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IAG Presidential Address

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Dear Guests and Colleagues, dear Ladies and Gentlemen,

I welcome you to the IAG General Assembly, taking place in Montreal on the occasion of the 27th General Assembly of the International Union of Geodesy and Geophysics (IUGG). Chairing this Opening Ceremony is one of my last responsibilities as outgoing IAG President. For IAG, the quadrennial 2015-2019 was a really dynamic and fruitful period. Together with many individuals of the various IAG Commissions, Services, and other components, we have pushed quite a number of new developments and IAG is in a very sound condition today. In Prague four years ago, *Chris Rizos*, then the outgoing President, gave a comprehensive overview presentation about the IAG, its internal structure and tasks. It is published in the [Geodesist's Handbook 2016](#) and I encourage you to look there again. My report here I will make rather short and will just remind you of the most important highlights and innovations since 2015.

For the year 2016, internally, I would like to mention our forthcoming in the strategic planning process; in the outer, political sphere, the establishment of the United Nations Subcommittee on Geodesy was a real breakthrough for global geodesy. Both developments will help us to shape future IAG matters much more efficiently.

The IAG Executive Committee met for its third meeting in the term 2015-2019 at the GFZ German Research Centre for Geosciences in Potsdam, Germany, on April 25, 2016. At this meeting, the IAG final structure 2015-2019 of Commissions 1 – 4, of the Inter-Commission Committee on Theory, and of GGOS was decided. On the next day, an IAG Strategic Planning Retreat was conducted. It was mainly aimed at an IAG SWOT analysis and the following discussion to reveal the current state of the Association. SWOT stands for strengths, weaknesses, opportunities, and threats, and a great number of all of them were identified during the retreat. The retreat which was chaired by IAG Past President

Gerhard Beutler took place in a very open-minded and intensive atmosphere.

Based on the retreat material, a guiding document was formulated that in turn was the basis for the draft strategy document to be discussed and approved at the next EC meeting in Vienna on April 28, 2017, and to be presented to the public, in particular to the IAG Council delegates, at the IAG Scientific Assembly in Kobe in July 2017. This long strategic planning process shall be completed here in Montreal where the IAG Council delegates will be requested for approval of the final version of the strategy document that can be found on <https://office.iag-aig.org/iag-publications-reports-position-papers> → [IAG Strategy 2019](#).

During the first week of August 2016, the United Nations Global Geospatial Information Management (UN-GGIM) sixth session took place in New York which I attended representing the IAG. At this UN-GGIM conference, the UN Committee of Experts on Global Geospatial Information Management endorsed the GGRF (Global Geodetic Reference Frame) Roadmap and decided to establish a permanent Subcommittee on Geodesy. The suggestion to elevate the Working Group's mandate through the establishment of a UN-GGIM Subcommittee on Geodesy was put forward by New Zealand and the proposal was supported by several member states. The IAG welcomed and unreservedly appreciated the establishment of a United Nations Subcommittee on Geodesy. This advancement will augment the impacts of geodesy on the political level as well as its visibility in society. IAG and its Global Geodetic Observing System (GGOS) as promoting geodetic science and coordinating the international geodetic services will strongly support the new Subcommittee whenever necessary and wherever possible.

At the UN-GGIM sixth session in New York, the member states did also endorse the Roadmap for the Global Ge-

odetic Reference Frame as a principle based briefing document for national governments. The Roadmap aims to enhance the GGRF and make it more sustainable. Today, the UN-GGIM Subcommittee on Geodesy consists of about 40 member states and five international and national organizations: besides IAG, they are the International Federation of Surveyors (FIG), SIRGAS Geocentric Reference System for the Americas, the World Health Organization (WHO), and NASA.

IAG developed a Position Paper that contains a description of the Global Geodetic Reference Frame and was adopted by the IAG Executive Committee in April 2016. The purpose of this document is a brief description of the GGRF key components as a realization of the Global Geodetic Reference System (GGRS) and it forms the basis for a common understanding of the GGRF. It thus outlines the IAG's perspective of what the GGRF is, and how it is realized through the contributions of the IAG components.

The Position Paper on the UN-GGIM Global Geodetic Reference Frame (GGRF) adopted by the IAG Executive Committee can be downloaded from <https://office.iag-aig.org/iag-publications-reports-position-papers> → [Description of the Global Geodetic Reference Frame \(GGRF\) by the IAG.](#)

In November 2016, at a meeting with the Springer publishing editor responsible for the IAG Series an important improvement regarding the IAG Symposia Series published by Springer was decided: The Series will be published immediately as eBook, i.e. go online. The procedure is a peer review as before, but each article is being published online a few days after the acceptance by the IAG Editor-in-Chief *Jeff Freymueller*.

IAG's top highlight of the year 2017 was the organization and effective running of the IAG/IASPEI Joint Scientific Assembly in Kobe, Japan, from July 30 through August 4, 2017. The business meetings during the IAG Scientific Assembly in Kobe comprised in particular three IAG Executive Committee Meetings, one IAG Bureau Meeting, and one IAG Council Meeting, and all went very efficiently. The EC's decision to establish new sub-components of IAG Commissions as inter-Association commissions, namely on Volcano-geodesy, Seismo-geodesy, and Cryosphere geodesy, and to establish the two new inter-Commission projects of IAG (on New technologies in geodesy and on Marine geodesy) were very timely.

Of the many IAG highlights of the year 2018, I would like to mention here only a tiny selection, in which I had the honor to participate: These are the successful launch of the German-American satellite mission GRACE-FO (Gravity Recovery and Climate Experiment Follow-On) aboard a SpaceX Falcon 9 rocket from the Vandenberg Air Force Base (California) on May 22, 2018, the inauguration of the

new twin VLBI telescopes at Ny-Ålesund, Svalbard, Norway, on June 6th, 2018, the UN-GGIM conference week with several splinter meetings about the GGRF in New York in August 2018, and two very efficient IAG Executive Committee meetings, the first one in Vienna, Austria, during the EGU General Assembly on April 13, 2018 and the second one in Washington D.C., USA, during the AGU Fall Meeting on December 10, 2018.

At the Eighth Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) held at the United Nations Headquarters in New York from 1 to 3 August 2018, the Roadmap for the Global Geodetic Reference Frame for Sustainable Development Implementation Plan presented by the UN-GGIM Subcommittee on Geodesy was discussed. IAG is participating as an observer in all meetings and related activities of UN-GGIM. At the session, IAG was represented by myself and *Michael Pearlman*, Chair of the GGOS Bureau of Networks and Observations. The IAG delegation made a well-noted intervention for the GGRF agenda item, comprising the following points:

The International Association of Geodesy commends the work done by the UN GGIM Subcommittee on Geodesy, and emphasizes that the Roadmap Implementation Plan is an important building block to determining a sustainable Global Geodetic Reference Frame.

Together with its geodetic services, IAG encourages modernization of geodetic infrastructure, as well as development of Core Observatories, especially in developing regions.

IAG notes that there is a clear need for strengthened intergovernmental mechanisms in support of global geodesy, and notes with appreciation the Subcommittee on Geodesy's efforts to provide this through a Convention or other possible governance mechanisms mentioned in the Position Paper on Governance.

IAG encourages the establishment of funding mechanisms for global geodesy, in order to support geodetic infrastructure and education in developing Member States. IAG further notes that such funding will provide a means to strengthen the GGRF overall, as well as help realize the geodetic contributions to the UN Sustainable Development Goals and Sendai Framework for Disaster Risk Reduction.

Four years ago, at our General Assembly in Prague, I presented to you in my inaugural speech as IAG President the vision, or call it dream or crazy idea, to establish a World Geodetic Organization (WGO) to implement geodetic infrastructure all over the world where it is really needed. That vision is not a dream anymore: In 2019, a Global Geodetic Center of Excellence (GGCE) is in planning process under

UN-GGIM. The proposal of creating a GGCE under the auspices of the United Nations receives strong support. With this element, the Subcommittee on Geodesy has reached a new milestone on the road towards a sustainable GGRF.

Concerning the IAG strategic planning process, the EC finalized the IAG Strategy Document in 2018 as planned. Several of the recommendations and action items postulated in the Strategy Document had already been realized by 2018. The EC decided, for instance, to establish planning groups of the new bodies within the IAG and also as inter-association entities, all to be established at IUGG2019 here in Montreal.

In the following, I will summarize some developments in IAG since 2015. These new entities in IAG were established (new inter-association joint (Sub-) commissions, IAG Projects, or IAG Intercommission Committees (ICC):

- with IASPEI (“Seismo-geodesy”), SC 3.5 from IAG
- with IAVCEI (“Volcano-geodesy”), SC 3.2 from IAG
- with IACS (“Cryosphere geodesy”), SC 3.4 from IAG
- new ICC on “Geodesy for climate research”, approved (Chair: *A. Eicker*)
- new ICC on “Marine geodesy“, approved (Chair: *Yangxi Yang*)
- new IAG Project on “Novel sensors and quantum technology in geodesy”, approved (Chair: *J. Müller*),

the latter dealing with new technologies in geodesy such as quantum technology, optical clocks, and atom gravimeters. Regarding IAG Services, the International Geodynamic and Earth Tide Service (IGETS) was established and is in full operation since 2017 and the revitalization of the International Altimetry Service is under construction. The International Gravity Field Service (IGFS) has now its own, new Product Center on “Combination for Time-variable Gravity field solutions” which will certainly elevate the role and importance of the IGFS. The International Service for the Geoid (ISG) was renamed and had set up a new agreement with IAG.

As the observing system of the IAG, GGOS serves a unique and critically important combination of roles centering upon advocacy, integration, and international relations. In the last four years, GGOS has also experienced a dynamic development: In 2016, the new internal structure was confirmed, the new Coordinating Office was established at BEV, Austria, and the Terms of Reference were updated. In 2017, the new Focus Area 4, Geodetic Space Weather Monitoring, was enacted and *Michael Schmidt*, TU Munich appointed as Chair, the Bureau of Networks & Observations and the Bureau of Products & Standards began operations and *Richard Gross* took over GGOS chairmanship from *Hansjörg Kutterer*.

A few words on IAG publications. The ranking of the Journal of Geodesy with *Jürgen Kusche* as editor-in-chief

increased significantly (IF 4.633 (2017) and 4.528 (2018)). The journal receives more than 300 submissions per year; the acceptance rate is 34%. In 2019, a Continuous Article Publishing (CAP) was decided.

The latest volumes of the IAG Symposia Series are Vol. 147, International Symposium on Earth and Environmental Sciences for Future Generations (2018), Vol. 148, International Symposium on Gravity, Geoid and Height Systems (2018), and Vol. 149, Joint IAG/IASPEI Scientific Assembly, Kobe, Japan, 2017 (2019) and another big step forward is that the IAG Symposia Series will change to open access starting with the upcoming 27th General Assembly.

IAG reports, annual and quadrennial reports, monthly IAG Newsletters, position papers, outreach documents that can be found on the IAG homepage at <https://www.iag-aig.org> are a vivid prove about the various activities of IAG components in the last four years.

The Geodesist’s Handbook <https://link.springer.com/article/10.1007/s00190-016-0948-z> provides information on the IAG history, statutes, bylaws, rules, and membership, a Report of the General Assembly 2015, and structure and program descriptions of the period 2015-2019.

Before coming to the end I have to provide the sad information that during the last quadrennial, the following former IAG officers and outstanding geodesists passed away:

2015: *Suriya Tatevian*, Russia, *Graciela Font*, Argentina, *Hermann Seeger*, Germany, *Camil Gemaël*, Brazil, *John Wahr*, USA

2016: *Heinz Henneberg*, Venezuela, *Alexander Kopaev*, Russia

2017: *Klaus Linkwitz*, Germany, *Dieter Lelgemann*, Germany, *Olumuyiwa Adebekun*, Nigeria, *Barbara Kolarczek*, Poland, *Bernard Guinot*, France, *József Závoti*, Hungary

2018: *Marcin Barlik*, Poland, *Michel Louis*, France, *Hermann Mälzer*, Germany, *Yoshihide Kozai*, Japan, *Jean Dickey*, USA, *Jean Kovalevsky*, France, *Mikhail Prilepin*, Russia

I am coming now to the end of my talk, and of my term as IAG President. I have truly enjoyed doing this work for the past four years. I wish to thank all members of the outgoing IAG Executive Committee, and the many other colleagues who make vital contributions to the IAG Commissions, Services, and other components. Your support, your brightness, your commitment makes IAG the lively and learning organization that is counted on and that is listened to.

I wish the new Executive Committee that was elected by ballot prior to this General Assembly lots of success and stamina for the future! Thank you.