

Interactive comment on “Technical Note: Linking soil – and stream-water chemistry based on a riparian flow-concentration integration model” by J. Seibert et al.

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We appreciate the constructive comments which we will consider in the revised version of this manuscript.

1) Assumptions and general applicability of RIM: We agree that we make several assumptions as we also already discuss in the text. We want to emphasize that we are not claiming RIM is applicable everywhere. Especially RIM is not directly applicable to "two phase" flow systems, like connected macropores (mole holes) or cracking soils. It will be interesting to see if this concept can be extended to systems without the

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very specific constraints of matrix flow and relatively simple, if non-linear gradients in hydraulic conductivity.

2) The assumption that the soil water chemical signal is imprinted in the riparian zone instantaneously is based on the relatively stable concentrations seen in the riparian zone, despite the large amount of lateral flow entering this zone with rather different chemical concentrations, most notably for DOC. We should add that this is a simple starting assumption. One way to develop the RIM model is to test for divergence from this assumption of an instantaneous imprint.

3) Fig. 4 and 5: we will clarify the figure text. The predicted soil water concentration profiles are only drawn for the depths which were assumed to contribute to the outflow, and are, thus, not extended above the groundwater table. In other words, we only show the part of the soil concentrations profile which is assumed to affect streamwater concentrations at a certain time, because it is only this part we can predict using the RIM approach. We agree that there is some scatter and that the observed data (points) do not always match the predicted profiles (lines), but generally we find the agreement of the backwards calculated profiles quite reasonable.

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