Calibration of the Gravimetric Crustal Depth Model in Iran Based on the Sparse Seismologic Data

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A new crustal depth model computed for Iran based on the inversion of gravity data. The Bouguer gravity anomaly data are computed based on the 25105 sparse gravity data with combination of ASTER digital elevation model. However, the accuracy of the inversion of gravity data approach depends on the quality, quantity and distribution of the original gravity data. Determination of the crust depth based on the seismological data is another independent method which is basically point-wised but more precise than the inversion approach. In order to reduce the effect of datum and systematic errors in inversion method and taking advantage of the precise seismological model, we decided to calibrate the gravimetric Moho depth model versus 30 seismological data. In general, gravimetric model agree well with the seismological estimates derived from receiver function analysis. Small deviations in the two methods can reflect systematic errors in gravity data as well as density errors in calculating the terrain gravity effects and crustal-mantle rock density contrasts. The corrective surface generated based on the differences between two models by using the Cubic Spline method. The calibrated gravimetric model evaluated again versus 10 independent seismological data. The new combined model gives very good agreements comparing the original gravimetric model.