

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

F. Gabrovsek (Referee)

gabrovsek@zrc-sazu.si

Received and published: 12 August 2011

The manuscript addresses an interesting topic of aperture distributions in karst aquifers and uses generic numerical model for that. Authors demonstrate the potential use of relatively simple models in interpreting the structure and properties of karst aquifers as a consequence of their evolution. The results of this work could be important contribution in understanding karst aquifers, however, several improvements are needed before the paper can be accepted. Here are some general comments: The paper is lengthy and hard to read. The initial ideas are not clearly presented as they are

C3432

hard to find within the text. Authors basically vary two parameters, $\sigma/m\mu$ and Q_{max} and explore the resulting geometries by observing the aperture distributions. After reading the text a reader stays rather confused on what are the conclusions. These should be more clearly stated. The weak point of the work is the interpretation of the modelling results. Authors often use expression "appears to be", where they should give clear physically based interpretation of results. Some interpretations are also questionable. Some particular comments are given in the attached pdf file. Note that the comments given there are still too particular and a response to these will not improve the paper sufficiently. Instead, a deep revision based on these comments and on the comments posted recently by W. Dreybrodt, is needed. I am offering a full support to the authors in revising the manuscript.

F. Gabrovšek

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/8/C3432/2011/hessd-8-C3432-2011-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 5631, 2011.

C3433