Earth Syst. Sci. Data Discuss., referee comment RC2
https://doi.org/10.5194/essd-2021-470-RC2, 2022

Reply on AC3

Anonymous Referee #2

Referee 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-RC2, 2022

This study constructed the monthly water level and storage variation datasets for 338 reservoirs in China using multi-source satellites, and also validated the results by massive in-situ datasets. The workload of this article is impressive, and the dataset is complete and consistent with the article. However, there are also many issues unsolved (see details below). Therefore, I could not be more positive in this regard unless the following comments have been addressed with more convincing results presented in this manuscript.

Moderate to major issues:

Line 165-168: It's unreasonable that you put all reservoirs with different baseline together to talk about their performance under the same metric. According to the reason you select Sentinel-3 as the first baseline, do you think CryoSat-2 has a higher temporal resolution than SARAL/AltiKa? How did you calculate the systematic biases of the reservoirs with no overlap period of different altimeters (such as GRAND_ID 5405 and 5861)?

Line 173-175: Did you consider that the reservoir might freeze in winter when you derive the WSE with algorithm for water surface from altimeters?

Line 233-234: Please show the quantitative metrics for different grades.

Line 288-289: The validation for SWA is not convincing enough. Try to illustrate the accuracy of the SWA using high-resolution images, such as Sentinel-2.

Line 295-296: In my opinion, a reliable A–E curve is a prerequisite for calculating the RWSC of the reservoirs, so I don't think it makes any sense to calculate the RWSC of the reservoirs with poor R^2 values.

Line 370: This part should not be included in this article because it's off topic.

Minor commentsï¼□

Line 20: Write the full name on the first occurrence of the abbreviation.

Line 71-72: Where is the problem? You also did this in section 3.2.2.

Line 90-92: The word "highest" is too strong here. Why the novelty of datasets can be illustrated by validation data?

Line 138-139: Please add relevant references.

Line 144: Why didn't you show the repeat cycle of SARAL/AltiKa?

Line 182-184: This sentence is not clear.

Line 190-191: Monthly fluctuations of reservoir SWA and WSE can be quite large. This processing may introduce errors because SWA and WSA do not correspond in time.

Line 280: Please add the legend for surface water extent.

Line 317-319: This sentence is not clear.

Datasets: Please name the GRAND_ID of the reservoirs according to certain rules.