

**Review of “GRACE water storage estimates for the Middle East and other regions with significant reservoir and lake storage” by Longuevergne et al.**

This paper addresses an interesting research question and provides good analysis, including a synthetic analysis and illustrative examples. It is generally well organized and clearly written. The only major comment I have is for the synthetic study. The authors have done a nice job examining different cases, but I wish the authors provide a more solid and in-depth analysis on the synthetic study. Besides this, I will provide below some minor suggestions to improve this manuscript. Overall, I would recommend accept this manuscript if the following can be addressed:

Major comments:

Numerical study:

1. The authors investigated two scenarios but the percentage of the reservoir mass (change) over the total basin mass (change) in the synthetic basin is not mentioned. Additional examination/discussion with this could further strengthen this paper. Please at least provide discussion for this.
2. The authors quickly reach three major findings in this section. I feel there are more interesting results in Figure 1 and the relative figures in the supplement, e.g, the change of the curves.
3. How possibly the GRACE processing could infect these results/findings? The authors mentioned that smoothing, does the results hold true for different smoothing methods? Please provide discussion.
4. Overall, I enjoy reading the numerical study and it is nicely done. Please list/discuss any limitations of such a design, if possible. What is the limitation of such a numerical study? In the second illustrative study, the authors mentioned that not all surface storage is considered. Could such a numerical study possible include similar situation?

Minor comments:

1. In abstract, L 15: seasonal variations of what?

2. P11134, L11: what does “the disaggregation equation” refer to? Please re-arrange this sentence to avoid confusion.
3. P11136, L 10: Consider “Method and dataset” as the section title. Also, please re-organize the sub-sections in section 2. How about putting current 2.3, 2.4 and 2.5 under 2.2, since these are the datasets used for the case studies but not for the numerical study.
4. P11139, section 2.4: since many acronyms are used and this makes this section hard to read. I suggest the authors to provide a simple schematic figure which can clearly convey the main message. It helps the readers to catch the text.
5. P11139 L20: please put “Oki and Sud (1998)” at the end of the sentence.
6. P11139 L23: Please justify why these two GRACE resolutions are examined. Is it because these are usually examined in the literature? Please provide information for readers to follow.
7. P11140 L14: change “to simulate GRGS” to “to simulate the data from GRGS”. Similar change applies to the other.
8. P11140, L21: Please provide simple description of the difference/relation between ABS and TBS.
9. P11140, L20: Please consider to replace “the sum of” and re-write this sentence. It is misleading. If you claim it is the sum of different items, you should be able to decompose the total effects.
10. P11144, L26: should it be “not all surface bodies...” instead “all surface bodies...”?