

Observation of Hydrological Effects on Gravity by Using a Scintrex CG-3M Gravimeter: A Case of Typhoon 200709 at AVO

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We carried out continuous gravity observation with a Scintrex CG-3M gravimeter at Asama Volcano Observatory from September 4 to October 22 in 2007. We tried to detect hydrological gravity effects after heavy rainfall by Typhoon 200709 (FITOW). To detect hydrological gravity effects we supposed a simple tank model as proposed for the Matsushiro SG observation, which model represented immediate gravity increase and gradual decrease after rainfall. Optimum parameters of the tank model were estimated using an ABIC minimization inversion method and precipitation data as inputs. As a result, hydrological gravity effects were extracted from gravity residuals although gravity residuals included a large non-linear drift. And the extracted hydrological gravity effects corresponded to temporal gravity changes simultaneously observed with an FG5 absolute gravimeter. Our success promises expanding opportunities of the cycling mode use of CG-3M gravimeters in the future.