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Ocean mass time series from GRACE: influences of corrections, masks and filters

Roelof Rietbroek and Bernd Uebbing
University of Bonn, IGG, APMG, Bonn, Germany (roelof@geod.uni-bonn.de)

Up to date, the GRACE satellite mission is an indispensable tool for retrieving oceanic mass variations. Such time series are essential to separate global mean sea level rise in thermosteric and mass driven contributions. The computation of an ocean mass time series requires several processing steps; besides choosing a suitable GRACE product from one of the processing centers, masks and possible filters need to be applied in either a spatial or spectral domain. In addition, several corrections, related to e.g. spatial leakage, Glacial Isostatic Adjustment and geocenter motion, need to be accounted for.
In this study, we quantify the effects of several processing choices on the ocean mass time series. For this means, we vary the processing centers, spherical harmonic truncation, variants of the geophysical corrections, masks and filters in order to asses the effect it has on GRACE derived ocean mass time series. Furthermore, the influence of the processing on a simulated mass signal will also be tested on a realistic simulated ocean mass distribution.