

## Authors' Response to Referees' Comments

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We would like to thank both Reviewers for their efforts and patience in reviewing process and for constructive comments on how to improve the manuscript. In the revised manuscript, **updates are colored in red** for easy reading. In the following, we provide answers to all the comments on a point-to-point basis. Each answer is structured as follows: (1) **RC#** comments from Referees, (2) **AR#** author's response.

### Authors' replies to Comments of Reviewer #1:

**RC#1:** I am mostly satisfied with the authors' responses to my comments, with the following comments to be addressed: Line 19: Please specify clearly the scope/coverage of data analysed and the dataset created.

**Authors Response#1:** We would like to thank reviewer #1 for the positive comments, which we believe will help us to further improve the manuscript. We have reworked on the main issues pointed out by the reviewer to progress the manuscript.

In the abstract section, we have specified the coverage of data more clearly in Line 19-20. The continental coverage of 60 Key Research Basins is Asia, North America, Africa, Europe and South America, except Antarctica and Oceania, updated in Line 316. Note that Figure 3 shows spatial coverage in basin scale and covers 286 transboundary river basins in the world; however, Figure 4 shows spatial coverage in country scale in the world. Therefore, in Figure 3, Oceania has no data since there is no transboundary river basins located in Oceania; and in Figure 4 Australia has a certain amount of data since it has released news media papers on other transboundary rivers internationally. Updated in Line 19, the temporal coverage of the datasets of 60 Key Research Basins is from 1953 to 2019; in Line 20, the relevance screening is conducted on the four representative river basins, also stated in Sect 3.2.

**RC#2:** Line 57-82: This section is still not clear as it mixes the aim of the research with its implications. The detailed aims and a short, more concise implication should be clearly stated in this introduction section, whereas more detailed implications should be moved to the summary section at the end of the article.

**Authors Response#2:** We appreciate this suggestion from the reviewer that detailed implications should be moved to the summary section on the basis of the previous version of revised manuscript. In this revised manuscript, we have added a brief description of implications of this research in Line 68-69, and moved detailed implications from Line 70-85 to the summary section in Line 433 to 450.

**RC#3:** Line 397: I suppose you are referring to Figure 5 here?

**Authors Response#3:** Thank you for this comment. The in-text reference of Figure 5 has been updated in Line 400.

There are no further comments from Reviewer #2 in this round of review.