

***Interactive comment on* “Effect of winds and waves on salt intrusion in the Pearl River Estuary” by Wenping Gong et al.**

Anonymous Referee #3

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Although salinity intrusion under different hydrological and tide forcing conditions has been fully studied for many estuaries, wind and wave effects, especially wave effects, have not. This study focuses on the wind and wave effects on salinity intrusion in the Pearl River Estuary, which provides good information for the impacts of wind and waves on salinity intrusion in an estuary. The model has been calibrated using two observations. Overall, the model skills are acceptable for this study. The authors conducted a series of model diagnostic studies for the impact of local and remote winds with different directions as well as the change of transport processes associated with the change of wind, which provide good information for understanding the underlying processes.

Figure 7 compared different mechanisms for salt intrusion, which shows the different processes associated with different wind forcings, i.e., remote and local winds, in

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particular, the tidal oscillatory transport and steady shear are different with respect to remote and local winds. However, they were not clearly discussed. It will be good if the authors can incorporate these into the discussion sections.

As there are many model scenarios with different conditions, the paper is not easy to follow and some materials can be removed (i.e., the discussion of salinity at the mouth as the change of salinity at the mouth can be seen from other figures).

Some figure captions need some revision to make them more clear. i.e., Fig. 14. Are currents and axial currents are same?

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