



EGUsphere, referee comment RC1
<https://doi.org/10.5194/egusphere-2022-1237-RC1>, 2023
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Comment on egusphere-2022-1237

Anonymous Referee #1

Referee comment on "Water and energy budgets over hydrological basins on short and long timescales" by Samantha Petch et al., EGU sphere,
<https://doi.org/10.5194/egusphere-2022-1237-RC1>, 2023

General comment

Overall, I believe this is an interesting work. The authors studied the water and energy budget in several larger rivers on both short and long time scales. The manuscript could be accepted after major revisions.

Specific comment

1. Please label the river basins in the Figure 1.
2. The boundary of the Amur River is not correct, which would make following results not right. Please check different maps to use the correct boundary.
3. Please use appropriate font size and keep consistent in each figure. The font is too small to be readable.
4. Lines 374-381. It seems these are methodology, and should not be placed in the results.

5. Lines 419-427. This part is not well written. Each paragraph has only two or three lines. Please rearrange the text.

6. Line 471. References are needed to support your statement.

7. When talking about optimization, we always cannot forget some popular optimization algorithms, such as SCE, DDS, GA, etc. What are the differences between your method and these popular ones?

8. When reading paper, we always want to see the differences between your study and previous ones. Lines 457-470 stressed the similarities but not the differences. Please dig a little bit more to show the differences.

9. From the conclusion, I can see the main contribution from your study is that you introduced a sequential optimisation approach. Other than this, is there any new findings that different from other studies? There are a lot of optimization method can do the similar job. I want to see new findings that can advance our understanding of the hydrological processes.

10. A better judgment of the selections of the river basins should be given. Is it because the observation data in these rivers are better than others? Or other reasons. Some important river basins, such as the Mekong River, are not selected. No rivers in Western Europe are selected. I don't mean you have to select all the rivers, but an appropriate reason should be given.