



Estimated error of modelled OBP and its influence to a joint inversion

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Within the project JIGOG (joint inversion of GPS site displacements, ocean bottom pressure and GRACE gravity) weekly OBP anomalies are modeled for the period of time from 2003 to 2007 using the Finite-Element Sea-Ice Ocean Model (FESOM, Timmermann et al., 2009). Error estimation is a crucial aspect when modeling OBP anomalies. A major error source is the dependence of the global fresh water balance on the atmospheric conditions, which are forcing the model. Therefore, the error of modeled OBP anomalies is estimated by investigating the impacts of atmospheric datasets, either from NCAR/NCEP or ECMWF, to the model results. The estimated error is included as a weighting term in a joint inversion of modeled OBP anomalies, GRACE gravity data and GPS site displacements to provide variations of ocean mass. The influence of the estimated error on the inversion is presented. Introducing the error into the inversion implies a higher weighting of modeled OBP. It slightly decreases the variability of ocean mass mainly in the higher latitudes. All results are compared with time series measured ocean bottom.