

Interactive comment on “Downscaling sea-level rise effects on tides and sediment dynamics in tidal bays” by Long Jiang et al.

Long Jiang et al.

long.jiang@nioz.nl

Received and published: 13 January 2020

Dear Editor,

Thank you for your time and efforts in handling our manuscript.

We have completed the revision of our manuscript in response to the comments of three reviewers. Reviewer 1 suggests improving the discussion of tides and sediment transport in estuaries by including insights from previous studies, expanding the model description, calibration, and validation with more requested information and statistical analyses, and using caution to interpret our results on sediment transport. Reviewer 2 raises similar concerns on model validation, the assessment of the whole sediment budget based on the simple quantity Q , and the calculation of Q . Reviewer 3 recom-

C1

mends specifying and discussing two of the limitations in this study, i.e., not accounting for the changes of bed morphology in the SLR scenario and excluding muddy sediments in the calculations of Q .

We have made a major revision based on their comments. The Introduction and Discussion sections have been significantly improved by including the additional insight suggested by reviewers. We have also emphasized in our manuscript that our sediment transport quantity Q is not a quantification of the entire sediment budget in the Oosterschelde, as reminded by all three reviewers. Q is only one component of the transport processes influenced by tidal asymmetry and current velocity. Moreover, only certain sediment grain size, sand, is considered. The limitation of our estimate of Q is mentioned in Abstract, Methods, and Conclusions and it is discussed in Discussion. The model description, calibration, and validation are revised substantially based on the detailed comments.

The revised manuscripts with changes tracked and accepted are returned along with our responses to the reviewer's comments point by point in blue. Please kindly consider our revised manuscript.

Sincerely, Long Jiang On behalf of co-authors

Interactive comment on Ocean Sci. Discuss., <https://doi.org/10.5194/os-2019-50>, 2019.

C2