



New design and facilities for the International Database for Absolute Gravity Measurements (AGrav): A support for the Establishment of a new Global Absolute Gravity Reference System

Hartmut Wziontek (1), Reinhard Falk (1), Sylvain Bonvalot (2), and Axel Rülke (1)

(1) Bundesamt für Kartographie und Geodäsie, Frankfurt/Main and Leipzig, Germany (hartmut.wziontek@bkg.bund.de), (2) Bureau Gravimétrique International (BGI) / GET, Toulouse, France

After about 10 years of successful joint operation by BGI and BKG, the International Database for Absolute Gravity Measurements "AGrav" (see references hereafter) was under a major revision. The outdated web interface was replaced by a responsive, high level web application framework based on Python and built on top of Pyramid. Functionality was added, like interactive time series plots or a report generator and the interactive map-based station overview was updated completely, comprising now clustering and the classification of stations. Furthermore, the database backend was migrated to PostgreSQL for better support of the application framework and long-term availability.

As comparisons of absolute gravimeters (AG) become essential to realize a precise and uniform gravity standard, the database was extended to document the results on international and regional level, including those performed at monitoring stations equipped with SGs. By this it will be possible to link different AGs and to trace their equivalence back to the key comparisons under the auspices of International Committee for Weights and Measures (CIPM) as the best metrological realization of the absolute gravity standard. In this way the new AGrav database accommodates the demands of the new Global Absolute Gravity Reference System as recommended by the IAG Resolution No. 2 adopted in Prague 2015.

The new database will be presented with focus on the new user interface and new functionality, calling all institutions involved in absolute gravimetry to participate and contribute with their information to built up a most complete picture of high precision absolute gravimetry and improve its visibility. A Digital Object Identifier (DOI) will be provided by BGI to contributors to give a better traceability and facilitate the referencing of their gravity surveys.

Links and references:

- BGI mirror site : <http://bgi.obs-mip.fr/data-products/Gravity-Databases/Absolute-Gravity-data/>
- BKG mirror site: <http://agrav.bkg.bund.de/agrav-meta/>

Wilmes, H., H. Wziontek, R. Falk, S. Bonvalot (2009). AGrav – the New Absolute Gravity Database and a Proposed Cooperation with the GGP Project. *J. of Geodynamics*, 48, pp. 305-309. doi:10.1016/j.jog.2009.09.035.

Wziontek, H., H. Wilmes, S. Bonvalot (2011). AGrav: An international database for absolute gravity measurements. In *Geodesy for Planet Earth* (S. Kenyon at al. eds). IAG Symposia, 136, 1035-1040, Springer, Berlin. 2011. doi:10.1007/978-3-642-20338-1_130.