

***Interactive comment on* “Influence of initial heterogeneities and recharge limitations on the evolution of aperture distributions in carbonate aquifers” by B. Hubinger and S. Birk**

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We thank the referees for the careful reviewing of our manuscript and the helpful comments. Both referees concluded that the paper is acceptable for publication if it is revised based on their comments. As can be seen from the detailed response provided in the supplement we agree with most of the suggestions. In particular, we agree that our results will be easier understood if the text passages specified by the referees are shortened while the explanations of the physical processes governing the evolution of the conduit networks are extended. Indeed some of the comments suggest that

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part of the work is misunderstood probably because the explanations were too short and not sufficiently clear. We are thus willing to revise the paper accordingly. We further agree that one interpretation given in the discussion section is questionable and provide a more appropriate discussion within the supplement. However, since this text passage does not contribute to the objectives and conclusions of the paper we prefer to delete it rather than to lengthen the paper by an extensive discussion that is not easily understandable without previous knowledge about karst evolution models. It is further noteworthy that the comments by the reviewers focussed on the evolution of individual conduit patterns (which is also the focus of the earlier publications on karst evolution modelling). We tried to keep these considerations short (evidently too short), because the main topic of our paper is the evolution of aperture frequency distributions in a number of statistical realisations rather than the evolution of individual conduit patterns. We gladly notice that the referees did not criticise these parts of the paper. Please see the supplement for a detailed response to each comment by the referees.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/8/C3997/2011/hessd-8-C3997-2011-supplement.pdf>

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