On the anomalous temporal gravity change between VERA and F-net stations at Ishigakijima, Japan

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Continuous gravity and hydrological observations at Ishigakijima revealed that the gravity difference between the F-net station (gPhone) and the VERA station (superconducting gravimeter) is closely related with the change in the soil water content near the F-net station. It was also noted, however, that the gravity difference did not indicate significant changes on some occasions of heavy rainfall. In addition, our precipitation response model did not predict the observed gravity change well for a particular period expanding a few tens of days. Here we reexamine our data of precipitation, soil moisture, and underground water level as well as gravity, to refine our model of the hydrological effects on gravity at Ishigakijima.

