

Biogeosciences Discuss., referee comment RC2
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Reply on AC1

Anonymous Referee #1

Referee comment on "Modelling temporal variability of in situ soil water and vegetation isotopes reveals ecohydrological couplings in a riparian willow plot" by Aaron Smith et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-278-RC2>, 2021

I thank the authors for taking the time for these preliminary clarifications, before the full response.

Having the lateral contributions explicitly accounted for is a very welcome development, and I will be looking forward to reading the response and revised manuscript. As a side note, I am thus also assuming that the lateral contribution are also included in terms of water amount (not only signature/age) when transpiration is computed, for consistency. This seems to be a major, exciting development in the ech2o-iso model (and probably as compared to many models), and it would seem appropriate to add the description of this feature somewhere in the revised manuscript.

Finally, I am not really convinced by the explanation regarding higher KGE for instant mixing when measured isotopes and sapflow are used. Both mixing schemes (distance-based and instant) use the calibrated root profiles, with the inherent structural limitation associated to it, and it seems that neither case is constrained by xylem concentrations or any root-related information on water signatures. Thus it is not clear to me why either mixing model could "have a head start" on the other. I would welcome further clarification on this topic in the response to come and revised manuscript.