

On the capability of modern high precision gravity time series

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Superconducting Gravimeters (SG) are the most accurate tool for ground-based observations of temporal gravity changes in both the time and frequency domain. The analysis of SG gravity time series provides information about mass transport and deformation phenomena in broad spatial and temporal scales. Careful calibration and data pre-processing is required for properly investigating gravity signals caused by geodynamic, atmospheric or hydrological processes. Preprocessing often makes use of independent data sets allowing for modeling those effects that are regarded as undesired noise in the gravity time series dependent on which phenomenon is going to be studied. Therefore, the accuracy by which specific gravity signals can be extracted is limited by the quality of the applied models, processing methods and the calibration accuracy. This paper presents some examples from the SG operated at the mid-continental stations Vienna and Conrad observatory in Austria (Europe).