

Interactive comment on “tran-SAS v1.0: a numerical model to compute catchment-scale hydrologic transport using StorAge Selection functions” by Paolo Benettin and Enrico Bertuzzo

Anonymous Referee #1

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This is a technical paper documenting a model code built on previous developments. This is entirely in keeping with the scope of the journal. A link to open source code is provided (github).

I found this paper exceptionally clearly presented. It's quite easy for the reader to understand what the model does. Illustrative graphics and sensible notational shorthand help in that.

The numerical accuracy test is useful. It seems the authors have taken care of numerical efficiency.

I only had 2 comments related to references to more complex applications:

C1

On p10, l2-3 a catchment with legacy agricultural inputs is put forward as an example of a diluting system such as that simulated here with a synthetic dataset. I don't think that's correct because agricultural inputs are subject to reactive transport, not just dilution, which is not implemented in this code. Please come up with a better example.

On p15, l25-26 the authors claim that reactive transport can be easily implemented. I would question this general statement as especially agricultural solute transport can be quite complex as dissolution, precipitation and re-mobilisation as well as spatial variables (e.g. temperature) matter greatly. Please limit this statement to "simple" reactive transport.

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2017-305>, 2018.

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