



Estimation of the effect of distant zones in gravity modeling of the lithosphere.

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3D gravity modelling of the lithosphere is a powerful tool to understand its structure and dynamics. It becomes more and more popular last years in regional modelling as soon as growing amount of seismic data provides a basis for such studies. One of the main problems within this approach is to take into account the effect of distant zones - structures located outside of the study area. It is often assumed that removing of the average value from model parameters is sufficient. However, it is demonstrated in this study that the effect of lithosphere structures outside a study area is very significant and may completely mask the effect of density heterogeneities, which are of a primary interest. It is suggested using a global crustal model to take into account the effect of distant zones. We estimate the gravity effect (gravity field and geoid) of the main crustal heterogeneities located outside a specified radius from calculating points up to antipodes (2 and 5 degree in this study). Despite global models are rather coarse, their resolution is sufficient for these purposes. After that, it is possible to perform detailed gravity calculations within this radius and then add the effect of distant zones, which was computed before hand. The distant effect of the main lithosphere heterogeneities (sedimentary basins, crystalline crust, Moho and upper mantle) has been estimated and may be provided for a scientific community.