

## Comparison of Different Gravity Field Implied Density Models of the Topography

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### Abstract

Density within the Earth crust varies between 1.0 and 3.0 g/cm<sup>3</sup>. The Bouguer gravity field measured in south Iran is analyzed using four different regional-residual separation techniques to obtain a residual map of the gravity field suitable for density modeling of topography. A density model of topography with radial and lateral distribution of density is required for an accurate determination of the geoid, e.g., in the Stokes-Helmert approach.

The apparent density mapping technique is used to convert the four residual Bouguer anomaly fields into the corresponding four gravity implied subsurface density (GRADEN) models. Although all four density models showed good correlation with the geological density (GEODEN) model of the region, the GRADEN models obtained by high-pass filtering and GGM high-pass filtering show better numerical correlation with GEODEN model than the other models.

**Key words:** Bouguer anomaly, regional residual separation, density model.