



Mitigation of Oceanic Tidal Aliasing Errors in Space and Time Simultaneously Using Different Repeat Sub-Satellite Tracks from Pendulum-Type Gravimetric Mission Candidate

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Abstract

This contribution investigates two different ways for mitigating the aliasing errors in ocean tides. This is done, on the one hand, by sampling the satellite observations in another direction using the pendulum satellite mission configuration. On the other hand, a mitigation of the temporal aliasing errors in the ocean tides can be achieved by using a suitable repeat period of the sub-satellite tracks.

The findings show, firstly, that it is very beneficial for minimizing the aliasing errors in ocean tides to use pendulum configuration; secondly, optimizing the orbital parameter to get shorter repeat orbit mode can be effective in minimizing the aliasing errors. This paper recommends the pendulum as a candidate for future gravity mission to be launched in longer repeating orbit mode with shorter “sub-cycle” repeat periods to improve the temporal resolution of the satellite mission.

Key words: gravity field recovery, repeat sub-satellite tracks, ocean tides aliasing.