First Data Analysis of MunGyung Superconducting Gravimeter in Korea

Jeong Woo Kim, Juergen Neumeyer, Taehee Kim, Ik Woo, and Hyuck-Jin Park

A new Superconducting Gravimeter (SG) was installed at MunGyung (MG), Korea, where geodetic and geophysical instruments are combined for the Korean National Lab Project "Optimal Data Fusion of Geophysical and Geodetic Measurements for Geological Hazards Monitoring and Prediction." For installing the SG, a new measuring hut with the grounded pier was built. The SG has been operating since March 2005. In addition, local atmospheric pressure has been recorded and a borehole was drilled in September 2005 close to the SG site for measuring groundwater level changes. At MG site a GPS ground station is also being operated with borehole seismic accelerometer. First calibration coefficient was determined based on the theoretical tides. After pre-processing, the first tidal analysis has been performed and compared with the Wahr-Dehant model parameters. The atmospheric pressure and ground water level induced gravity variations are shown. From the gravity residuals, the drift characteristics of the SG was estimated. When analysing the gravity data, a disturbing oscillation was detected. The oscillation was spectrally analyzed and compared with the behaviour of the SG tilt levelling system to search for a reason.