



Global Geodetic Observing System of the International Association of Geodesy

STATUS REPORT 15.10.2016

GGOS Focus Area 1: Unified Height System, and JWG 0.1.2: Strategy for the Realization of the International Height Reference System (IHR)

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Present Status and Progress

The objectives and planned activities of the GGOS-FA1 are described in the Geodesist's Handbook 2016 (Drewes, H., et al., 2016, J Geod 90(10): 1091, doi:10.1007/s00190-016-0948-z). The main goal at present is the implementation of the International Height Reference System (IHR) defined by the IAG 2015 Resolution No. 1 (ibid. page 981). The progress is summarized as follows:

- In December 2015, the joint working group (JWG) *Strategy for the Realization of the IHR* was installed with the objective of developing an appropriate scheme for the realization of the IHR. This JWG is supported by the International Gravity Field Service (IGFS), the Commissions 1 and 2 (Reference Frames and Gravity field) and the Inter-commission Committee on Theory (ICCT). It reports to the GGOS-FA1 and counts at present with 32 members; for more details see ibid. page 1092.
- A brainstorming and definition of action items took place at a JWG meeting carried out during the International Symposium on Gravity, Geoid and Height Systems 2016 (GGHS2016) in Thessaloniki, Greece in September, 2016. This JWG meeting was attended by 70 colleagues and allowed us to identify the activities to be faced immediately (see below).
- To support the implementation of the IAG 2015 Resolution 1, following documents are (being) produced:
 - Position paper *Definition and Proposed Realization of the International Height Reference System (IHR)*, J. Ihde, L. Sánchez, R. Barzaghi, H. Drewes, Ch. Förste, T. Gruber, G. Liebsch, U. Marti, R. Pail, and M. Sideris. Manuscript ready for submission.
 - *A conventional value for the geoid reference potential W_0* , L. Sánchez, R. Čunderlík, N. Dayoub, K. Mikula, Z. Minarechová, Z. Šíma, V. Vatrt, and M. Vojtíšková. Published in J Geod 90(9): 815-835, doi: 10.1007/s00190-016-0913-x, 2016
 - *Vertical datum unification for the International Height Reference System (IHR)*, L. Sánchez and M. Sideris. Manuscript ready for submission.
- A web site summarizing the main characteristics of the GGOS-FA1 has been prepared and is now available at <http://ihrs.dgfi.tum.de/>.

Ongoing activities and planned actions for 2017

- Proposal for an International Height Reference Frame (IHRF): (i) reference network; (ii) collocation with other reference frames (GGOS observatories, ITRF and regional densifications, Absolute Gravity Reference System (IAG 2015 Resolution 2), existing vertical networks); (iii) requirements for the IHRF reference stations (in agreement with GGOS Bureau of Networks and Observations).
- Identification of required standards and conventions for the realization of the IHRF definition (in agreement with GGOS Bureau of Products and Standards).
- Identification of geodetic products associated to the IHRF and description of the elements to be considered in the corresponding metadata (in agreement with the IGFS and the GGOS Bureau of Products and Standards).
- Contribution/interaction of the IHRF with the GGRF (in agreement with the BPS-WG2: Establishment of the Global Geodetic Reference Frame (GGRF)).