

**Review of the paper “Numerical analysis of potential contributions of the proposed Huangpu gate to flood control in Taihu Lake basin” by Zhang et al.**

In this paper, the authors investigated the potential impacts of constructing a sluice gate (or an estuary gate) on the flood control in terms of evacuating flood discharge and reducing peak water levels, which is indeed important from both scientific and engineering points of view. The possible impacts of different operating mode of the proposed sluice gate on the hydrological conditions in the upstream part of the gate were analyzed based on the numerical simulation for different scenarios. However, the authors focused on the application of HOHY model rather than the analyses of underlying mechanism of different operating modes for flood control. In addition, the authors did not investigate the potential siltation both upstream and downstream of the sluice gate, which is extremely important for real yet practical use of constructing a sluice gate for flood control purpose in an estuary. Based on the major concerns below, I would suggest to reject the paper.

**Major concerns:**

1. It appears that the authors focused on the application of HOHY model to investigate the potential impacts of different operating modes of the gate on the hydrodynamics in the upper region of the studied area. I would suggest the authors to concentrate on the analysis of the underlying mechanism or link between different operating modes and parameters relating to flood control.
2. The paper did not mention the potential siltation due to the construction of an estuary gate at all. There are numerous studies on the impact of estuary gate or tidal barriers on hydrodynamics and sedimentation in riverine system and estuaries (e.g., Schmidt et al., 2005; Carroll et al., 2008; Ji et al., 2011; Ji et al., 2016; Zhu et al., 2017). It was shown that the sediments from upstream part could be trapped upstream of an estuary gate and cause problems such as increased bed elevation and reduced water storage volume. Hence sedimentation reduction measures, such as sediment flushing, manual dredging, channel contraction or a combination of flushing and channel contraction, are the major concerns of building such a construction. Hence it is not reliable to have such a conclusion of building an estuary gate on the basis of only hydrodynamics simulations.
3. It is noted that most of the references are written in Chinese, which is not suitable for publishing a paper in an international Journal, such as HESS.

**References:**

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