

Interactive comment on “Climate, tectonics or morphology: what signals can we see in drainage basin sediment yields?” by T. J. Coulthard and M. J. Van de Wiel

D. L. Egholm (Editor)

david@geo.au.dk

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Coulthard and Van de Wiel present an interesting study of how sediment transport rates in a fluvial catchment are affected by changes in rainfall and local relief. The study is based on computational experiments.

There are two reviews and one additional comment to the paper. Both reviewers agree that this study is interesting and very appropriate for this journal. I agree with this and note that I believe modest revision is needed before acceptance.

First of all, the authors should expand section 2 (model description and simulation setup) by providing more details on the CAESAR model, including the most important

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equations for the transport rates. CAESAR is a well-established model framework, but I agree with the reviewers that more details should be included here for completeness. This will make the performed experiments more transparent, and allow the authors to establish more direct links between the results and the model assumptions. In addition, one of the reviewers suggests including a flowchart visualizing the model experiments.

Secondly, as both reviewers point out, the effects of some of the key model assumptions could be discussed more. This includes the relatively short time scales and the homogeneous and unlimited parent material.

The figures are generally fine and of high quality although the font size should be increased. In the caption to fig. 1A, it could be noted that the cyclic behavior of the sediment yield is due to the repetition of the 10-year rainfall input data (if this is the case).

Interactive comment on Earth Surf. Dynam. Discuss., 1, 67, 2013.