

Associate editor decision: Publish subject to minor revisions (review by editor)

by Anastasia Piliouras

Public justification (visible to the public if the article is accepted and published):

The authors have submitted their revised manuscript and responses to comments from two reviewers. While they have modified the manuscript in response to many of the reviewer comments, I find there are two important comments that have not been sufficiently addressed, thus requiring further revisions.

Reviewer #1 suggested rephrasing part of the introduction and adding more information to better reflect existing literature on modeling delta morphodynamics and flux partitioning. While the authors have edited parts of this paragraph (starting at line 37 in the revised manuscript), it is just a rephrasing of the information that was already there. The introduction to the paper still lacks a necessary critical review of the literature. I recommend adding a paragraph to the introduction to provide a comprehensive discussion of relevant studies.

Reviewer #1 also highlighted how this model assumes that all flow is contained within the channel network, asking the authors to comment on if this was realistic and how this assumption would affect the results. The authors have added a section on limitations to the discussion that partially addressed this, saying that the assumption is okay for the Po but without citing any evidence or published literature. I recommend the authors provide some sort of evidence justifying this for the Po, either data or literature. Additionally, and perhaps more importantly, while the assumption may hold for the Po, it likely does not hold for many other systems. If this model is meant to be generalizable to understand bifurcations across deltaic systems, then this assumption of flow containment needs to be better justified in the text and the authors should provide more information on how consideration of leakiness may be implemented in their model framework.

Thank you for your thoughtful and constructive feedback. I appreciate the opportunity to improve the manuscript based on your comments.

In response, I have revised the introduction to provide a more comprehensive review of the relevant literature, addressing the gaps that were previously present. I agree that the initial discussion was insufficient, and I have now expanded it to better reflect the state of the art in modelling delta morphodynamics and flux partitioning.

Additionally, I have further addressed the model's limitations, particularly regarding the assumption of flow containment within the channel network. I have now provided a more in-depth discussion of this aspect, including its implications for the model's applicability to different deltaic systems. The updated version acknowledges the importance of considering flow connectivity, especially for representing more complex and less confined delta systems.

Thank you again for your valuable insights and for guiding these improvements. I appreciate your time and consideration.