

Interactive comment on “The influence of heterogeneous groundwater discharge on the timescales of contaminant mass flux from streambed sediments – field evidence and long-term predictions¹” by C. Schmidt et al.

Anonymous Referee #1

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General comments:

The entry of organic pollutants resulting from aqueous-phase transport and particle facilitated deposition into streambeds is still a major field of research. Going hand in hand with the development of analytical methods, such as passive samplers, and computer models, long term predictions are getting more and more realistic.

The present paper is a valuable study about the discharge of chlorinated benzenes

¹Invited contribution by C. Schmidt, one of the Union Young Scientist Award winners 2007.

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into surface water. The applied analytical methods including time-integrated passive samplers are an appropriate approach for this quite unpolar compounds. However, chlorinated benzenes are still ubiquitously present in waste water and leachates from land-fills, what is the contribution of these sources to the Mulde?

Surprisingly the authors do not even take into account the possibility to analyze and predict the entry of more polar compounds, which are also known to be infiltrated into the Mulde river.

A second remark would be the adsorption/sorption phenomena discussed in the paper. It is known from literature and also our work, that sorption/desorption can not only predicted from simple Freundlich equations, but is a very complex system based also upon e.g. changing DOC. How could this be taken into consideration?

Of course, the attempts of the authors to model such a complex system still bears quite some risk of failure, on the other hand it is an important step forward to explain and calculate the individual mass fluxes into streambed sediments. Thus, due to the importance to the field, I recommend the present manuscript to be published after the corrections deemed necessary.

Specific comments:

Methods: Which adsorbent material was used? Is the sorption/desorption dependent upon temperature (samplers were used from June-September)? P 978/Line 14: Which procedure was repeated, the acetone elution? Isotherm sorption should be given in a separate Fig.

P978/979: No real sentence and analysis was by GC-MS

Conclusions: There should be a clear cut between the abstract and the conclusions, please avoid repeating information.

Fig. 4: Extremely difficult to read

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