

Interactive comment on “Modeling surface water dynamics in the Amazon Basin using MOSART-Inundation-v1.0: Impacts of geomorphological parameters and river flow representation” by Xiangyu Luo et al.

Xiangyu Luo et al.

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Dear Dr. Neal,

We have submitted point-by-point response to the two reviewers' comments for our manuscript.

Both referees provided very constructive comments. We have addressed all the comments and planned to include the corresponding changes in the revised manuscript. The major modifications are summarized as follows:

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1. As suggested by the referees, we will clarify the main contribution of our study as incorporating an inundation scheme in the MOSART model, which is used in Earth System Models. To document our effort, we conducted a new simulation called “NoInund” (with the inundation scheme turned off) and compared its results with those of the control simulation “CTL” (where the inundation scheme was turned on). This comparison revealed the effects of the inundation scheme on modeled surface hydrology, and will be presented in a new subsection (Section 4.1 Inundation representation).

2. We included more discussions to compare our study with previous studies, which provided the foundation for the approach we have taken. Although some of our results agree with those of former studies, we have also provided some new insights in terms of methodologies, model results and analyses. The manuscript will be revised to be more clear on this point.

3. We also addressed the other comments of the referees to make the manuscript clearer, more precise, or more complete than before.

4. As a result of the above revisions, five of the 13 figures and two of the four tables will be updated in the revised manuscript.

We appreciate your time and attention for this manuscript.

Sincerely,

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