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## Indoor height determination of the new absolute gravimetric station of L'Aquila

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In 2018 INGV funded a project aimed to detect gravity variations and ground deformations over different time-scale possibly associated with the postseismic relaxation affecting the area where the recent seismic events of L'Aquila (2009 Mw 6.3) and Amatrice-Norcia (2016 Mw 6.1 and 6.5) took place. To this aim a network of five absolute gravity stations was realized (Terni, Popoli, Sant'Angelo Romano, L'Aquila University and L'Aquila Laboratori Nazionali del Gran Sasso). The site of L'Aquila University was chosen since location of the permanent GNSS station (AQUI) managed by the Italian Space Agency and contributing to the EUREF network. AQUI is continuously operating on the roof of the Science Faculty (Coppito, L'Aquila).

In the basement of the same building we realized the absolute gravimetric station (AQUIg), indoor the Geomagnetic laboratory of the Physics Department. This is one of the numerous applications where satellite systems must be integrated with traditional terrestrial surveying techniques. These include the case of underground or indoor gravimetric surveys, where the height of the gravimetric reference point should be determined precisely starting from an outdoor reference point with known coordinates. In this case, the use of classical observation techniques and instruments (e.g., total stations, levels) is crucial to measure the height difference between a reference GNSS station and a gravimetric benchmark. We will draw the steps followed to estimate the height difference between AQUIg and AQUI by a classical topographic survey and therefore the height of AQUIg from estimating first the height of AQUI.