

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 wish to thank you for the detailed comments which we will all consider in the revised version of this manuscript.

Here we want to respond to a few comments:

Number of rating curve measurements: the reviewer is right that one should use as many gaugings as possible to establish a rating curve. However, in our case runoff was measured at a 90 degree V-notch weir. Given that there is a physical equation for this type of gauge we find 50 measurements quite reasonable. Actually we would

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argue that this number is larger than what is available for many similar sites; we are aware of gauging stations run by official monitoring programs where rating curves of V-notches have been derived from a few points.

Riparian peat and shape of the vertical conductivity profile: The choice of an exponential function to predict water fluxes is motivated by the observed variations of flow in relation to groundwater depth (Figure 3) and supported by measurements of saturated hydraulic conductivities in riparian soils with mineral-peat transitions that were carried independently in the same research area (Bishop, 1991). It was also found that observed streamflow variations could be explained by Darcian flow and the transmissivity feedback mechanism.

We are aware that there are also several other assumptions made when deriving the RIM concept, such as assuming that the riparian zone is spatially uniform. We will clarify and extend the discussion of these assumptions in the revised paper.

Bishop, K. H., Episodic increases in stream acidity, catchment flow pathways and hydrograph separation, Ph.D. thesis, Cambridge Univ., Cambridge, England, 1991.

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