Hydrology and
Earth System
Sciences

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Discussions

Interactive comment on "Robust global sensitivity analysis of a river management model" *by* L. J. M. Peeters et al.

Anonymous Referee #2

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The manuscript "Robust global sensitivity analysis of a river management model" by Peeters et al. (2014) describes the application of a density-based global sensitivity analysis on an idealised river management model representing typical conditions for an Australian basin. The paper is well written and overall very clear, but needs some adaptations and additional information.

General comments

Although the manuscript gives a rather complete view on the reserach performed, the paper could benefit from a number of additions: * Put the research in a wider context, with additional applications of the model and possible intrests of applying the SA on this type of models. * A comparison of the results of the applied density-based global sen-

sitivity analysis with results obtained from applying other SA techniques to this model could add more scientific value to this work, as it might give additional justifications why the selected method is appropriate. Besides results, also the computation time can be a key factor in this comparison. * Add additional information on the data and the model you have been using. * Besides repeating the most important results, your conclusions should also "promote" your work and the added value.

Specific comments

* p3484: L4: "structured sampling" is not necessary for Sobol' SA. Random sampling is also possible for the base sampling. (Based on this base sampling, combinations of parameters are used for the calculations, which might have given you the impression of structured sampling.) * p3485: L27: I'm not sure if all readers will be familiar with the concept of kernels. Add some information or at least add a reference. * p3486: L19: Add a reference for the bootstrapping. * p3487: L2: You write "first order effects", but you describe a second order effect. Make sure the formulation is correct. * p3490: L19-20: It is not really clear how this is related to the "treshold-induced non-linear behavior". Make this more clear. * p3491: Is the inflow in your catchment not rain fed? I would expect to see this from the interaction effects? Or could this be the case in other applications? * p3498: A more specific (detailed) figure of the reaches would have been more clear.

Technical comments * p3487: L25: remove the first 'to' in "which are to designed to established" * p3491: L23: Don't you mean "RAIN and Inflow" instead of "RAIN and Storage"?

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Interactive Discussion

Discussion Paper