

Interactive comments on “Model study on potential contributions of the proposed Huangpu Gate to flood control in Taihu Lake basin”

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We appreciate the comments from the reviewer very much, and truly believe these comments can help us to improve the quality of our manuscript. We hope the manuscript after modification would achieve publication status. We provide responses to the main and specific comments and technical corrections in sequential order as follows.

Main Comments:

This manuscript tried to evaluate the potential contributions of the proposed Huangpu Gate to flood control in Taihu Lake basin using a hydraulic model under several flooding scenarios. The results show that the proposed gate is effective mean to evacuate the floodwaters. Maybe it is a useful demonstration of the project. However, the contribution to scientific progress is not clear, since the method of scenarios analysis is not new and the model is not new.

Responses to Main Comments:

Like the Thames barrier in London, the proposed Huangpu gate also has the function of preventing tide intrusion. Besides, the Huangpu gate also can help the lake and the upstream areas to drain flood water when basin-level floods occur. This paper provides quantitative analyses of the potential benefits of the proposed Huangpu gate when the basin suffers monsoon-induced floods. These conclusions are very important for the basin authority's management.

Although the model used in the paper is not completely new, we modified the model codes to accommodate additional capabilities for the more accurate simulation. It is **this modified model** that can precisely simulate the complex operation rules of the proposed gate, where its operational rules will be applied for the flood tide and ebb tide respectively. As far as I know, almost no model can accurately simulate such complex rules of hydraulic structures.