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# High precise gravity monitoring in Austria - examples and accuracy assessment

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Over the past twenty years absolute gravity measurements have been performed by the Federal Office of Metrology and Surveying (BEV) in Austria by means of absolute gravity meter JILAg6. At some stations gravity is monitored periodically, e.g. for checking the absolute reference frame (ECGN, UNIGRACE, etc...). The absolute gravity measurements are often combined with relative gravity measurements to determine the local vertical gradient and to establish the national or local gravity network.

The long data series of absolute and relative gravity measurements at some interesting stations in Austria (Obergurgl, Gradenbach, Graz and Vienna) offer the possibility to determine gravity changes due to geophysical and geodynamic aspects.

Nowadays gravity can be observed with an accuracy close to the microgal level ($1\mu$Gal = 10 nm/s$^2$). The accuracy of highly precise gravity measurements is influenced by a lot of factors that have to do with the instrument that is being used (calibration, etc...) and environmental factors which have to be taken into account to avoid wrong geodynamic or geophysical conclusions.

In this presentation an accuracy assessment of (absolute and relative) gravity measurements will be given as well as some results of gravity changes in Austria. Emphasis will be put on gravity changes induced from groundwater and snow mass balance changes and the methodology for measuring and modelling.