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Interactive comment on "How do modeling choices impact the representation of structural connectivity and the dynamics of suspended sediment fluxes in distributed soil erosion models?" *by* Magdalena Uber et al.

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Review of 'How do modelling choices impact the representation of structural connectivity and the dynamics of suspended sediment fluxes in distributed soil erosion models' by Uber et al. This is a timely paper. Given the number of hydrology and sediment transport models available understanding the sensitivity of parameters is extremely important. Therefore, the topic is of high interest. The paper reports on an assessment of model sensitivity in two catchment in France. The field data and numerical experiment is nicely done. However, there a few comments that need to be addressed that

can make the paper stronger. The Abstract summarises the paper nicely. However, the Introduction needs some attention. At the end of the Introduction, I largely agree and understand all the you have described, but I am not sure where the paper is really going. I have read the Introduction several times and it is not clear what you are really going to do. This leads to a comment about Section 3.4 (and its logic) which is somewhat difficult to rationalise in terms of the various model runs and setup. The Introduction needs to be refocussed with a much stronger and defined aim particularly at the end of the section. The sentence on lines 72-74 seems to summarise the overall intent of the paper. While the sentences on lines 92-94 are quite vague. Line 174- Soil erosion module I have no problem with using a single layer in an instance like this. However, the model used here only models erosion? No deposition? I realise that the inclusion of deposition adds complexity and would likely slow model run time but what is the effect of neglecting this on the findings? Landscape Evolution Models have demonstrated that including deposition has a significant influence on erosion particularly gullying. I say this as you mention gullies in the Badlands in Section 3.3. A further issue is that you are only modelling suspended sediment? Is this the case? What about bedload? Is the quantity of bedload significant? Should you be examining total load? Line 420-424. Here you talk about total solids. Does this include bedload? Or is it suspended load? Conclusion. Can this be rewritten to summarise succinctly the interesting work here. A Conclusion should summarise and largely be standalone with data presented. I suggest that lines 489-492 have been discussed elsewhere. As presented it reads like an extension of the Discussion and does not do the paper justice. Other issues Line 128. What is 'molasses'? I really liked the interactive figures