Gravity change in the southeast Tibetan Plateau caused by crustal movement

*Jiapei Wang

Combining crustal movement with gravity change, which is the key problems to analysis and understand the dynamic about the interior of the earth , also is one of the most important ways to study. We can more directly monitor and study the movement process of material inside the earth through plenty of high-precision space-to-ground survey and surface gravity data.Walsh(1975),Reilly, Hunt(1976) analysed the problem combining the surface deformation with gravity change in theory for the first time; Chen .et al(1980) improved the theory and gave the calculation formulas about the surface gravity change caused by deformation and material movement in certain areas; On this basis, Shen et al(2005,2007) propose the thought and theory of coupling movement of crustal deformation and density changes, and derived the equation of gravity potential caused by crustal movement general time-space domain further. On the other hand, Duan(2011) and Liu (2015) simulated the gravity change in the Tibetan Plateau by translational motion of vertical cuboid.In this study, with theory of coupling movement of crustal deformation and density changes and translational motion of vertical cuboid, we separately applied compound trapezoid formula and the latest crustal models to research the gravity change features caused by crustal movement in the Southeast of Tibetan Plateau.

Keywords: Gravity change, coupling movement, crustal deformation, density changes, Southeast of Tibetan Plateau