

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1  
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## Comment on hess-2022-362

Anonymous Referee #1

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Referee comment on "Development of an integrated socio-hydrological modeling framework for assessing the impacts of shelter location arrangement and human behaviors on flood evacuation processes" by Erhu Du et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-362-RC1>, 2022

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This paper develops an integrated socio-hydrological modeling framework that couples a hydrodynamic model, an agent-based model, and a transportation model to examine household evacuation outcomes under various shelter location plans and human behavior scenarios. The results demonstrate the unique functionality of the model to support flood risk assessment and to advance the understandings of evacuation performances. The manuscript is well organized and written. The logic flow is easy to follow. Tables and Figures are clear and well presented. I think this is a high-quality manuscript, which will contribute to the flood management practice. I have only few minor concerns, as follows:

- Lines 184-187: May agents also consider the shelter with least travelling time? please check the assumption.
- Lines 209-212: Will family agents consider at system level? Why will agents want to contribute to system efficiency? Mode 2 should be re-interpreted based on rational an assumption.
- In the results section, I think it is better to discuss the specific policy implications and recommendations following each result, from the perspectives of both emergency responders and family agents. In this way, readers can easily link the new findings to management practice.