Comments/Answers community comment:

Magh et al. are investigating, if equilibrated water vapor from soils and plants can be collected and be measured thereafter in the laboratory in order to determine water isotope values. The results of their experiments demonstrate that this is possible within an acceptable uncertainty compared to in-situ approaches (ll. 22-23, please rephrase this sentence so that it is clear to what this uncertainty refers).

We will rephrase the sentence in the revised manuscript to ensure readers understand it refers to a higher acceptable standard deviation from the mean associated with the higher measurement value of the enriched samples.

Having applied and developed in-situ methods since 2016, I applaud the authors for proposing a method to overcome one key limitation related to in-situ approaches: The spatial resolution. Having a laser spectrometer in the field is expensive, risky; and direct measurements is extremely laborious and error-prone. Hence, this can be a first step towards enabling the full range of benefits of in-situ measurements: high spatiotemporal resolution and measurement of plant-available or mobile water.

While the method is carefully tested in this manuscript, a number of aspects remain to be tested, e.g. application in real field environments, temperature fluctuations (e.g. sample transport in an airplane), maximum storage time, test of different flow rates for equilibrating the sample in the field, compare Marshall et al., 2020; , carrier gas to be used (maybe using a dessiccant tower would be sufficient in the field, where dry air is not always available?). The remaining shortcomings and potential factors that could affect the method could be pointed out more clearly at the end of the manuscript.

We agree to add a section to the revised manuscript where we will pinpoint these shortcomings of the current manuscript and emphasize the potential for further research using this method.

An option that is not discussed is having the instrument in the field (but in a 'safe' space) or nearby, and measure the samples directly in the field, but not via connectors etc. This would limit sample storage time and perhaps guarantee best results. For instance, we are testing the water vapor storage method at a site in central America in a setting where the next isotope laboratory is 4 driving hours away; this is a potential setting that many might have. How will altitude/pressure differences and temperature alterations affect the storage? The risk of this method is clearly the small amount of water molecules stored in the bottles, which makes it very easy to be contaminated.

We agree, the possibility of having a Laser close-by is an option that is not extensively discussed, and it will be added to the discussion section in the revised

manuscript. We will also address the risks involved in transport more clearly but think we have addressed a potential solution for at least condensation (which would be the worst case in most settings) by heating the samples prior and during the measurement procedure. We will make sure this is clearly emphasized in the revised version.

In my opinion, the title could be more concise and related clearly to in-situ measurements of water isotopes (e.g. by mentioning in-situ in the title, it will increase the visibility of the manuscript imo).

We disagree with you here, since this method would technically not only enable in-situ measurements in the sense the term is used in the ecohydro community but also enable sampling of air if moisture is high enough. On the other hand, you're right, adding the term in-situ would probably enhance the visibility of the manuscript. We will reconsider the title in the revised manuscript.

I strongly recommend this experiments to be published in HESS and thank the authors for sharing this work.

Kind regards,

Matthias Beyer