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The effect of digital terrain model resolution in geoid computations without applying Stokes formula

Case Study: southern coast of Iran

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Geoid is determined based on a Remove-Compute-Restore procedure. For computing the effect of topography, in remove or restore step, we need accurate topography. Nowadays, topography is presented as digital terrain model (DTM) with different resolution. Studying the effect of DTM resolution on geoidal height is topic of this paper. In this study DTM of U.S. Geological Survey's EROS Data Center with resolution 30 seconds and DTM of SRTM with resolution 3 seconds are compared for the their effect on geoid height. The numerical results show that using high resolution DTM of SRTM has increased accuracy of geoid computations.