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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Quantifying uncertainty on sediment loads using bootstrap confidence intervals" *by* J. I. F. Slaets et al.

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Overall, this is a very well written paper on an important topic. The modelling approach using bootstrap estimates is an important approach and the authors nicely show the strength of the bootstrap. Here are some minor comments for consideration: (i) Introduction: the introduction seem to be quite exhaustive, for example there is a very long introduction on uncertainties, this could be surely reduced. On the other hand, serial correlation is an important aspect of the modelling approach, this has been hardly mentioned. Although, specific aims of the paper were introduced, I would strongly recommend that the authors state why their approach is very important for the estimation of loads. (ii) Bootstrap: I feel that the methodological aspects on the bootstrap could be reduced in length. I am sure that most readers are familiar with the basic principles. I have a few issues with some of the used language, for example l. 215: no clear win-

ner? I am not sure whether there are winners or losers in a scientific context. Perhaps rephrasing helps here, eg, it remains unclear which of those specialized methods..... (iii) Results: The results of the modelling are nicely summarized. However, a couple of questions remains open. The effect of transformations should be evaluated according to the introduction, however, only the log-transformation (and back-transformation) was analyzed. What is the impact of other transformations on the CIs (ie, transformations with simple backtransforms)? 2000 bootstrap cycles were selected, however, it might be of interest, especially for readers not so familiar with the bootstrap, to explore the effect of the number of cycles on the estimates and CIs. The authors nicely explained the importance of including serial correlation, but in fact, it was only considered a first order autocorrelation. Did the authors explore at least a second order autocorrelation? Finally, did the authors consider to compare the bootstrap results with results of different complex models, eg GAM?

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