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Hydrology and Earth System Sciences Discussions

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 thank you for the constructive comments, all of which we will consider in the revised version of this manuscript.

1) We thank the reviewer for making us aware of this obvious error in our equation. While this is an embarrassing error, luckily the error is rather a typographical mistake than a substantial error. The apparent error in equation 5 arises when replacing the profile depth z by the argument stated in equation 3. The actual error is not in equation 5 but in equation 3 where we transposed a and b. (see also separate response)

2) We agree that a more general term could be used. On the other hand using a term like 'sediments' also could be misleading. We will consider this and at least clarify in the text that our approach is not limited to 'soils'.

3) In such situations our approach, which focuses on the importance of the riparian zone, would not be appropriate. With this method one can only 'see' the conditions in the last meters before the water enters the stream.

4) Yes, for situations with such hydraulic conductivity profiles our simple approach certainly would need to be modified. Using a different mathematical expression for the water flow variation with depth might allow us to represent such situations.

5) The predicted soil water concentration profiles are only drawn for the depths which were assumed to contribute to the outflow, and are, thus, not extending 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.

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