

Ocean Sci. Discuss., author comment AC1
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Reply on RC1

Rui Zhang et al.

Author comment on "Responses of estuarine circulation to the morphological evolution in a convergent, microtidal estuary" by Rui Zhang et al., Ocean Sci. Discuss.,
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Dear reviewer:

We appreciate your efforts in reviewing our manuscript and providing us with constructive comments. We have revised our paper accordingly, and the point-to-point responses to your comments are as follows.

Detailed comments:

1. Fig 2c shows that on the west margin of the bay, a large belt along the coastline was intensively eroded from 0.5 to 4.3 m from 2003 to 2010. This result seems abnormal and should be explained. If this change is not real, it is unclear whether there are any changes in the modeling results.

Response:

Thanks. We double checked the bathymetric change shown in Fig. 2c. Indeed, there are several outliers distributed in the lower reaches of the east bank of the estuary, which caused by the "Grid Mask" operation, and we removed them. For the west shoreline, the original topographical data showed that the water depth on the west edge was about 3 meter in 2003. By 2010, the water depth in this area became shallower, less than 2 meter. Therefore, the bathymetric change (water depth of the later period minus that of the previous period) is negative in this area, that is, accretion occurred there. We modified the figure in a consistent way. In 2a and 2b, the gray area along the shorelines are due to sand mining for land reclamation.

The accuracy of bathymetric change should have some effect on our model results. However, as the west margin is located at the side shoal and of limited area, it would have minor effect on the water transport capacity of the estuary and the estuarine circulation.

- In Fig. 2d, "Sec. B1" appears twice.

Response:

We deleted the repeated "Sec. B1".

Please also note the supplement to this comment:

<https://os.copernicus.org/preprints/os-2021-76/os-2021-76-AC1-supplement.zip>