



New gravity anomaly map in Taiwan and its neighboring region with some tectonic interpretations

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In this study we compile recently collected (from 2005 to 2014) and old (published and open access) gravity data including land, shipborne and satellite-derived in Taiwan and its neighboring area. Based on the cross-over error analysis, all data were adjusted accordingly then new Free-air gravity anomaly can be obtained which shedding light on the tectonics. To obtain the Bouguer gravity anomalies, the densities of land terrain and marine sediments were assumed to be 2.53 and 1.80 g/cm³, respectively. The updated gravity dataset is gridded with a spacing of one arc-minute. Several unnoticed gravity features are revealed by the new maps and can be used in a broad range of applications. (1) An isolate gravity high located between the Shoushan and the Kaoping Canyon off southwest Taiwan. (2) Along the Luzon Arc, both Free-air and Bouguer gravity anomaly maps reveal a significant discontinuity gravity feature at the latitude of 21°20'N. (3) In the southwestern Okinawa Trough, the NE-SW trending cross-back-arc volcanic trail (CBVT) marks the low-high gravity anomaly (both Free-air and Bouguer) boundary.