

Interactive comment on “Linking the river to the estuary: influence of river discharge on tidal damping” by H. Cai et al.

Anonymous Referee #1

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In this paper, Cai et al. extend the framework recently proposed by Cai et al. (J. Geophys. Res., 2012) for the analysis of tidal wave propagation, in order to include the effects of river discharge. In my opinion, the paper addresses relevant scientific questions within the scope of HESS, and it can be a good contribution to the literature in general. Nevertheless, I found that a consistent part of the manuscript overlaps with previous publications (e.g., Cai et al., J. Hydraul. Eng., 2012). The analytical model for tidal wave propagation accounting for river discharge (compare for example the Appendix) is very similar to the one published by Cai et al., (J. Hydraul. Eng., 2012). On a related note, in the introduction, the paper of Cai et al. (J. Hydraul. Eng., 2012) is not cited at all, despite having a broadly similar focus. I think that the novel contribution of this manuscript must be absolutely clear to the reader. If there is sufficient new

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material here to justify a separate manuscript, then the Authors should summarize that previously-published work in the introduction and explain how this manuscript extends, but does not duplicate, those earlier papers. The overall presentation of the paper can also be improved. For example I do not feel it is necessary to spend a consistent part of the paper (6 pages over 28) for the description of the five different solutions obtained from the five different approximations of the friction term (section 4), when most of the results has then been obtained considering only the hybrid model. Comparison among the results obtained from the different approaches (page 9206) should be deepened, or other formulations can be removed, as better performance of the hybrid model with respect to the other approximations has already been tested elsewhere (Cai et al., JGR 2012). Finally, I think that the results section (pages 9207-9210), which is the most interesting one, could be definitively extended.

Minor comments:

Page 9206, line 8: ζ needs subscript 0.

Table2: Align the text in the column 'phase lag' with the term 'general'.

Table3: In analogy with T1 and T5 add a bracket also to formula T3.

Table A1: specify B is the average stream width.

Table A1: specify x is the distance from where?

Caption figure 5: Add a subscript 0 to ζ and remove the subscript 0 from χ .

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