



IUGG



**International Association
of Geodesy**

Newsletter

May 2019

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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

27th IUGG General Assembly, Montreal, Canada, July 8 – 18, 2019



The International Union of Geodesy and Geophysics (IUGG) holds its 27th General Assembly from July 8 to 18, 2019 in Montreal, Canada. The general assembly theme is the celebration of the centennial of the IUGG establishment in Brussels, Belgium, in 1919.

IUGG holds its General Assemblies every four years. Traditionally, the eight constituent associations of IUGG (Cryospheric Sciences, IACS; Geodesy, IAG; Geomagnetism and Aeronomy, IAGA; Hydrological Sciences, IAHS; Meteorology and Atmospheric Sciences, IAMAS; Physical Sciences of the Ocean, IAPSO; Seismology and Physics of the Earth's Interior, IASPEI; and Volcanology and Chemistry of the Earth's Interior, IAVCEI) arrange their General Assemblies in parallel with the IUGG. This enables to hold joint inter-association symposia besides the specific association symposia and a greater involvement in the IUGG symposia.

There will be nine Union Symposia organized by IUGG and each of the associations in cooperation with the IUGG Commissions (Climatic and Environmental Changes, CCEC; Mathematical Geophysics, CMG; Geophysical Risk and Sustainability, GRC; Study of the Earth's Deep Interior, SEDI; Data and Information, UCDI; Planetary Sciences, UCPS), the IUGG Working Group on History (WGH), and the Global Geodetic Observing System (GGOS).

- U1 - Achieving Sustainable Development: The Role for Earth Sciences (IACS, CCEC),
- U2 - Georisk Reduction: Science, Resources, and Governmental Action (IAVCEI, GRC),
- U3 - Mathematics of Planet Earth: The Science of Data (IASPEI, CMG),
- U4 - Data-driven Science for Earth and Space Exploration (IAPSO, UCDI),
- U5 - New Discoveries in Earth Deep Interior (IAGA, SEDI),
- U6 - Recent Advances and Discoveries in Planetary Science and Comparative Planetology (IAMAS, UCPS),
- U7 - Centennial of the International Cooperation in Earth Sciences (IAHS, WGH),
- U8 - Earth and Space Observations (IAG, GGOS),
- U9 - Celebrating Early Career Scientists (IUGG).

In addition, there will be nine Union Lectures given in three special sessions by representatives of the IUGG and associations:

- David Grimes (IUGG): Earth Sciences as the Underlying Pillars to Meet Societal Challenges in the next Century;
- Waleed Abdalati (IACS): Exploring and Understanding Earth from Space: The Power of Perspective;
- Kosuke Heki (IAG): No geodesy, no geophysics;
- Lisa Tauxe (IAGA): Hunting the magnetic field;
- Veena Srinivasan (IAHS): Understanding and transforming water conflicts in the Anthropocene;
- Ed Hawkins (IAMAS): The value of rescuing millions of lost historical weather observations using volunteer citizen scientists;
- Karen Kohfeld (IAPSO): The Ocean's Role in Atmospheric Carbon Dioxide Changes During Ice Age Cycles;
- Vera Schlindwein (IASPEI): Singing seismograms – harmonic tremor signals in seismological records;
- Paolo Papele (IAVCEI): Volcanic giants - what we know, what we think we know, what we can't know about cataclysmic super-eruptions.

The joint symposia are always led by an association with co-conveners from other associations. IAG has the lead of the following Inter-Association Symposia:

- JG01 - Interactions of Solid Earth, Ice Sheets and Oceans;
- JG02 - Theory and Methods of Potential Fields;
- JG03 - Near-Real Time Monitoring of Regional to Global Scale Water Mass Changes;
- JG04 - Geodesy for Atmospheric and Hydrospheric Climate Research;
- JG05 - Remote Sensing and Modelling of the Atmosphere;
- JG06 - Monitoring Sea Level Changes by Satellite and In-Situ Measurements;
- JG07 - Monitoring, Imaging and Mapping of Volcanic Belts;
- JG08 - Earth Systems Literacy: Geophysics in K-16 Class Rooms, Outreach Projects, and Citizen Science Research Projects;

and IAG is sponsoring (with IAG co-conveners) the following Inter-Association Symposia led by other associations:

- JA01 - Geophysical Constraints on the Earth's Core and Its Relation to the Mantle;
- JA02 - Geophysical Data Assimilation;
- JA03 - Geophysical Records of Tectonic and Geodynamic Processes;
- JA06 - Space Weather Throughout the Solar System: Bringing Data and Models Together;
- JA07 - Geoscience Data Licensing, Production, Publication, and Citation (IAGA);
- JA08 - Probing the Earth's Lithosphere and Its Dynamics Using Geophysical Modeling;
- JH02 - Climate and Hydrological Services: Bridging from Science to Practice and Adaptation;
- JP01 - Tides of the Oceans, Atmosphere, Solid Earth, Lakes and Planets;
- JS01 - Cryoseismology;
- JS02 - Early Warning Systems for Geohazards;
- JS03 - Subduction Zone Deformation and Structure: Tracking the Sea Floor in Motion;
- JS04 - Seismo - Geodesy;
- JS05 - Probabilistic & Statistical Approaches in Geosciences;
- JS06 - Old Data for New Knowledge: Preservation and Utilization of Historical Data in the Geosciences;
- JS07 - Integrated Geophysical Programs for Earth Systems Monitoring;
- JV03 - Strain Localisation and Seismic Hazards.

The IAG specific symposia are the main issue of the IAG General Assembly:

- G01 - Reference Systems and Frames;
- G02 - Static Gravity Field and Height Systems;
- G03 - Time-variable Gravity Field;
- G04 - Earth Rotation and Geodynamics;
- G05 - Multi-signal Positioning, Remote Sensing and Applications;
- G06 - Monitoring and Understanding the Dynamic Earth with Geodetic Observations.

For all details of the symposia descriptions and the program, please visit the IUGG2019 Homepage (<http://iugg2019montreal.com/>). The most important deadlines are:

- May 31, 2019: Complete scientific program details published.

IAG invites all geodesists to participate in the General Assembly 2019 and to present their work in one of the symposia. We look forward to seeing you in Montreal!

HERMANN DREWES
IAG Secretary General

Meeting Announcements

Meetings Calendar

IAG Sponsored Meetings

27th IUGG General Assembly

July 8 – 19, 2019, Montreal, Canada

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

Ninth Session of UN-GGIM

August 7 – 9, 2019, New York, USA

URL: <http://ggim.un.org/meetings/GGIM-committee/9th-Session/>

Munich Remote Sensing Symposium 2019 (MRSS19)

September 18 – 20, 2019, Munich, Germany

URL: www.pf.bgu.tum.de/isprs/mrss19/index.html

DORIS Analysis Working Group meeting

September 30 – October 1, 2019, Paris, France

URL: <https://ids-doris.org/ids/reports-mails/meeting-presentations/ids-awg-09-2019.html>

ILRS Analysis Standing Committee (ASC) meeting

October 1, 2019, Paris, France

URL: <https://ilrs.cddis.eosdis.nasa.gov/science/awg/awgActivities/index.html>

5th IAG Symposium on Terrestrial Gravimetry: Static and Mobile Measurements

October 1 – 4, 2019, Saint Petersburg, Russia

URL: <http://www.elektropribor.spb.ru/tgsmm2019/eindex>

GGOS/IERS Unified Analysis Workshop

October 2 – 4, 2019, Paris, France

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

Journées 2019: Astrometry, Earth Rotation and Reference

October 7 – 9, 2019, Paris, France

URL: <https://synte.obspm.fr/astro/journees2019/>

BIPM Workshop on Advanced Time and Frequency Transfer

October 10, 2019, Sèvres, France

URL: <https://www.bipm.org/en/conference-centre/bipm-workshops/advanced-time/>

2019 ILRS Technical Workshop

October 21 – 25, 2019, Stuttgart, Germany

URL: <http://www.dlr.de/ilrs2019>

GGOS Days 2019

November 11 – 14, 2019, Rio de Janeiro, Brazil

URL: <https://iag.dgfi.tum.de/en/meetings-calendar/>

SIRGAS Symposium 2019

November 11 – 14, 2019, Rio de Janeiro, Brazil

URL: <https://iag.dgfi.tum.de/en/meetings-calendar/>

IAG Related Meetings

AOGS 16th Annual Meeting

July 28 – August 2, 2019, Singapore, Singapore

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

Earth & Geo Science-2019

August 12-13, 2019, Prague, Czech Republic

URL: <https://scientificfederation.com/earth-science-2019/>

First International School on “Geoid Modelling, Gravity Inversion and its Applications”

September 9-13, 2019, Gävle, Sweden

URL: <https://www.hig.se/4.6c77c68166435adf0b3d060.html>

4th Symposium of the Committee on Space Research (COSPAR)

November 4-8, 2019, Herzliya, Israel

URL: <http://www.cospar2019.org/>

Reports

Symposium of the IAG Reference Frame Sub-Commission for Europe (EUREF) in Tallinn, May 22-24, 2019.

The symposium of the IAG Reference Frame Sub-Commission for Europe was held in Tallinn, Estonia, May 22-24, 2019. The EUREF2019 symposium was attended by a total of 115 participants from 30 countries. A traditional program with five sessions, including the National reports, was conducted. The science sessions included the reference frames, European geodetic networks, observational techniques and applications. A half-day topical tutorial lectures were organized prior the Symposium, with 60 EUREF participants attending. This year topic was “Transformations using PROJ“. Coordinate systems transformations appears to be a contemporary “hot topic” in geodesy, especially relevant for the concept of the dynamic and semi-dynamic reference systems, e.g., in Iceland and regions of postglacial land uplift.

The symposium agenda was following those from previous years. Program included the reports from reference frame coordinator, EPN analysis centre coordinator and troposphere coordinator. Besides this, many interesting topics were presented, including studies on European deformation model, impacts of usage of mixed GNSS instrumentation on regional GNSS networks and reflections from the tutorial – new transformation tool used in Austria. Continuation to the last year’s resolution about the heights and gravity, in 2019 the EVRF2019 as the new realization of the European Vertical Reference System was presented and adopted, stating that EUREF ... *considering the availability of the new realisation of the European Vertical Reference System (EVRS), recommends to adopt this new realisation under the name EVRF2019 and encourages all the participating countries to agree to the publishing of their EVRF2019 heights on the EUREF website.*

Discussions were held as well about the future usage of RINEX 3 data by the national CORS network managers, what was as well reflected in the symposium resolutions, e.g., EUREF ..., *asks the EPN station operators, who are still supplying data in the old RTCM 2.x format, to change to supplying in RTCM 3.x format and requests data users consider in future to use RINEX 3 data in place of RINEX 2 data.* This will ensure that in future all available satellite systems can be made available for the users.

As the new topics, the invited talks about the atmosphere studies using GNSS data and glacial isostatic adjustment in Europe were presented. This shows the wide usage of GNSS data in different fields of natural sciences. Several talks were committed to as well the deformation studies and the work on horizontal and vertical velocity models, vertical datum and geoid modelling.

In national reports session, altogether 29 national reports, showed the latest achievements in the field of geodesy and reference frames in participating countries. Future insight was given to the existing platforms which

collect the data from the GNSS permanent station. European Plate Observing System (EPOS) has been developed in the last years, and in this EUREF Symposium the resolution was adopted, which ... *recognising that the European Plate Observing System (EPOS) will maintain a sustainable European infrastructure for solid Earth studies from 2020 onwards, including a GNSS infrastructure and related GNSS-based products, ... encourages the EUREF community to also contribute to EPOS especially to its GNSS component.* This might be used as cross-border platform for all interested parties and companies to exchange their data and research results.

This year the elections were performed and changes are in the position of the EUREF Chair, EUREF Governing Board (GB) Chair and EUREF Secretary. The EUREF GB proposed, based on nominations, Martin Lidberg (Lantmäteriet, Sweden) as the new EUREF Chair. This was unanimously confirmed by the Plenary, and the appointment will be done by the President of IAG Commission 1. The GB elected Wolfgang Söhne (BKG, Germany) as the new EUEF GB Chair. New secretary of the EUREF will be Karin Kollo (Estonian Land Board). The three-day Symposium was very active, and well organized. The social event included as well the walking city tour in Tallinn old-town (celebrating its 800-year anniversary) prior the dinner. Many thanks as well to the local organisers and also to the participants for the excellent event, high-level presentations and a great atmosphere. We welcome everyone to the 2020 EUREF Symposium in Ljubljana.

Karin Kollo and Artu Ellmann, LOC
Markku Poutanen, Chair of EUREF 2015-2019



Group photo of the EUREF2019 symposium in Tallinn.