



CHINA UNIVERSITY OF GEOSCIENCES, WUHAN, HUBEI, 430074, P. R. CHINA. TEL:
86-27-67883159. FAX: 86-27-87436235. EMAIL: WENZ@CUG.EDU.CN.

Memorandum

To: Editor of Hydrology and Earth System Sciences

Subject: Revision of egosphere-2025-5682

Dear Editor:

Thank you for giving us the opportunity to further revise our manuscript in this second round. We are submitting the revised manuscript now entitled “Effects of the Three Gorges Dam Operation on the hydrological interaction between the Yangtze River and downstream aquifers” to Hydrology and Earth System Sciences again, hopefully can be re-considered for potential publication.

On behalf of the co-authors, I would like to thank the Editors and three reviewers, for the time and efforts spent in reviewing the manuscript. We have revised the paper accordingly, and all the comments have been incorporated into the revision.

The point-by-point responses are presented below. Should you have any questions, please feel free to contact me.

With best regards.

Zhang Wen

Corresponding author

China University of Geosciences, Wuhan.

Email: wenz@cug.edu.cn

Reply to the comments:

(please note: the line number stated in the following refers to the marked version)

① To the comments of Handling Editor

1. The spatial variation in the river's influence on the aquifer is a key finding, but the current presentation in the abstract is too localized. Specifically, point (1) relies heavily on internal monitoring profile abbreviations (e.g., 'ZJ-JLX2', 'HH1', 'HH2') and highly specific data points ('1.94 km'). Including these local abbreviations and floating numbers in the abstract creates an immediate barrier for readers who are not intimately familiar with the geography of the Four-Lake Basin. Please revise this section to focus on the 'big picture' scientific takeaway rather than the site-specific raw data. I recommend replacing the specific profile names with a description of the broader spatial trend and the underlying physical or geological mechanisms that drive these characteristics.

Reply: Revised. To address the Handling Editor's concern that the abstract contained excessive detail and lacked a macroscopic perspective, we have thoroughly revised the wording. We removed the monitoring profile abbreviations and specific kilometer values, and instead described the macroscopic pattern—the influence range of the Yangtze River on lateral groundwater is significantly greater in the upper section than in the lower section of the Four-Lake Basin, with a difference of up to one order of magnitude. To improve scientific clarity, we also added the dominant mechanism: the combined influence of hydrogeological conditions and distance from the TGD. The expression now focuses on the 'big picture' scientific takeaway. Please see Lines 30 – 37.

② To the comments of Anonymous Referee #1

The authors generously responded to and implemented the reviewers feedback. All major revisions were implemented in the manuscript and the revised manuscript addresses the technical, written, and analysis concerns raised by the reviewers. Great job.

Reply: We sincerely appreciate the reviewer's recognition of our work and the reviewer's valuable efforts in helping improve this manuscript. We will continue to advance our research in this direction. Best regards.

③ To the comments of Anonymous Referee #2

I thank the authors for considering my comments and for the detailed reply. I only have one minor technical correction: the labels in Figures 1, 2, 3, 5, 7c, and A1 are small and blur when Zoomed-in. I encourage the authors to increase the font size of these figures and increase their resolution. Other than that, I have no further comments or suggestions and defer to the other reviewers and editor for the final decision.

Reply: We greatly appreciate the reviewers' valuable suggestions regarding the quality of several figures, all of which we have fully adopted. Specifically, we have enhanced the resolution of all seven figures in the main text and enlarged the font size of key information. As a result, these figures now remain clearly legible even when zoomed in.

④ To the comments of Anonymous Referee #3

I would like to thank the authors for addressing my comments properly. I only have a few minor comments remaining at this point:

(1) In relation to reply 1 (reviewer#3), could you include this figure as a supplement to show the stability of the river influence range over the years?

Reply: Revised. Regarding the figure mentioned in our previous response to the first comment of Reviewer #3, as noted by the Referee, we have adopted the suggestion and have now included it in the supplementary materials. Additionally, we have added the corresponding description of this figure in the main text, which elaborates on the limited year-to-year variation in lateral influence as well as the underlying reasons for this phenomenon. Please see Lines 367 – 373.

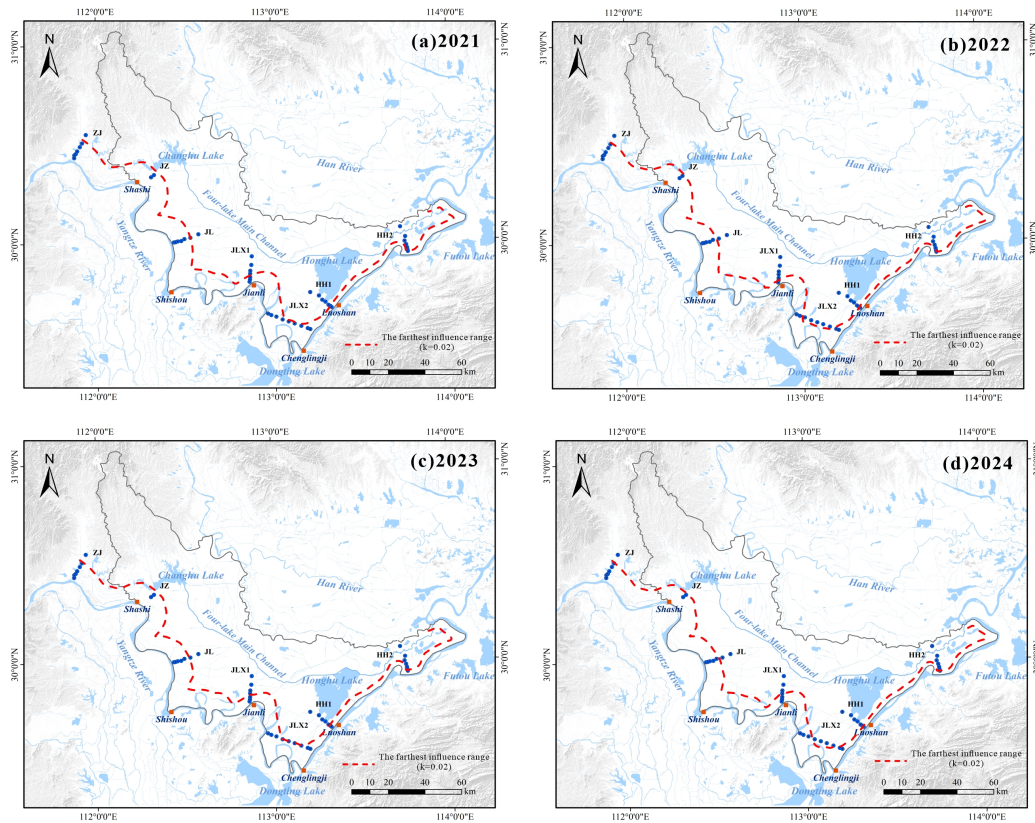


Fig. 1 The spatial distribution of influence range of Yangtze River in four different years

(2) Having a separate limitations section is a good idea. However in this case, please include your comment there about the limited data from before the building of the TGD (reviewer#3, reply 2)

Reply: Revised. We thank the reviewer for the positive feedback on our decision to include a separate Limitations section. Regarding the reviewer's suggestion that we add to this section the content from our previous response to the second comment of Reviewer #3 — specifically, the practical constraint posed by the scarcity of groundwater observations prior to the construction of the TGD — we have readily adopted this suggestion and added the corresponding description in Lines 568 – 572.

This addition clarifies that although it would be highly meaningful to provide a calculation result without the TGD to quantify the lateral influence of the Yangtze River on groundwater under such a scenario, the scarcity of data from before the TGD's construction remains a significant limitation.

(3) In Figure 1 I cannot find the location of the map, maybe use a different symbol color to make it more visible. Also some of the other figures could use an indication of this location.

Reply: Revised. We have fully adopted the reviewer's suggestion by optimizing all elements related to the map information such as place names in Figure 1. These optimizations include increasing the font size, employing more distinguishable colors, and enhancing the resolution of the figure. Regarding the reviewer's suggestion to also include indications of this location in the other figures, we have actively adopted it. For example, in Figures 2 and 3, which immediately follow Figure 1, we have added the names of the major water systems and some important place names.