

SG 2.1 Comparisons of Absolute Gravimeters

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Terms of Reference

Absolute ballistic gravimeters have become the primary measurement standards in gravimetry in the field of the measurement of free-fall acceleration. Currently the only way to determine the level of accuracy of the absolute ballistic gravimeters and provide the uniformity in absolute measurements of free-fall acceleration is by a comparison of the results of their measurements.

The principal task of the Special Study Group consists of organization (in collaboration with the BIPM (<http://www.bipm.org>), Working Group on Gravimetry of Consultative Committee on Mass and Related Quantities – CCM WGG) of the four-year period International Comparisons of Absolute Gravimeters (ICAGs) at the BIPM and Regional International Comparisons of Absolute Gravimeters (RICAGs) at the sites selected on a continental scale. The next Eighth ICAG should be held in 2009.

The increasing demand for reliability and confidence in absolute gravity measurements requires further improvement of a technical protocol, developed for the first time for the Seventh ICAG in 2005, for the future ICAGs and RICAGs. Such a protocol should be developed according the rules of the international Mutual Recognition Arrangement for national measurement standards and for calibration and measurement certificates issued by National Metrology Institutes.

The relevance to the SG is that its members are the specialists from geodetic and geophysical communities, as well as the metrological community and this study group is more to participation than more official CCM WGG where the membership is related to the institutes responsible for the traceability in gravimetry. Such intercommunications within the Study Group as well as a linkage between this group and CCM WGG will make it possible to develop the ICAGs and RICAGs technical protocol accepted by both communities.

The sites for regional comparisons of absolute gravimeters (in America, Asia, Europe, and Africa) should be recommended by the geodetic-geophysical community and related to regional structures of metrology community (Regional Metrology Organization, for example, EURAMET – European Metrology Organization, SIM – Inter-American Metrology System, etc.).

Objectives

- The organization (in collaboration with the Bureau International des Poids et Mesures (BIPM) and Working Group on Gravimetry of Consultative Committee on Mass and Related Quantities (CCM WGG) of the four-year period International Comparisons of Absolute Gravimeters (ICAGs) at the BIPM and Regional International Comparisons of Absolute Gravimeters (RICAGs) at the sites selected on a continental scale.
- The selection of the sites for regional (on a continental scale) comparisons of absolute gravimeters in collaboration with other working groups of Sub-Commission 2.1, CCM WGG and inter-commission SC 2.1 – IGFS Working Group on Absolute Gravimetry.

Membership

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