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# The absolute gravity network of Italy in the framework of the ITGRS/ITGRF

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The activities for establishing the Italian Reference Gravity Network started in 2022. This is in line with the actions promoted by the International Association of Geodesy that during its 2015 General Assembly approved a resolution on the establishment of the new global gravity network the so-called International Terrestrial Gravity Reference System/Frame that will replace IGSN71. An initial set of 30 stations has been defined over the peninsular part of Italy and the two main islands of Sicily and Sardinia. Particularly, the GGOS core station of Matera (the Agenzia Spaziale Italiana Center for Space Geodesy “Bepi” Colombo) is one of the network points as required in the documents of the GGOS-Bureau of Networks and Observations. Thus, this station will provide one link between the Italian national absolute gravity network and the GGOS observation system of IAG. In order to ensure the measurements traceability, as required by the international standards on gravity measurements, the absolute gravimeters used in the measurements participated in international comparison campaigns. Absolute gravity measurements have been supplemented with direct measurements of the local value of the vertical gravity gradient, in order to reduce the absolute values, measured by different instruments at different heights, to an intermediate and common reference height and to the ground reference level to transport it to an external associated station. The gravity field campaigns have been assisted by topographic survey campaigns, allowing a centimetric georeferencing of the gravity stations to the current ITRF. The collected data will be then validated and reduced following the internationally accepted standards and finally published through a dedicate web page of the project. These data will also be submitted to the absolute gravity database maintained by the Bureau Gravimétrique International/Bundesamt fuer Kartographie und Geodaesie where the absolute gravity data that will contribute to the new global absolute gravity reference system are collected.

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