



Crustal thickness estimated using data from gravimetric satellites

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Computing a better crustal thickness model is still a necessary improvement in Antarctica. In this far continent where almost all the rocky surface is covered by the ice sheet, and gravity field observations is a complementary information to seismic investigations for geological and geophysical purposes. We computed a global map of Antarctic crustal thickness based on space gravity observations. For this purpose, the gravity field model built from GOCE and also GRACE gravimetric data is inverted, and the BEDMAP products are used to estimate the gravity effect of the ice and the rocky surface. Our result is compared to crustal thickness provided by seismological studies (receivers functions, CRUST1.0 and AN1 models) showing a good agreement. However, our model derived from gravimetric satellite show a better spatial resolution and it is possible to identify specific geological structures over the whole continent. Finally, we adjust the crust/mantle density contrast considering the CRUST 1.0 model moho depth estimates. In East Antarctica, the density contrast clearly shows higher values than in West Antarctica.