



Enhanced spatial resolution of the ocean de-aliasing model – Improved GRACE gravity field time series

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Within the de-aliasing process during the calculation of monthly mean GRACE gravity fields, short-term atmospheric and oceanic mass variations as predicted by numerical models are used to correct the GRACE measurements. Our goal is to improve this de-aliasing process, as it appears to be one of the limiting factors of the current GRACE gravity field performance.

In order to reach an optimal modelling of these high-frequent mass variations, we calculated different versions of de-aliasing products by changing input parameters and settings for the de-aliasing process. In particular, we used output from a recent simulation of the Ocean Model for Circulation and Tides (OMCT) that offers enhanced spatial resolution when compared to the model version currently employed in the standard de-aliasing product AOD1B RL04 that is routinely provided together with the GRACE Level-1b datasets.

Within this work, especially K-band range-rate satellite-to-satellite tracking residuals, as an intermediate gravity field result and gravity field solutions based on the enhanced spatial resolution of the ocean model are analyzed. Recent results indicate that the K-band range-rate residuals could be significantly improved (reduced).