Hydrology and Earth System Sciences Discussions

Interactive Comment

Interactive comment on "Sediment transport modelling in a distributed physically based hydrological catchment model" *by* M. Konz et al.

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It is not clear to what extent the sediment transport reflects channel behaviour and to what extent it reflects the amount delivered from the catchment. The reconstructed sediment transport has a maximum of ca 3×10^4 m3. Over the catchment area of 90 km2, this represents the significant net lowering of 0.3 mm, so the catchment supply is presumably a significant contribution. It would help to clarify what the model is doing if (i) The hillslope sediment delivery model was at least briefly described. Looking at the catchment it appears as though there are widely disparate sediment sources, from intact forest to very active steep slopes, so that sediment delivery to the streams is likely to show a similar wide range of values. (ii) The contribution of hillside and

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channel sediment can be logged, side by side, to show how much of the downstream fluctuation is due to hillslope and channel behaviour, and therefore how important the developments in channel modelling are to the simulated and observed behaviour.

Can the authors also tell us how the transition between transport limited movement (of coarse debris) and supply limited movement of fines is managed and modelled?

Finally, it is not sufficiently explicit how much of the (moderately?) good fit is achieved through the use of globally validated parameters, and how much is achieved through local optimisations?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 7591, 2010.

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