



EGUsphere, referee comment RC1  
<https://doi.org/10.5194/egusphere-2022-1103-RC1>, 2022  
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## **Comment on egusphere-2022-1103**

Anonymous Referee #1

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Referee comment on "Can the combining of wetlands with reservoir operation reduce the risk of future floods and droughts?" by Yanfeng Wu et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-1103-RC1>, 2022

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"Can the combining of wetlands with reservoir operation largely reduce the risk of future flood and droughts?" presents an original study aiming at discussing whether the combining of wetlands with reservoir operation can largely reduce the risk of future floods and droughts in the Nenjiang River Basin. The data of this paper is very comprehensive and the method is reasonable. The results are helpful for understanding the role of wetlands and reservoir operation in mitigating basin hydrological risks under climate change, which make this manuscript worth publishing. I recommend to accept this manuscript after minor revisions to address following general and specific comments.

General comments:

- Hydrological model is an important tool to understand wetland hydrological functions, and the same is true for observations. This cannot be neglected in research progress and discussion.
- I understand that wetland and reservoir can be regarded as green and gray Infrastructure strategy respectively. The authors showed that the combination of them can experience the risks of hydrologic failure under future climate change. This is an interesting and important finding that can be further discussed beyond the current content.
- For different sub-periods under the constraints of three SSPs, the projected results are somewhat different, no matter floods and droughts, which can come into being some uncertainties and should be discussed.
- The assumption about without wetland scenarios, i.e., "wetland areas are not removed, but they are treated as the land cover of saturated soils". How the regulation function is not accounted for? I think there may be uncertainty here.
- Minor errors and inadequacies in details that need to be double-check and revised. See

specific comments below.

Specific comments:

Line 40 and 718. Diffenbaugh et al., 2015a and Diffenbaugh et al., 2015b are the same paper.

Lines 42-43. Please cite the references in the main text correctly. Move "Güneralp et al., 2015" to the end of the sentence.

Lines 45-46. Suggest to say global scale first and then regional scale.

Line 64. Inert "However" before unlike.

Line 132. Delete "and storage".

Line 137. Insert then after "We".

Line 146. Insert hydrological after "future".

Line 158-159. Three wetlands of international importance do not represent much. Please rewrite.

Line 160. What's the contributing drainage areas of wetlands?

Line 163-164. Songnun Plain or Songnen Plain? Please be consistent with Figure 1.

Line 168. Revise "significantly" to largely.

Line 228-229. What are the two wetland modules. Please specify here.

Line 231. The reference format is incorrect.

Line 242. I still haven't seen a definition of contributing areas here.

Line 257. Kinematic wave equation, loss reference here.

Line 274. What is the time-step length in this study?

Lines 272-274, 277-279. Loss of units for formular parameters.