



## Glacial Isostatic Adjustment over the Amundsen Sea Sector inferred by means of geodetic observations

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Using GRACE-derived monthly gravity field solutions and campaign-wise laser altimetry data provided by ICESat, mean present-day changes of mass and volume over the Amundsen Sea Sector, West Antarctica, are derived. Since a priori a GIA model is not used to correct the observations the combination of both observational results allows to infer the mean GIA-induced mass change. This GIA-induced mass change is found to be significantly larger than predicted by current GIA models. In order to validate this finding, the inferred mean GIA-induced elevation change is compared to the uplift rates observed at three GPS sites. For this purpose, the observed uplift rates are corrected for elastic crustal deformations due to present-day ice-mass changes, which are derived from ICESat-observed high resolution surface height changes. Finally, the impact of the newly inferred GIA correction for the Amundsen Sea Sector on GRACE-derived present-day ice-mass change estimates and their corresponding sea-level contribution are discussed.