Response to Anonymous Referee #2

Authors: The authors warmly thank the reviewer for their careful review of the paper and positive comments on the proposed study. These comments are all valuable and helpful for revising and improving our paper, and we have studied them carefully. We respond to the reviewer's comments below and we detail how we plan on improving the paper.

The authors present a new approach to interpret the spatial and temporal quality of uncertainty in downscaled GRACE products. The paper is well stuctured and methods are clearly presented.

I have only a few minor comments:

- English needs to be checked

Authors: An effort was made to carefully check the English and the revised version will be corrected accordingly.

- Inline citation style needs to be corrected

Authors: We thank the reviewer for pointing this out. Citation style was changed on line 165 (Ning et al., 2014), line 194 (Merlin et al., 2015), and line 248 (Sahour et al., 2020).

- Please add data sources to Figure 1

Authors: The geological map was obtained from Phani (2014), and the observation wells coordinates from India Water Resources Information System (WRIS, https://indiawris.gov.in/wris, last accessed on January 19th 2022). This information will be added to the legend of Figure 1.

- It is not clear how the well data have been interpolated and how this affects the analysis

Authors: We thank the reviewer for highlighting this. Well data were interpolated with the Inverse Distance Weighting (IDW) method. IDW avoids kriging bias, which may come from a lack of representativeness of the well data, the incertainty in topographic data, etc. IDW is also more accurate than kriging on data points as it suffers less from modeling uncertainties. However, the interpolation method does not have a significant impact at the 0.5° resolution. This will be added to the new version of the manuscript (section 2.2.4):

"Maps of GWL at 0.5° were produced from the interpolation of well data with the Inverse Distance Weighting (IDW) method (which avoids kriging bias and provides more accurate values on data points), and were converted in GWL anomaly by retrieving the long-term mean of the 2007-2015 period."

Bibliography

Phani, R.C., 2014. Mineral Resources of Telangana State, India: The Way Forward. Int. J. Innov. Res. Sci. Eng. Technol. 3, 15450–15459. https://doi.org/10.15680/IJIRSET.2014.0308052