



Interactive comment on “Spatially resolved information on karst conduit flow from in-cave dye-tracing” by U. Lauber et al.

Anonymous Referee #2

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General comment

In this study Lauber et al. present the results of a multi-tracer experiment conducted in a karst area in Germany. Injecting two different tracers at two locations at the surface and at two locations in caves within the system, they derive breakthrough curves of the tracers, again at several locations within the system and at its outlet, which is a large karst spring. By interpreting the breakthrough curves concerning their shape, timing, etc., and by using lumped parameter models, the characteristics of the karst system, and in particular the characteristics of separate parts of the karst system, could be derived. Finally, these results and their interpretation are translated in conceptual sketches of about the system and subsystem functioning.

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There is a wide range of tracer studies already available in the literature. However, this study presents a tracer experiment that is conducted partially within the karst system, which can rarely be found yet. In addition the visual interpretation of the results makes the study accessible for a wide range of readers. For that reasons I recommend this publication for HESS, after some minor revisions have been performed:

1. The introduction needs a more general overview of methods to describe transport processes in karst systems
2. Especially in the study site description (but also in the rest of the manuscript) a lot of German names of locations appear that are not relevant for the study itself. For an international audience it might be better to omit some of the German names and to use simple descriptions.
3. In the methodology, the analytical part is not described detailed enough. Please provide general structure and equations of the lumped parameter models being used. Please also mention the inherent assumptions of the chosen model structures (constant discharge, geometrical simplifications, etc.).
4. The conclusions need more focus on the relevance of the results in terms of water management but also in terms of future field research.

For more detailed comments please refer to the supplement of this review.

Please also note the supplement to this comment:

<http://www.hydrol-earth-syst-sci-discuss.net/10/C6440/2013/hessd-10-C6440-2013-supplement.pdf>

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