Geophysical Research Abstracts
Vol. 14, EGU2012-7315-1, 2012
EGU General Assembly 2012

Computation of Complete Bouguer Anomalies using Satellite Marine Gravity Models in East Sea, Korea

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This study describes the results of complete Bouguer anomalies computed from the Free-air anomalies that derived from Sandwell and DNSC08 marine gravity models in East sea, Korea. Complete bouguer corrections consist of three parts: the bouguer correction (Bullard A), the curvature correction (Bullard B) and the terrain correction (Bullard C). These all corrections have been computed over the East Sea on a 1'$\times$1' elevation data (topography and bathymetry) derived from ETOPO1 global relief model. In addition, a constant topographic (sea-water) density of 2,670 [U+338F]/[U+33A5] (1,030 [U+338F]/[U+33A5]) has been used for all correction terms. The distribution of complete bouguer anomalies computed from DNSC08 are the range of -34.390 $\sim$ 267.925 mGal, and those from Sandwell are the range of -32.446 $\sim$ 266.967 mGal in area of East Sea. The mean and RMSE value of the difference between DNSC08 and Sandwell is 0.036 $\pm$ 2.373 mGal. The highest value of complete bouguer anomaly are found around the region of 42 [U+FF5E] 43°N and 137 [U+FF5E] 139°E (has the lowest bathymetry) in both models. These values show that the gravity distribution of both models, DNSC08 and Sandwell, are very similar. They indicate that satellite-based marine gravity model can be effectively used to analyze the geophysical, geological and geodetic characteristics in East Sea.