

Gravity anomaly map of Nagura River Basin, Western Ishigaki Island

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The gravity survey and gravity anomaly map reveal the geological structures. We have conducted the absolute and relative gravity measurement to understand the topographic features of the basement at Nagura River Basin, Western Ishigaki Island. Combination of absolute and relative gravity measurements is termed “hybrid gravimetry” (Okubo, 2001). The hybrid gravimetry can scale all relative measurement to gravity acceleration in the absolute sense by using an absolute gravimeter as the base of relative gravity measurements. The gravity acceleration at the VERA Ishigakijima station measured using an absolute gravimeter (FG5 #217) is $g = 979002.518$ mGal. We obtained gravity acceleration values using relative gravimeters at 63 stations from 2013 to 2014. The gravity acceleration values are scaled on the basis of the observed gravity acceleration at the VERA Ishigakijima station and the Gravity Standard of GSI at a meteorological observatory of Ishigakijima. We made gravity anomaly maps of Nagura river basin by compiling gravity data obtained in this study and existing database (Honda et al., 2012). Bouguer gravity anomaly gradually decreases from the Nagura Bay to the foot of Mt. Omotodake. This gravity map implies the existing of the low-density sediments in the Nagra River basin especially at the foot of the Mt. Omotodake. These results are consistent with the observation of the bowling at the foot of the Mt. Omotodake.

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Keywords: gravity survey, absolute gravity measurement, Ishigaki Island