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Reply on RC3

Youjiang Shen et al.

Author comment on "High-resolution water level and storage variation datasets for 338 reservoirs in China during 2010–2021" by Youjiang Shen et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-470-AC5, 2022

Thank you for your time and efforts in reviewing our manuscript. This was a prompt reponse to your comments and detailed responses and a revised manuscript are expected to be here in the coming days.

Firstly, we have overhauled the article to significantly improve the presentation of data sources, methods, and results, and will carefully consider your suggestions.

Secondly, with respect to the originality of our data, thank you for alerting us to recent studies on reservoir hydrodynamics that may have covered the same reservoirs in this study. In our revised manuscript, we have included them in Table 1 and compared our dataset with them.

For the reservoir water areas developed by Zhao and Gao (2018), in our revised manuscript we used the new area dataset of Donchyts et al. (2022) and cross-validated it with water level time series (in situ water levels of 93 reservoirs and our altimetry data) and two other similar area datasets of water levels (GRSAD and RealSAT). This is lacking in the current studies.

For the water storage developed by Hou et al. (2022), this research work was also added to Table 1 of our revised manuscript. I am not 100% sure if the data from Hou et al. are publicly available, as we can see many similar studies that developed some datasets that are not publicly available. This issue is mentioned in our introduction and summarized in Table 1. In the second version of the data, we proposed two storage anomalies using satellite water level-area and DEM-based method using imagery area, and evaluated them using in situ observations of 93 reservoirs.

For water levels, we added two satellite altimeters from Jason-3 and ICESat-2 to version 2 of the data.

Although some studies are in progress, there are still data gaps in the reservoir water level and storage anomalies of Chinese reservoirs. For example, for the reservoir shapefile paper, in addition to Song et al. (2022), which you mentioned, there are two similar papers published in ESSD this year. We will carefully examine your comments and suggestions in the revised manuscript (which was prepared based on the comments of two previous reviewers) and clarify the authenticity and uniqueness of our dataset.

Best.