

We would like to express our thanks for the positive comments and the valuable questions/suggestions on our manuscript. We have revised the manuscript thoroughly based on all the comments. The reviewer's comments are enumerated. Our replies to each comment start with "Response."

Editor's Comment

The two reviewers appreciate the revisions of your manuscript. They flagged a few more issues that I would request you to address in a further round of minor revisions. I am looking forward to receiving a revised version of your manuscript.

Response: Thank you very much for your feedback and for managing the review process of the paper. Your insights are invaluable, and we appreciate your efforts in this regard.

Reviewer 1

Thanks for the efforts made by the authors, all my concerns were well addressed. I did not have any further comments on this excluding two small issues: (1) No legend in Figure 3; (2) The legend in Figure S4 is too small.

Response: Many thanks for your positive feedback and valuable comments and suggestions during the review process.

We have added a legend for Figure 3 and increased the size of Figure S4 to enhance clarity, as detailed below:

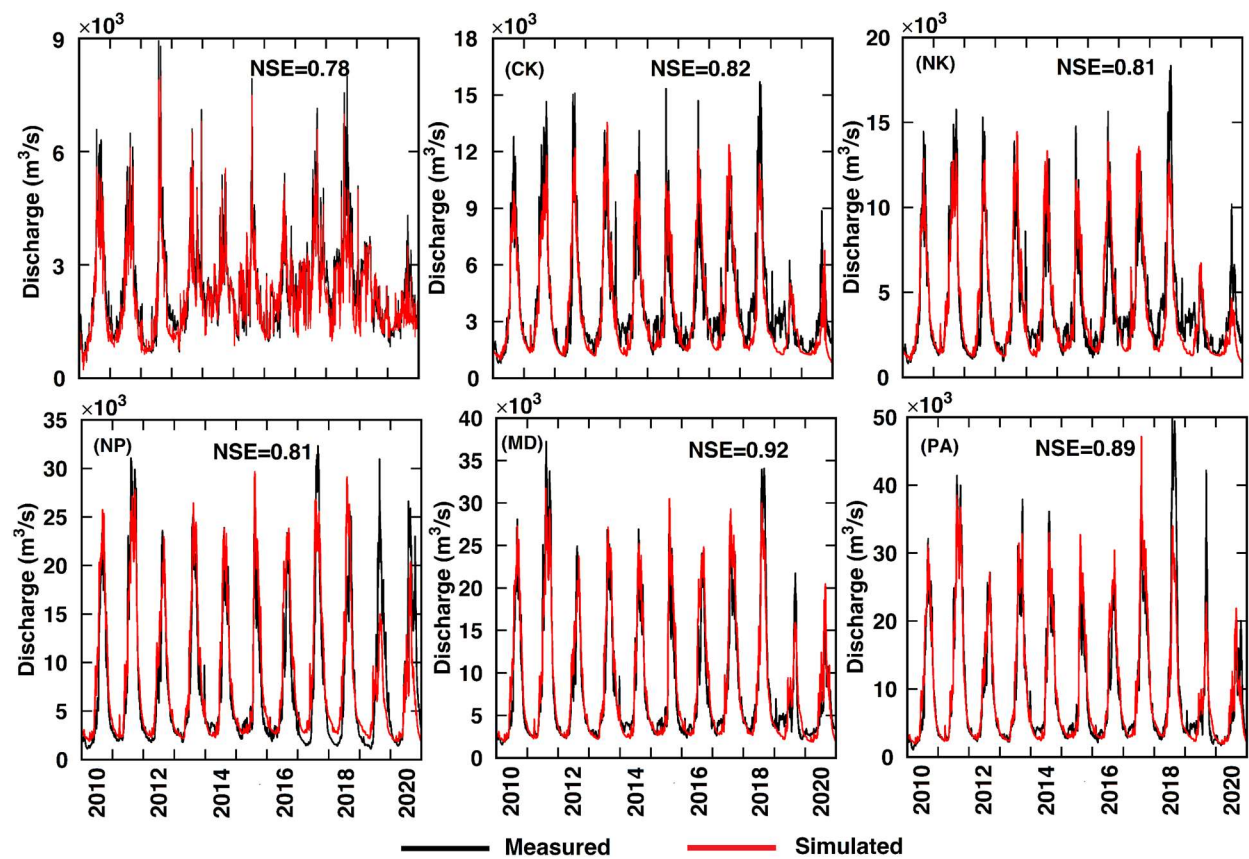


Figure 3. Comparison of the simulated time series discharge by the THREW hydrological model with measured data over the mega-dam period (2010-2020)

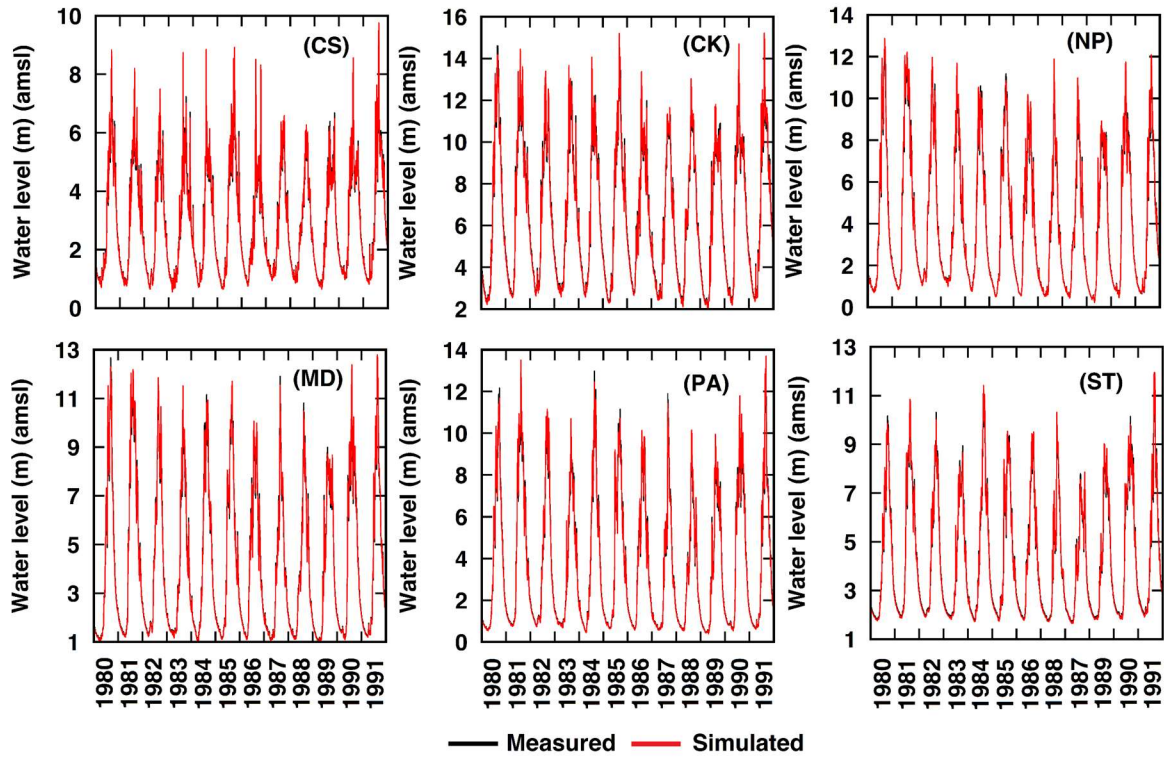


Figure S5. A comparison of measured water levels with those obtained by the hydrodynamic model for mainstream stations. CS, CK, NP, MD, PA, and ST represent Chiang Saen, Chiang Khan, Nakhon Phanom, Mukdahan, Pakse, and Stung Treng stations, respectively.

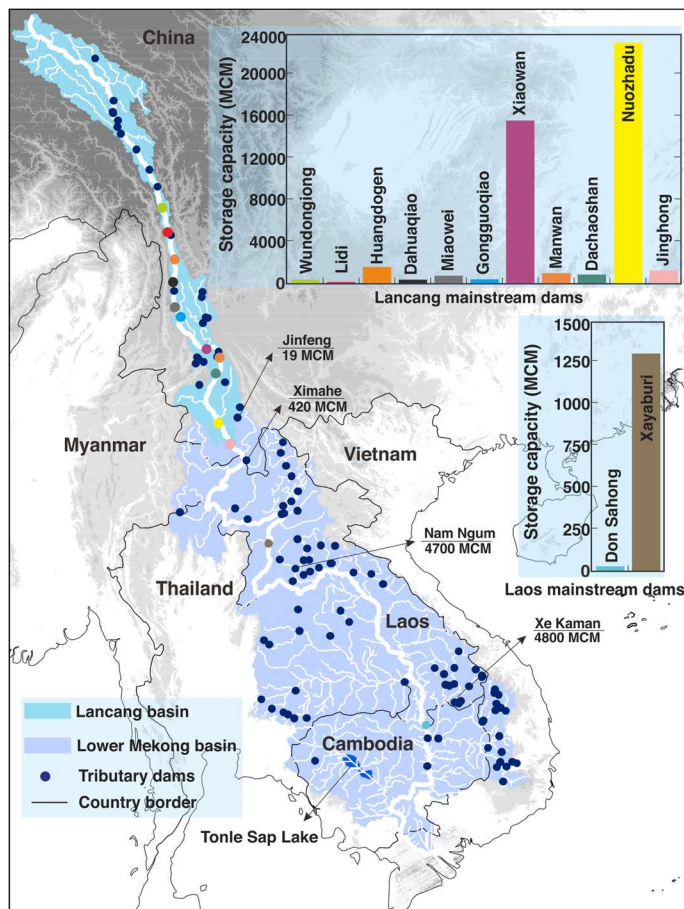
Reviewer 2

Given that the author has responded in detail to the previous questions, I believe that the current version of the manuscript provisionally meets HESS publication standards. However, before approval for publication, I think the author needs to address a number of issues.

Response: Many thanks for your valuable comments and suggestions during the review process.

1) In Figure 1, it is recommended to add “Basin” after the word “Lower Mekong” to correspond to “Lancang Basin”.

Response: Thank you for your suggestion. We have added the word "basin" to the legend of Figure 1 for clarity, as follows:

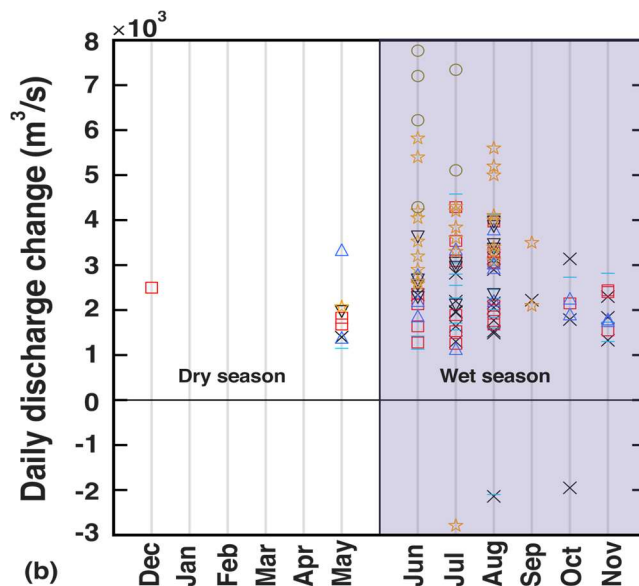
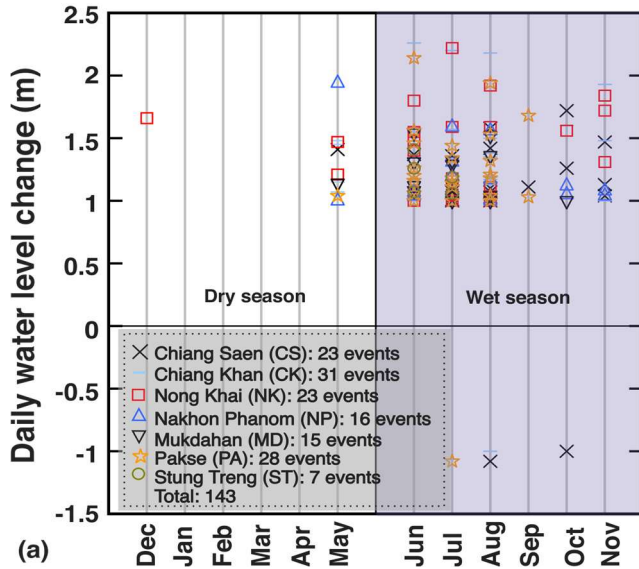


2) Please check the chapter number. After 2.2.2.1 Reservoir Module, I could not find the content of 2.2.2.2.

Response: Thank you for your comment. The description of the hydrological model can be found in Section 2.2.2, with the dam module discussed in Sub-section 2.2.2.1. As such, we do not include Sub-section 2.2.2.2 in the previously submitted revised version.

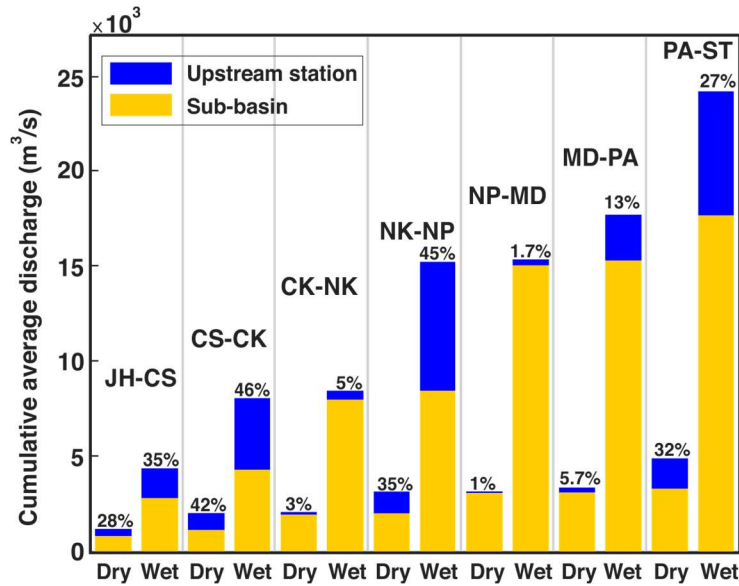
3) After the legend and scale of Figure 5 overlap, readability is poor. It is recommended to add a background or to display it separately outside the figure.

Response: Thank you for your comment. We have added a background to the legend to improve readability. The same scale has been used for both figures, as follows:



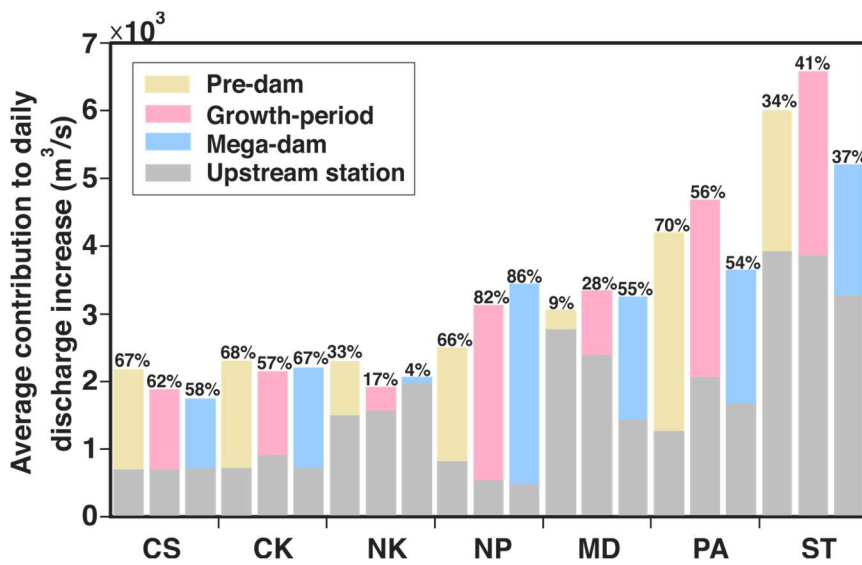
4) In Figure 7 it is recommended to increase the length of the y-axis. Currently PA-ST is covered by the dark bar. I also noticed that the spacing of the DRY WET labels at the bottom is uneven. Although I am not against using tools such as PS to improve the image, it is advisable to consider the overall aesthetics of the image.

Response: Thank you for bringing this issue to our attention. We have adjusted the spacing between labels and increased the length of the y-axis to enhance the visualization of labels and percentages for the PA-ST sub-basin. Thank you for your feedback.

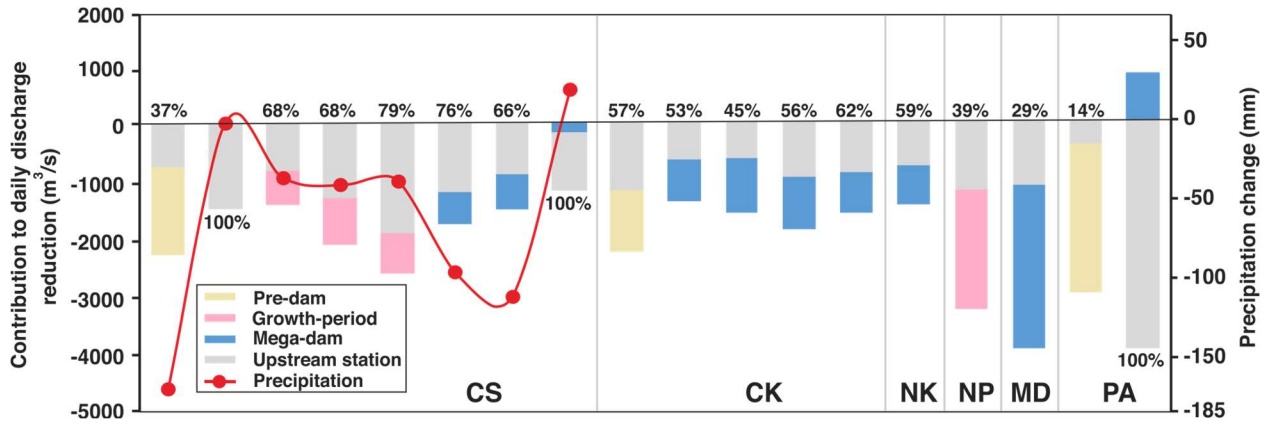


5) In Figure 8 it is recommended to mark the numbers at the top of the BAR and display them in the centre. The current display effect may mislead people into thinking that the digital labels only represent the impact of the dam, without considering the impact of the upstream reservoir.

Response: Thank you for your suggestion. We have moved all numbers to the top and center of the bars for improved clarity. As we highlighted in various sections of the paper and in the caption for Figure 8, the percentages represent the contribution of each sub-basin to its downstream station. We did not separate the impacts of dams and precipitation for each sub-basin (see lines 449 to 454). Additionally, as mentioned in Section 3.1.2, our objective is to conduct a regional contribution analysis. In Section 2.3, we provide definitions for each period, which refer to human activities such as dam construction, land cover changes, and irrigation projects.



6) For Figure 10, I suggest adding a black horizontal line at the 0 scale, and the 0 values of the Y axis on both sides should be aligned. In addition, I am not sure that the rightmost column of PA is displayed correctly.



7) I suggest the author check the grammar and tense of their text before final acceptance before publication.

Response: Thank you for your suggestion. We have carefully reviewed the grammar and tense of the text, making necessary adjustments to enhance clarity. Please refer to the revised manuscript for the changes. Thank you.