

Reviewer's comments

This study examines the limitations of GRACE-derived groundwater storage estimates in the coastal Lower Kutai River Basin, Indonesia, which has a catchment area of approximately 23,000 km². The study compares GRACE-based terrestrial water storage (TWS) estimates from multiple products with different spatial resolutions and evaluates the potential influence of ocean leakage on inland GRACE grids. It also investigates whether ENSO-related signals are detectable in GRACE-derived TWS and groundwater storage estimates, and assesses the plausibility and limitations of GRACE-derived groundwater storage changes using limited piezometric data.

Overall, the study is valuable, with clear objectives and a well-structured methodology. The results generally support the stated objectives. However, I recommend minor revisions to further improve the quality of the manuscript before acceptance. My minor comments are provided below:

1. It is suggested that, in addition to the temporal comparison shown in Figure 4 between the storage components, Δ SMS from Noah LSM, Δ SWS from WGHM, and the computed plausible Δ GWS, and GRACE derived TWS, the authors include spatial maps of these components. These maps would help identify the spatial dominance and relative contribution of each storage component to GRACE derived TWS changes across the study area. They would also enable readers to better visualize the dominant storage processes in different regions and would strengthen the interpretation and validation of the spatial variability of the storage components.
2. Given the limited availability of in situ groundwater level observations in the study area, it is recommended that the authors include additional global groundwater storage products to support the validation of GRACE derived groundwater storage estimates. In addition to WaterGAP or WGHM groundwater data, products such as the Global Gravity based Groundwater Product and PCR GLOBWB 2 could be considered. Including these datasets would provide an independent comparison and help improve confidence in the reliability and spatial consistency of the estimated groundwater storage variations.
3. The supplementary section contains approximately 29 figures. It is suggested that the authors consider reducing the number of supplementary figures, where possible, and retain only those that are directly relevant to the study objectives and necessary for supporting the main findings. This would improve the clarity and focus of the supplementary material.