Dear Editor,

Thank you for your l comments concerning our manuscript. Based on the suggestions and comments from reviewer, the paper has been substantially improved again. The detailed revisions are as following:

1. Remarks from the preceding review file validation:

①. Please note that any change to the list of authors at this stage of the review needs to be approved by the editor. For a subsequent revision, please indicate in the "Author's response" the reasons for adding to the list of the author the co-authors Qiao Cui and Jian Xue.

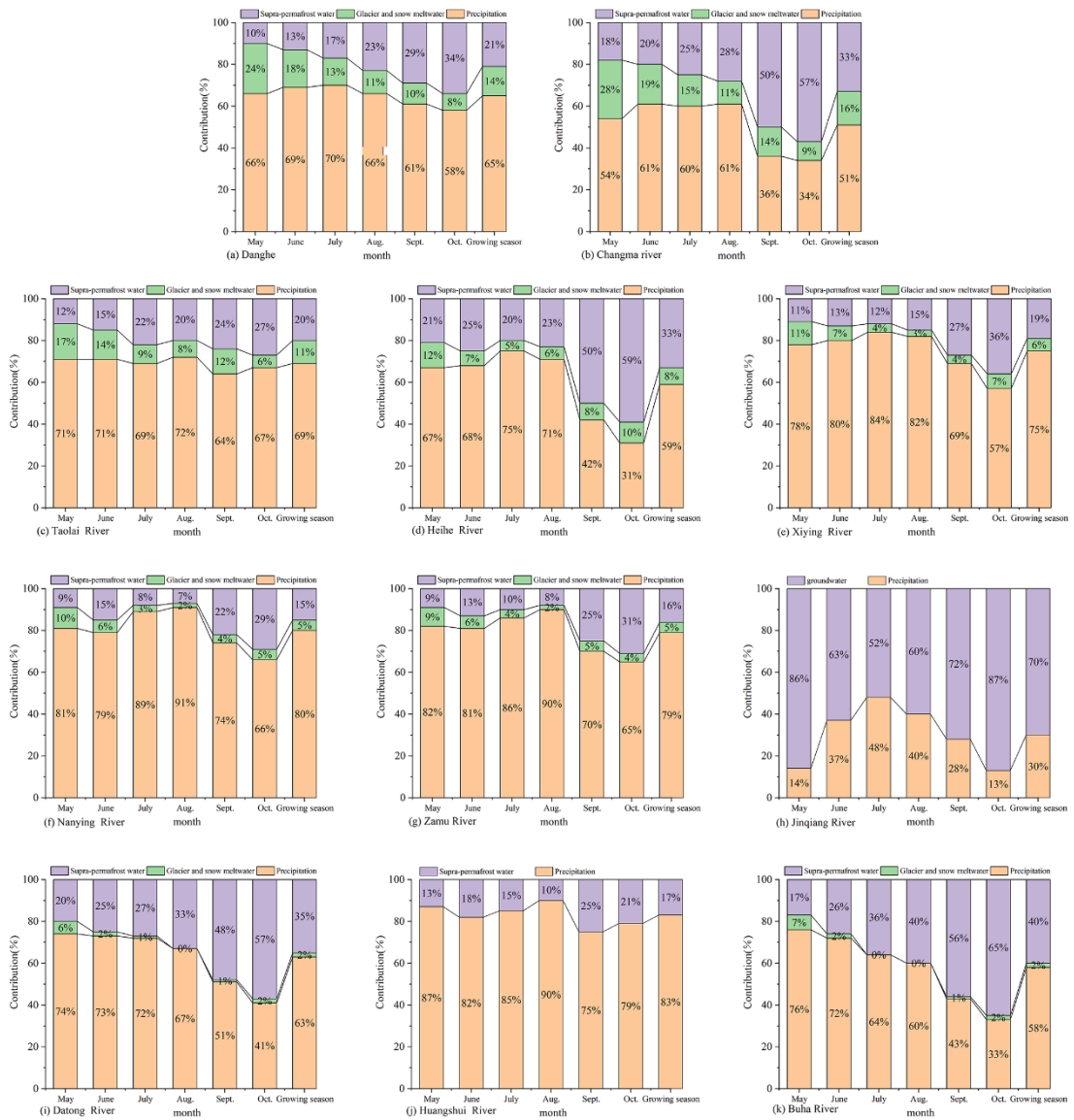
Thank you very much for your comments. We added Qiao Cui and Jian Xue as co-authors in the revision process because of their significant contributions to the uncertainty analysis of the paper. I hope to get your approval.

②. Please ensure that the colour schemes used in your maps and charts allow readers with colour vision deficiencies to correctly interpret your findings. Please check your figures using the Coblis – Color Blindness Simulator (https://www.color-blindness.com/coblis-color-blindness-simulator/) and revise the colour schemes accordingly.

Thank you very much for your comments. Through the inspection, we modified the color scheme of the article.

2. Response to reviewers comments

Please check the technical comments by Referee #1.

Thank you very much for your comments. We have checked the technical comments by Referee #1 (The authors have satisfactorily responced to all my questions and made necessary changes to the manuscript. I have no reservation regarding publication of the manuscript. One minor suggestion is to color the legend of Figure 12 uniformly. It would be better to color the groundwater and supra-permafrost water in purple in Figure (h) and (j), although there is no glacier meltwater in this figure) and modified Figure 12 according to suggestions, the details are as follows:

Sincerely,

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