Analysis of De-Correlation Filters Performance for Estimating Temporal Mass Variations Determined from GRACE-Based GGMS over Konya Basin

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SUMMARY

Since the launch of GRACE (Gravity Recovery And Climate Experiment) satellite gravimetry mission in 2002, a great progress has been made in the monitoring of temporal mass variations within the Earth system. The main objective of this study is to investigate the performance of de-correlation filters (DDK1—DDK8) applied to reduce the noise included in the latest release (i.e. release 5) GRACE-based GGMs for the estimation of temporal mass variations within the Earth system in a local scale.

Konya basin has been chosen as study area because of its serious groundwater variations according to earlier studies. Temporal variations of equivalent water thickness were determined from release 5 GRACE-based GGMs. Thereafter, they were compared with the corresponding ones obtained from WaterGAP (Water Global Assessment and Prognosis) Global Hydrology Models (WGHMs). The obtained results were analyzed and discussed. Finally, the most convenient De-correlation filter for the estimation of temporal mass variations over the Konya basin was specified.