

Hydrol. Earth Syst. Sci. Discuss., author comment AC2
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Reply on RC2

David Mennekes et al.

Author comment on "Ecohydrological travel times derived from in situ stable water isotope measurements in trees during a semi-controlled pot experiment" by David Mennekes et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-674-AC2>, 2021

We thank referee #2 for the valuable comments, which helped us to improve the manuscript. Please find the answers to each comment below.

(comments by RC are bold, answers are normal font)

General comments

We generally shortened the discussion and added more logical connections to our results. Overall we also improved the understanding to find some clear take home messages, especially regarding the results section.

Specific comments

L39-41

Thank you for your comment. We changed this part to better highlight the recently discovered fractionation processes.

Furthermore, in our discussion we talk about possible effects of fractionation occurring in our experiment when we discuss Fig. 7 in section "Differences between tree species".

Figure 5

Thank you for your suggestion. We agree that the way we chose the y2-axis makes it difficult to see the dynamic of the isotope data (because dynamics is damped). To improve this, we changed (i.e., stretched) the y2-axis to better show the dynamics of the isotope data. However, we think that plotting isotope data and cumulated sap flow data into the same figure allows a better comparison of the timing of isotope break through and the sap

flow based ecohydrological travel time (i.e., the time it took sap to travel from the roots to 15 cm and 150 cm tree height, respectively). This is what we try to emphasize with the brown, green and gray horizontal bar.

L480,

Indeed, this was confusing. We rephrased this section and we think it should be clearer now.

L485-486

We change the paragraph regarding Fig. 7. We hope it will be clearer now.

L485-486

As mentioned above, we changed the discussion part. We hope it is understandable now.

L549-550

We removed the two-line paragraphs.

Conclusion

Thank you for your idee. We appreciated it and transformed the conclusion to a section called "conclusion and future implications". Consequently, we also hope that we avoid too many redundant information and everything becomes shorter and more precise.

Technical comments

L165

Thanks a lot for pointing out this typo! We changed it to custom-made

L267

Thank you for this technical comment. We are aware of this.

In the revised version, we would like to have the two graphs on one page if possible. In

this case we wanted to have the more interesting result on top. If the final edited version won't be like this, we will change the order.

L481-484

We rephrased this section and we think it should be clearer now. See comments above and comments, too.