



SST-hl: Time variable gravity from multiple non-dedicated satellites

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Different approaches have been proposed to bridge the possible gap between GRACE and GRACE-FO. One of these methods is Satellite-to-Satellite tracking in high-low mode. The main part of this approach is the kinematic orbit determination of Low Earth orbiters. GNSS observations are utilized to determine the satellite orbit without using any a priori force model. We apply a processing method based on raw GNSS observations without using any linear combinations. Different errors must be taken into account to fully exploit the measurement accuracy of GNSS phase observations. We have tailored our processing strategy towards the best possible results in terms of gravity field solutions. This processing scheme is now applied to a wide range of non-dedicated satellites carrying a geodetic grade GNSS receiver. By combining all available observation data we are able to produce a time series of gravity field solutions based on non-dedicated satellites. We will show that this time series can be used to derive large scale gravity variations.

We will show gravity field variations derived solely from non-dedicated satellite data and compare to dedicated satellites and GRACE solutions based on KBR data. In conclusion this contribution will show to which extent SST-hl can be used to derive gravity variations.