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Re-analysis of Gravity Anomaly around the Tertiary forearc basin of Miyazaki Plane

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This paper describes structure of the Tertiary forearc basin of the Miyazaki Plane in Southwest Japan based on re-analysis of Gravity Anomaly. Gravity data sets used were 1) free-air anomalies restored from data included in a gravity measurement database in 'Gravity CD-ROM of Japan, Ver.2' (GSJ, 2004), and 2) free-air anomalies compiled in 'Gravity Database of Southwest Japan' (Shichi and Yamamoto, 2001). After Bouguer anomaly was calculated with average density of 2.35 g/cm3. Short-wavelength residuals of the Bouguer anomaly due to shallow (upper crustal) structures were derived by removing long-wavelength trends calculated by means of upward continuation. The length (height) of continuation was 3 km, so the residuals may represent geological structures shallower than 1-2 km. The short-wavelength Bouguer anomaly map shows NE-SW trending line associated with the geological structure, and distribution of the Miyazaki group filling the forearc basin. The steep gravity gradient that substantially coincides with the western margin of the Miyazaki group, forms some curve convex to the west, suggest that the Tertiary forearc basin is divided into the northern, central and southern basin.

Keywords: forearc basin, Gravity Anomaly, Coparison of Variance of Upward Residual, steep gravity gradient