Hydrol. Earth Syst. Sci. Discuss., 11, C2500–C2501, 2014
www.hydrol-earth-syst-sci-discuss.net/11/C2500/2014/

Hydrology and Earth System Sciences
Discussions

Interactive comment on "An effective parameterization to quantify multiple solute flux breakthrough curves" *by* E. Bloem et al.

Dr Wehrer (Referee)

markus.wehrer@uni-jena.de

Received and published: 15 July 2014

The article "An effective parameterization to quantify multiple solute flux breakthrough curves" by Bloem et al. adresses the data analysis of multicompartment suction plates. A method is presented to evaluate different experiments based on a handful quantitative parameters instead of just visual inspection. The idea and approach is valuable and deserves publication.

However, I would like to point out three shortcomings in the presentation of the results.

First of all, one of the soils is apparently subject to a mobile-immobile flow regime. Yet, a conservative convection dispersion is fitted to the breakthrough curves. Although I don't see a problem in doing so for the presented method, it should be made clear that

the fitting does not result in systematical deviations and that the model actually can represent the data. This is not possible to judge from the way the data is presented.

Secondly, the manuscript is not consistent with the treatment of the uncertainty of the parameters - in two experiments (the Dutch soil) the uncertainty is taken into account, in the third experiment (Australian soil) it is not. I would like to stress that the uncertainty of the fitted parameters is equally important as the parameter itsself and therefore, the uncertainty of the parameters should always be provided for the comparison of different multicompartment sampler experiments.

Finally, the presentation of the different steps in fitting the model to the data was quite confusing to me. I would recommend some schematic figure to explain the approach and some explanatory sentences in the results section.

For more details and some other minor issues, please see attached PDF

Kind regards, Markus Wehrer

Please also note the supplement to this comment:
http://www.hydrol-earth-syst-sci-discuss.net/11/C2500/2014/hessd-11-C2500-2014-supplement.pdf

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 6993, 2014.