientific coordination of the Intercommission Committee on Theory (ICCT) of the International Association of Geodesy (IAG). Website of the Symposium will be available soon.

PAVEL NOVAK, MATTIA CRESPI

Meetings Calendar

IAG Sponsored Meetings

Workshop on Glacial Isostatic Adjustment and Elastic Deformation

September 5-7, 2017, Reykjavik, Iceland

URL: <http://www.polar.dtu.dk/english/Workshop-on-Glacial-isostatic-adjustment-and-elastic-deformation-2017>

COSPAR 2017

September 18-22, 2017, Jeju Island, South Korea

3rd Symposium of the Committee on Space Research (COSPAR): Small Satellites for Space Research

URL: <http://cospar.kasi.re.kr/cospar-symposium-2017/>

IAG Workshop: Satellite Geodesy for Climate Studies

September 19-21, 2017, Bonn, Germany

URL: <http://www.igg.uni-bonn.de/apmg/index.php?id=ws2017>

Journees 2017

September 25-27, 2017, University of Alicante, Spain

URL: <http://web.ua.es/journees2017/>

ILRS Technical Workshop 2017

October 2-5, 2017, Riga, Latvia

URL: https://ilrs.cddis.eosdis.nasa.gov/docs/2017/2017ILRS_TechnicalWorkshop_circular1_20170228.pdf

9th ABLOS Conference

October 10-11, 2017, IHB, Monaco

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

SIRGAS Workshop on GNSS Real-Time Positioning

November 22-24, 2017, Mendoza, Argentina

URL: <http://ingenieria.uncuyo.edu.ar/sirgas2017/en/>

SIRGAS 2017 Symposium

November 27-29, 2017, Mendoza, Argentina

URL: <http://ingenieria.uncuyo.edu.ar/sirgas2017/en/>

SIRGAS Workshop on SLR in Latin America

November 30 – December 1, 2017, Mendoza, Argentina

URL: <http://ingenieria.uncuyo.edu.ar/sirgas2017/en/>

10th IVS General Meeting

June 3-8, 2018, Longyearbyen, Spitsbergen, Norway

URL: <https://video.kartverket.no/the-10th-ivs-general-meeting>

42nd COSPAR Scientific Assembly

July 14-22, 2018, Pasadena, CA, USA

URL: <http://cospar2018.org/>

21st International Workshop on Laser Ranging

October 27-31, 2018, Canberra, Australia

URL: <http://www.iers.org/IERS/EN/NewsMeetings/ForthcomingMeetings/forthcoming.html>

27th IUGG General Assembly

July 8 – 17, 2019, Montreal, Canada

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

IAG Related Meetings

EUGEO 2017

September 4-6, 2017, Brussels, Belgium

URL: <https://eugeo2017.sciencesconf.org/>

ESA/JRC International Summerschool on GNSS 2017

September 4-15, 2017, Longyearbyen, Svalbard-Spitzbergen, Norway

URL: <http://www.esa-jrc-summerschool.org>

EGSIEM Autumn School for Satellite Gravimetry Applications

September 11-15, 2017, Potsdam, Germany

URL: <http://www.egsiem.eu/autumn-school>

WMESS 2017

September 11-15, 2017, Prague, Czech Republic

URL: <http://www.mess-earth.org>

ION GNSS+ 2017

September 25-29, 2017, Portland, Oregon, USA

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

Geodätische Woche / INTERGEO 2017

September 26-28, 2017, Berlin, Germany

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

ILRS Technical Workshop 2017

October 4-7, 2017, Riga, Latvia

URL: <http://www.ilrstw2017.lu.lv>

HAPS4ESA

October 9-10, 2017, ESA/ESTEC, Noordwijk, The Netherlands

HAPS4ESA - Towards an ESA Stratospheric High Altitude Pseudo-Satellites (HAPS) Programme for Earth Observation, Telecommunication and Navigation

URL: <http://www.haps4esa.org/>

International Workshop on the inter-comparison of space and ground gravity and geometric spatial measurements

October 16-18, 2017, Strasbourg, France

URL: <http://geodesy.sciencesconf.org>

OSTST 2017

October 23-27, 2017, Miami, FL, USA

URL: <https://sealevel.jpl.nasa.gov/science/ostscienceteam/scienceteammeetings/>

6th International Colloquium on Scientific and Fundamental Aspects of GNSS / Galileo

October 25-27, 2017, Valencia, Spain,

URL: <http://esaconferencebureau.com/2017-events/17a08>

LAPIS 2017 School

October 29 – November 4, 2017, La Plata, Argentina

URL: <http://www.maggia.unlp.edu.ar/lapis2017>

AGU 2017 Fall Meeting

December 11-15, 2017, New Orleans, LA, USA

URL: <https://meetings.agu.org/>

LBS 2018

January 15-17, 2018, Zurich, Switzerland

URL: <http://lbsconference.org>

EGU General Assembly 2018

April 8-13, 2018, Vienna, Austria

URL: <http://www.egu2018.eu/>

AOGS 15th Annual Meeting

June 3-8, 2018, Hawaii, USA

URL: http://www.asiaoceania.org/society/public.asp?view=up_coming

IAU XXXth General Assembly

August 20-31, 2018, Vienna, Austria

URL: <http://astronomy2018.univie.ac.at/>

AGU 2018 Fall Meeting

December 10-14, 2018, Washington, D.C., USA

URL: <https://meetings.agu.org/>

EGU General Assembly 2019

April 7-12, 2019, Vienna, Austria

URL: <http://www.egu2019.eu/>

AOGS 16th Annual Meeting

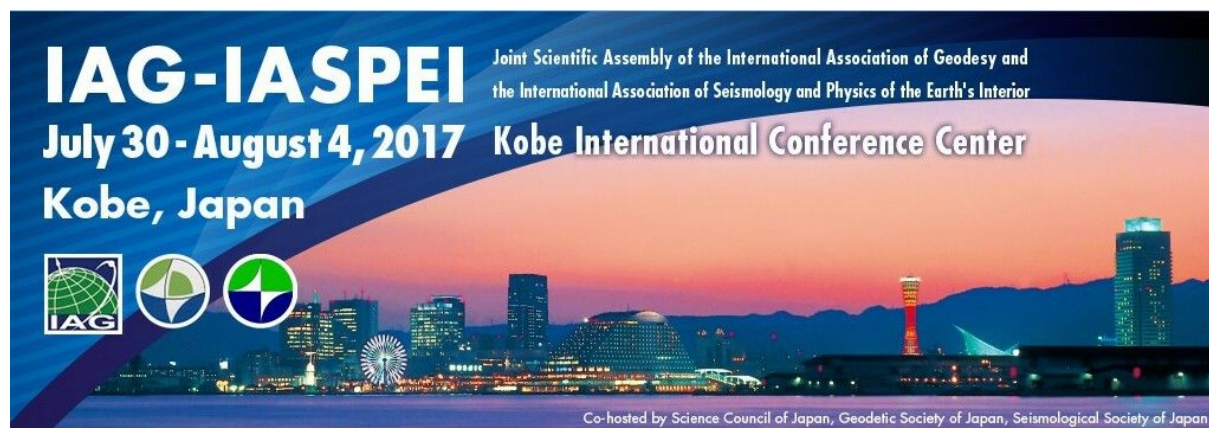
July 28 – August 2, 2019, Singapore, Singapore

URL: http://www.asiaoceania.org/society/public.asp?view=up_coming

Reports

IAG-IASPEI Joint Scientific Assembly

Kobe, Japan, July 30 – August 4, 2017



The International Association of Geodesy (IAG) and the International Association of Seismology and Physics of the Earth's Interior (IASPEI) held for the first time a joint Scientific Assembly from July 30 to August 4, 2017 in Kobe, Japan. Overall 43 symposia were organized, 7 IAG, 27 IASPEI and 9 Joint Symposia. By the deadline, authors from 74 countries had submitted 1270 abstracts, 290 for IAG, 650 for IASPEI and 330 for the Joint Symposia. Altogether 1107 attendees from 65 countries registered, 361 of those with preference for IAG.

In total, 15 IAG travel awards were granted to young scientists for participation and presentation in the assembly. During the IAG Opening Session, IAG young author awards were presented to Xingxing Li, GFZ Potsdam, Germany, and Olga Didova, DUT, The Netherlands, for best publications in the *Journal of Geodesy* in the years 2015 and 2016, respectively (see IAG Newsletter July 2017).

The IAG Symposia were divided according to the IAG structure of Commissions, Services and the Global Geodetic Observing System (GGOS); the Inter-Commission Committee on Theory being involved in all symposia:

- G01 Reference frames (50 presentations);
- G02 Static gravity field (63 presentations);
- G03 Time variable gravity field (38 presentations);
- G04 Earth rotation and geodynamics (31 presentations);
- G05 Multi-signal positioning: Theory and applications (26 presentations);
- G06 Geodetic remote sensing (39 presentations);
- G07 GGOS and Earth monitoring services (43 presentations).

Main topics of the G01 symposium were the International Terrestrial Reference Frame (ITRF), the Celestial Reference Frame and VLBI, regional reference frames and networks, the methodology and implementation of reference frames, and the combination and co-location of space geodetic techniques.

The G02 symposium dealt with the theory and methods of gravity field modelling, gravimetry, regional gravity and geoid determination, applications of the gravity field, satellite altimetry and the marine geoid, and height systems.

Presentations in G03 concentrated on time-varying gravity field estimation, methods and solutions. Current and future satellite gravity missions, mass transport and redistribution, and applications to Solid Earth, atmosphere, cryosphere, and hydrosphere studies were discussed.

The themes of G04 included specific topics of Earth rotation (nutation, EOP, polar motion, angular momentum, excitation functions, etc.) and geodynamics (horizontal and vertical crustal movement and deformation, tectonic elements, and strain measurements).

Principal topics of G05 were indoor and outdoor navigation, single and multi GNSS analyses, and positioning applications.

The G06 symposium addressed in particular the monitoring of the atmosphere (troposphere and ionosphere) and space weather. Methods concentrated mainly on GNSS sensing, VLBI, and GNSS reflectometry.

Themes of the symposium G07 were split into activities on reference frames and gravity, especially those of the GGOS Bureaus, the observation networks and co-locations, and the GGOS focus areas on height systems, geohazards, sea level, and space weather research.

Due to the seismic region of the venue, the joint symposia included particularly themes related to earthquakes and generated deformations:

- J01 Monitoring of the cryosphere;
- J02 Recent large and destructive earthquakes;
- J03 Deformation of the lithosphere: Integrating geodesy and seismology through modelling;
- J04 Geohazard early warning systems;
- J05 Crustal dynamics: Multidisciplinary approach to seismogenesis;
- J06 The spectrum of fault-zone deformation processes (from slow slip to earthquake);
- J07 Tracking the sea floor in motion;
- J08 Imaging and interpreting lithospheric structures using seismic and geodetic approaches;
- J09 Geodesy and seismology general contributions.

In the following, we shall mention specific topics related to IAG activities.

The symposium J01 included contributions to the glacial isostatic adjustment in Antarctica, Scandinavia and North America, glacier velocities, and sea level rise due to melting, using data from absolute gravity measurements and dedicated satellite missions.

In symposium J02, there were studies of co-seismic crustal deformation caused by large earthquakes in different regions of the Earth,

while the symposium J03 dealt with results of post-seismic deformation using GNSS campaign or continuous observations. Time-series analyses and regional deformation patterns were presented using different approaches.

The geodetic contributions in J04 concentrated on real-time observations by GNSS precise point positioning and ionosphere disturbances as well as real-time sea level observations by satellite altimetry.

The symposium J05 included presentations of crustal deformations derived from GNSS and InSAR observations in various seismically active regions of the Earth.

In symposium J06, there were contributions on fault-zone deformations derived from gravity changes and strain-measurements.

Geodetic contributions in symposium J07 concentrated on detecting sea floor deformations by combining GNSS and acoustic observations. In addition, GRACE observations were used for modelling the ocean bottom pressure.

The symposium J08 included studies on the inversion of gravity anomalies and gravity field models for interpreting the lithosphere structure.

The symposium J09 was open to any topic not covered by the other joint symposia. Geodetic contributions dealt with InSAR observations for analysing earthquake types, tide gauge records for tsunami studies, and GNSS observations for specific crustal motions.

There were many innovative and trend-setting contributions in all the symposia. A very positive fact was that the session chairs observed strictly the time for presentations, so there was nearly always time for questions and discussion, and no truncation of talk time. Reviewed papers will be published in the IAG Symposia Series at Springer-Verlag. The deadline for submission is September 30, 2017.



Kobe International Conference Center

HERMANN DREWES
IAG Secretary General