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Interactive comment on "Effects of climatic seasonality on the isotopic composition of evaporating soil waters" *by* Paolo Benettin et al.

Anonymous Referee #2

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This is a very interesting, well written and important manuscript. It is also very timely, as more and more ecohydrological studies are using isotopes to determine the source of water that is taken up by plants and these researchers may be tempted to use the intercept of the trendline through the soil or xylem samples to infer the isotopic composition of the source water. This study shows that this is clearly wrong (except for locations where the isotopic composition of the source water does not vary seasonally) and fortunately also gives a suggestion on how to obtain a better estimate of the isotopic composition of the source water (P12L12-18). The beauty and impact of the manuscript lie in the simplicity of the approach that was followed and the very clear figures. I highly recommend rapid publication of this manuscript and have only very minor comments or suggestions.

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1. P8L6: Isn't this the case for figure 4a as well?

2. P8L11: Can you clarify on what the x=0.58 is based (i.e. why did you choose this value and not another value)?

3. Perhaps add subheadings for the different results to make it even easier to follow or find the different analyses and results (from P6L26: evap from open water, from P8L14: asymmetric evap, P9L2: evap from soil water mixture).

4. Figure 6: I would find it useful if evaporation lines connecting the residual liquid samples and the source water were shown as well – like it is done in the other figures.

Very minor editorial suggestions:

Title: Replace 'soil waters' by 'soil water'

Abstract: Make the abstract more concrete by removing some of the "qualifiers": on P1L5: remove 'also', on P1L6: replace 'sometimes' by 'often'. Perhaps replace 'precipitation' by 'source water (and thus precipitation)'?

P1L17-P2L5: Either replace 'included' by 'focused on' or 'identifying' and 'quantifying' by 'the identification of' and 'quantification of'

P2L7: Remove 'at any location'?

P2L8: To avoid confusion with the trend line through samples of the remaining water, I would try to avoid using the word "trend" to describe the LMWL: replace 'follow a linear trend' by 'are linearly correlated' or 'plot on a linear line'

P2L12: Remove 'Collections of'?

P3L1-2: Replace 'waters' by 'water'

P3L15: Insert 'open water and' before 'soils' as it also describes the situations for shallow open water or small reservoirs

P3L12-14: Write in past tense 'simulate'-> 'simulated' and 'introduce' -> 'introduced'

P3L26: Add ‘and’ and ‘It is. . ..ratios’ from the next sentence to the end of the sentence ending with ‘equilibrium’

P3L26: Do you really need the ‘super’ here? Isn’t it is just the ratio of the two isotopic ratios?

P4L16: Replace ‘under’ by ‘for’?

P5L6: Move the part ‘with parameters. . .n=1) to the caption of the figure. It is more informative there

P6L15: Replace ‘ensures’ by ‘ensured’.

P6L16: Replace ‘, and thus aids visualization’ by ‘aiding interpretation and visualization’

P6L16-17L Remove ‘data. . ..All the’ and add reference to Figure 3 at the end of the sentence (after ‘seasonality’)

P6L20: Replace ‘evaporation seasonality’ by ‘seasonality in evaporation rates’ to make it clearer that this is the rate or fraction of evaporation and not fractionation or the conditions during which evaporation takes place. Replace ‘modeled’ and ‘using’ by ‘represented’ and ‘by’?

Caption Figure 4: Replace ‘evaporation seasonality’ by ‘seasonality in evaporation rates (represented by x, the fraction of the initial volume that has evaporated)’

P6L9: Replace ‘feature’ by ‘represent’

Caption figure 7: Replace ‘are’ by ‘were’

P11L7: Remove ‘ecohydrological’ or put it in parentheses

P11L12: Replace ‘out’ by ‘the’?

P12L12: Replace ‘would give’ by ‘gives’

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