

Intelligent Earth system sensing, scientific enquiry and discovery

Gravity Monitoring at the Conrad Observatory (CO)

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Abstract:

The Conrad observatory (Austria) hosts a permanently running superconducting gravimeter (GWR C025) since 2007. Superconducting gravimeters do not measure the modulus of the gravity vector, but its temporal variation. In addition, they have a small instrumental drift. Therefore, they have to be calibrated regularly by absolute gravimeters observing common gravity signal site by site. Absolute gravity measurements at CO were performed by the absolute gravimeter JLAG-6 between 2007 and 2009 and by FG5-242 since 2010. The observation data is analyzed together with the SG results. Although the FG5 gravimeters represent the newest standard in absolute gravimetry, the measurements were affected from abnormal helium concentration in the gravity laboratory of the observatory originating from small but permanent liquid helium loss of the superconducting gravimeter. Therefore, all gravity measurements of the Austrian FG5/242 have been checked accurately for the oscillator influence. Since 2011 the pulse frequency of the oscillator and its drift rate are regularly checked at the BEV metrology department.

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