

Gravimetric Analysis in and around the Suruga Bay

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The predicted hypocentral region of the Tokai earthquake is believed to be extended towards the west. As understood from the Hyogoken-Nanbu earthquake, there is a close correlation between earthquake disasters and subsurface structures. Thus, a detailed study of the subsurface structures in and around the Tokai region are needed to reduce the disasters due to the Tokai earthquake, where may occur in near future.

In the present study, we made an attempt to estimate the detailed subsurface structures in and around the Suruga Bay, a quadrangle of latitude 34 deg. 40 min. - 35 deg. 30min. N and longitude 138 deg. - 139 deg. E. This region is located in the eastern part of the predicted hypocentral region of the Tokai earthquake and has a grater possibility of large scale earthquake damages. For the estimation of the subsurface structures, we used Bouguer gravity anomalies (including Ship-borne data) given by the optimized Bouguer density (2.3 g/cm³) in this region together with other available geological and geophysical information such as, fault locations, surface geology, drilling core data and seismic prospecting data. In the modeling, we applied the spectral analysis for the estimation of average depth distributions of subsurface layers (sedimentary layer and basement) and employed both inverse and forward modeling for estimating undulations of each subsurface layer.