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Hydrology and Earth System Sciences Discussions

Interactive comment on "A novel explicit approach to model bromide and pesticide transport in soils containing macropores" *by* J. Klaus and E. Zehe

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Thanks for the many clarifications made in the author's comment.

I still have concerns about the modelling approach for isoproturon. The simulations for isoproturon suggest that the sorption in the worm burrows was weaker than what would be predicted from Kd-values reported in the literature. You state that 'the goal of using n-values exceeding 1, was to show that the major part of the transported IPU is transported without retardation'. This point would be illustrated much clearer by allowing Kf in figure 7 to vary between 0 and 20 instead of 0.5 and 20. This was also, as I understood it, suggested by reviewer 3. There are several reasons for not using n-values exceeding 1, i) it is not physically justified (which you clearly are aware of), ii) it limits the model applicability to IPU concentrations at or below those used in this

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study, and iii) it is confusing for the reader and takes the focus away from the strong parts of the paper.

I strongly encourage you to revise this part of the paper.

Concerning the use of the TDR data you suggest to 'include a discussion about the different parameter setups, that lead to successful solute modelling results'. I think this would improve the understanding of the paper.

P1002L14-15. If you show that the parameter is indeed insensitive that would be justification enough.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 991, 2011.