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Investigations of the gravity profile below the Tibetan plateau

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Scientists pay great attention to the structure and dynamics of the Tibetan plateau due to the fact that it is a natural experiment site for geoscience studies. The gravity profiles below the Tibetan plateau with successive high-accuracy play more and more significant role in studying the structure and evolution of the Tibetan plateau. This study focuses on determining the inner gravity field of the Tibetan plateau until to the depth of D and interpret possible mechanism of the gravity profile below the Tibetan plateau, especially reinvestigating the isostasy problem (Pratt hypothesis and Airy hypothesis). The inner gravity field below the Tibetan plateau is determined based on a simple technique (i.e. a combination of Newtonian integral, downward continuation of gravity field, and "remove-restore" scheme) and the following datasets: the external Earth gravitational model EGM2008 and the digital topographic model DTM2006.0 released by NGA (National Geospatial-Intelligence Agency, USA), and the crust density distribution model CRUST2.0 released by NGS (National Geological Survey, USA). This study is supported by Natural Science Foundation China (grant No.40974015; No.41174011).