

Gravimetry in the Italian area: future developments and perspectives

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In Italy, gravimetry is largely carried out since '80 to study and monitoring active volcanoes of central-southern and insular Italy, but was not extensively applied in seismic areas, except in Central Italy, where gravity measurements have been performed since 2018, aimed to study the dynamics of the main tectonic processes, also including absolute stations already present and measured in the area for different purposes. Here we present the state-of-the-art of the gravimetry in Italy and the developments and perspectives. Specifically, in order to lay the foundations for a multidisciplinary approach to natural risk assessment, a large-scale gravity network in Italy, which in the most advanced development will consist of about 10 sites, homogeneously distributed throughout the country, is under realization. The network will allow for determining the temporal variations of the long-term and long-wavelength gravity field in seismic and volcanic areas. The sites will be equipped with absolute or relative gravimeters in continuous or pseudo-continuous recording (e.g. 1 measurement every week). For this purpose, superconducting gravimeters and atomic and ballistic absolute gravimeters will be used, the only instruments capable of providing a highly precise and stable signal even in the long term. This network, will supplements the newly established National Reference Gravimetric Network (G0) and the National Gravimetric Service in the planning stage

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