



## **Stability investigation of gradiometric inverse problems for anomalous gravity tensor components**

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In principle, every component of the gravity tensor measured on satellite orbits can be used to obtain the gravity anomalies on the Earth surface. Theoretical relations can be derived both in spectral and spatial forms. In this contribution we are focused on the spatial integral form. It is obvious that the inverse problems formulated for particular components reveal different behaviours in terms of numerical stability of the solution. The numerical stability of particular solutions in terms of condition numbers is investigated for the GOCE-like simulated data. Subsequently, the quality-based singular value decomposition method is applied for numerical stabilisation of the inverse problem solutions. The optimal discretisation step and the integration area for particular anomalous gravity tensor components are discussed and finally, the possibility of the combined solution, which takes some and/or all of the anomalous gravity tensor components into account, is studied.