



**International Association
of Geodesy**

Newsletter

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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

IAG-IASPEI Scientific Assembly, Kobe, Japan, July 30 – August 4, 2017



The International Association of Geodesy (IAG) holds its Scientific Assemblies traditionally midterm between two IUGG-IAG General Assemblies. The next one will be held middle of the General Assemblies 2015 (Prague, Czech Republic) and 2019 (Montreal, Canada) together with the International Association of Seismology and Physics of the Earth (IASPEI) in Kobe, Japan, from July 30 to August 4, 2017. There will be nine joint symposia of IAG and IASPEI, and seven IAG specific symposia. The titles are:

Joint Symposia

- J01 Monitoring of the cryosphere
- J02 Recent large and destructive earthquakes
- J03 Deformation of the lithosphere: Integrating seismology and geodesy 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

IAG Symposia

- G01 Reference frames
- G02 Static gravity field
- G03 Time variable gravity field
- G04 Earth rotation and geodynamics
- G05 Multi-signal positioning: Theory and applications
- G06 Geodetic remote sensing
- G07 Global Geodetic Observing System (GGOS) and Earth monitoring services

Most important dates for contributions to the symposium are:

- December 7, 2016: Abstract submission and registration open;
- February 8, 2017: Deadline for abstract submission and travel support application;
- April 5, 2017: Notification of acceptance;
- May 10, 2017: Closure of early bird registration;
- July 7, 2017: Closure of pre-registration.

All interested persons are invited to submit abstracts for oral presentations or posters. For more details of the assembly please visit the Homepage <http://www.iag-iaspei-2017.jp>.

HERMANN DREWES, IAG Secretary General

Fielding Receives 2016 Ivan I. Mueller Award for Service and Leadership

Eric Jameson Fielding (NASA JPL) received the 2016 Ivan I. Mueller Award for Distinguished Service and Leadership at the 2016 American Geophysical Union Fall Meeting, held 12–16 December in San Francisco, California. The award recognizes “major achievements in service and/or leadership to the geodesy community.” <https://honors.agu.org/sfg-awardees/fielding-receives-2016-ivan-i-mueller-award-for-distinguished-service-and-leadership/>

EOS

Officialization of the National Vertical System (new Argentinean Height System)

On December 2, 2016, the *Instituto Geográfico Nacional* (IGN –National Geographic Institute) presented and officialized the new Argentinean Height System. This project, which started in 2010, was comprised of the following stages: a) determination of a new absolute gravity network; b) determination of a new first-order gravity network; c) readjustment of the second-order gravity network; d) determination of new physical heights for all of the spirit-leveling network benchmarks; and e) determination of a new gravimetric geoid model.

Regarding the new absolute gravity network (RAGA), 36 homogeneously distributed sites were measured using two Micro-g LaCoste A10 gravity meters provided by the *Universidade de São Paulo* (USP – University of San Pablo, Brazil) and the Institut de Recherche pour le Développement (IRD – Institute of research for the development, France). The accuracy of the computed gravities was 0.020 mGal.

Regarding the new first-order gravity network (RPO-Ar), 227 sites were measured using five relative gravimeters: three LaCoste & Romberg model G and two Scintrex CG-5. These instruments were provided by the IGN, *Universidad Nacional de San Juan* (UNSJ – National University of San Juan, Argentina), *Universidad Nacional Rosario* (UNR – National University of Rosario, Argentina), and *Universidad Nacional de La Plata* (UNLP – National University of La Plata, Argentina). The measurements were adjusted using the GRAVDATA (Drewes 1978) and GRADJ (Forsberg 1981) software. Additionally, the Hartmann and Wenzel (1995) tidal potential catalogue was applied. The gravity observations were constrained at the 36 absolute RAGA sites. The final adjusted gravity observations have a standard error of less than ± 0.025 mGal.

Regarding the second-order gravity network (RSO-Ar), it is composed of 13,871 points that are co-located with the first-order spirit-leveling network. IGN started the RSO-Ar measurements in 1948 and, therefore, different gravimeters (e.g. Western, Worden, LaCoste & Romberg and Scintrex) have been used for determining the gravities. As with RPO-Ar, gravity observations were processed and adjusted to the RAGA and RPO-Ar networks using the same specialized software and other computer programs developed at the IGN. The standard error of RSO-Ar was estimated to be ± 0.10 mGal.

Regarding the National spirit-leveling network (composed by 2,020 spirit-leveling lines and $\sim 143,000$ km), the new physical heights (geopotential numbers) of 33,891 benchmarks were computed using a least-squares adjustment. Then, orthometric heights (Mader 1954) were determined for each benchmark. The topographic correction was computed using the digital elevation model SRTM_v4.1 (Jarvis et al. 2008) and the method described by Bott (1959). The Argentinean geopotential value W_0 is $62,636,853.8 \text{ m}^2\text{s}^{-2}$ (Tocho et al. 2015) and, therefore, the difference with respect to the W_0 proposed by the International Association of Geodesy in Resolution No. 1 of 2015 is $0.4 \text{ m}^2\text{s}^{-2}$.

Finally, a new gravimetric geoid model named GEOIDE-Ar16 was developed using the remove-compute-restore technique. A combination of the GOCO05S satellite-only global geopotential model together with 658,111 land and marine gravity observations were used for the new model determination. Terrain corrections were calculated using a combination of the SRTM_v4.1 and SRTM30_Plus v10 DTMs for all gravity observations. For the regions that lacked gravity observations, the DTU13 world gravity model was utilised for filling-in the gravity voids. The residual gravity anomalies were gridded using the Kriging method and the resultant grid was applied in the Stokes' integral using the spherical multiband FFT approach and the deterministic kernel modification proposed by Wong and Gore (1969).

J. RICARDO SOTO

Meeting Announcements

Meetings Calendar

10th Coastal Altimetry Workshop

February 21-24 , 2017, Florence, Italy

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

Munich Satellite Navigation Summit

March 14-16 , 2017, Munich, Germany

URL: <http://www.munich-satellite-navigation-summit.org/>

Fourth SWARM Science Meeting and Geodetic Missions Workshop

March 20-24 , 2017, Banff, Alberta, Canada

URL: <http://www.swarm2017.org/>

North-American CryoSat Science Meeting and Geodetic Missions Workshop

March 20-24 , 2017, Banff, Alberta, Canada

URL: <http://www.cryosat2017.org/>

GEODATA 2017

April 3-7 , 2017, Rosario - Santa Fe, Argentina

URL: www.geodata2017.com.ar

EGU General Assembly 2017

April 23-28 , 2017, Vienna, Austria

URL: <http://www.egu2017.eu/>

IAU Symposium 330

April 24-28 , 2017, Nice, France

URL: <http://iaus330.sciencesconf.org/>

Ninth IVS Technical Operations Workshop

April 30 – May 4 , 2017, Westford, MA, USA

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

ENC 2017

May 9-17 , 2017, Lausanne, Switzerland

URL: <http://www.enc2017.eu/>

23rd Working Meeting of the European VLBI Group for Geodesy and Astrometry (EVGA)

May 15-19 , 2017, Gothenburg, Sweden

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

EUREF 2017 Symposium

May 17 – 19, 2017, Wroclaw, Poland

URL: http://www.euref.eu/euref_symposia.html

FIG Working Week 2017

May 29 – June 2, 2017, Helsinki, Finland

URL: <http://www.fig.net/fig2017/>

TransNav 2017

June 21 – 23, 2017, Gdynia, Poland

URL: <http://transnav2017.am.gdynia.pl>

ICC 2017

July 2 – 7, 2017, Washington, DC, USA

URL: <http://icc2017.org/>

IGS Workshop 2017

July 3 – 7, 2017, Paris, France

URL: <http://kb.igs.org/hc/en-us/articles/216574478-IGS-Workshop-2017>

IAG/GGOS/IERS Unified Analysis Workshop (UAW)

July 10 – 12, 2017, Paris, France

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

WCRP/IOC Conference 2017: Regional Sea Level Changes and Coastal Impacts

July 10 – 14, 2017, New York, USA

URL: <http://www.sealevel2017.org>

IAG and IASPEI Joint Scientific Assembly

July 30 – August 4, 2017, Kobe, Japan

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

AOGS 14th Annual Meeting

August 6-11, 2017, Singapore, Singapore

URL: <http://www.asiaoceania.org/aogs2017/>

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>

AGU 2017 Fall Meeting

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

URL: <https://meetings.agu.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

10th IVS General Meeting

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

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

42nd COSPAR Scientific Assembly

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

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

IAU XXXth General Assembly

August 20-31, 2018, Vienna, Austria

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

21st International Workshop on Laser Ranging

October 27-31, 2018, Canberra, Australia

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

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/>

27th IUGG General Assembly

July 8 – 17, 2019, Montreal, Canada

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

AOGS 16th Annual Meeting

July 28 – August 2, 2019, Singapore, Singapore

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

Obituary

Heinz Günther Henneberg (1926 – 2016)



On November 4, 2016, Prof. Dr. Heinz Günther Henneberg, The Zulia University, Maracaibo, Venezuela, passed away at the age of 90 years.

Heinz G. Henneberg was born on January 22, 1926 in Northern Germany. After losing the time of his adolescence as a young soldier in World War II, he studied Geodesy and Civil Engineering at the Universities of Technology in Braunschweig and Hannover and graduated as engineer in Geodesy (Dipl.-Ing.) in 1953. Immediately after his graduation he was entrusted with the leadership of the survey work of two large engineering projects, namely the northern Rhine Bridge in Düsseldorf, Germany, and the Maracaibo Bridge in Venezuela, at that time the longest cable-stayed bridge of the world (8678 m). The tolerance of 2 cm in position and height of the 6 pylons and 135 pillars for mounting the prefabricated concrete elements was an extreme challenge for the surveying by triangulation and trigonometric levelling (back then without electronic instruments). He completed his doctorate at Hannover University in 1962 (Dr.-Ing.) with a thesis on the scientific research of methods and realisation of these two projects.

As a consequence of his excellent work he was appointed to a

professorship at The Zulia University (LUZ), Maracaibo, Venezuela, in 1961, which determined his future life. He was engaged in the survey work of many engineering projects in Venezuela (e.g. the Angostura Bridge spanning the Orinoco, the Rio Limón Bridge in mangrove swamp, and the Guri Lake dam) and their continuous control. Subsequently he broadened his activities to the monitoring of crustal deformation in the subsiding petroleum region along the eastern coast of the Lake of Maracaibo and the horizontal displacements along the boundary zone between the Caribbean and South American tectonic plates (Boconó Fault). From 1966 to 1969 he was the Director of the Geodetic School at LUZ and became President of the Venezuelan Association of Geodesy in 1975. He was member of many national and international professional and scientific federations and received several awards and prizes.

Heinz Henneberg was active in the International Association of Geodesy as Secretary of the Section I "Positioning" from 1979 to 1987, President of the Sub-commission for South America of the "Commission on Recent Crustal Movements (CRCM)" from 1983 to 1995 and Co-President of the joint Working Group "Inter-American Integration of Geodetic Networks" of IAG and the Pan American Institute of Geography and History (PAIGH), which may be seen as a forerunner of the present IAG Sub-commission on the Regional Reference Frame for South and Central America (SIRGAS). In 1993 he became member of the SIRGAS Scientific Committee. During his time as the National Correspondent of Venezuela in the IAG Council he was very engaged in the Venezuelan participation in geodetic research and organised several international symposia. He privately financed the Venezuelan IUGG membership fee in periods of national budget problems.

All geodesists engaged in geodetic research in Latin America will remember Heinz Henneberg as an extremely cooperative and reliable person with many ideas and an always optimistic perspective. Scientists cooperating with him will miss a good and self-forgetful friend. They are feeling deep sympathy for his wife and his five children.

HERMANN DREWES