

Interactive comment on “Determinants of modelling choices for 1-D free-surface flow and erosion issues in hydrology: a review” by B. Cheviron and R. Moussa

Anonymous Referee #1

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General Comment

Overall, I liked reading this critical review of existing models that can be used for the coupled modeling of water flow and sediment transport in hydrology. I'm not a big fan of review articles in general, but in this case – provided that review articles are allowed by the journal – I express appreciation for the work and limit myself to specific comments about the manuscript. The paper is clear and well written and the review of the methods presented (at least to my knowledge) is quite complete. The English usage is correct, and the presentation of good quality. I have only a few minor comments about the manuscript:

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- I see that while the "flow" parts are discussed based on specific equations, the "sediment transport" sections are a bit more qualitative, and there are no equations there. I'm wondering if this is a deliberate choice of the authors and if they could comment a bit on this choice, maybe even in the manuscript;

- Most of the paper's figures are quite dense, and I suggest to comment on these plots more broadly to guide the reader across them;

- In particular, the last figure of the paper is the most interesting result of the entire manuscript, and I suggest the authors to expand the description/comment on this very interesting result. I do not think the interpretation of this plot is trivial at all, so I believe its significance should be better emphasized in the paper text.

I do not have other specific comments, as the paper seems to be very accurate. The Figures are of good quality, referencing is appropriate and the discussion is clear and concise. Therefore, I congratulate the authors for the overall quality of the manuscript.

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