



Reprocessing the GRACE-derived gravity field time series based on data-driven method for ocean tide alias error mitigation

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GRACE mission has contributed greatly to the temporal gravity field monitoring in the past few years. However, ocean tides cause notable alias errors for single-pair spaceborne gravimetry missions like GRACE in two ways. First, undersampling from satellite orbit induces the aliasing of high-frequency tidal signals into the gravity signal. Second, ocean tide models used for de-aliasing in the gravity field retrieval carry errors, which will directly alias into the recovered gravity field. GRACE satellites are in non-repeat orbit, disabling the alias error spectral estimation based on the repeat period. Moreover, the gravity field recovery is conducted in non-strictly monthly interval and has occasional gaps, which result in an unevenly sampled time series. In view of the two aspects above, we investigate the data-driven method to mitigate the ocean tide alias error in a post-processing mode.