Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., referee comment RC1
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Comment on hess-2021-289

Anonymous Referee #1

Referee comment on "Controls of seasonality and altitude on generation of leaf water isotopes" by Jinzhao Liu et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2021-289-RC1, 2021

This manuscript tried to address how leaf water isotopes generate to be an isotopic line, which is important in ecohydrological cycle. The authors thought that both altitude and seasonality likely control to result in this line generation by repeatedly sampling soil water, stem water, and leaf water across altitudinal transect. The selection of topic, design of experiment, and conclusion were interesting, which was not yet reported so far. I like this manuscript and support the publication of this manuscript after addressing a minor revision below.

- A growing number of studies have, recently, reported that there was a large isotopic offset between root/xylem water to soil water, challenging the prior assumption that on isotopic fractionations during root water uptake occurred. Did your results support this view? If the isotopic offsets existed, how did they affect your results?
- Your results showed an isotopic consistency from precipitation, soil, stem, and leaf waters, so you think that leaf water isotopic line were generated by the first-order control of source water. I am curious about whether other potential water sources (e.g., fog, dew) affect the results?

Some minor revisions as below

Line 24, bridges □bridge;

Line 30: deplete "the" between "in" and "$\delta^{18}O$";

Line 54: deplete "the" before "water balance";

Line 55-56: The statement on enriched isotopic compositions of leaf water resulted from evapotranspiration, which is doubtful. In fact, this isotopic enrichment is mainly caused by evaporation whereas the evapotranspiration is generally considered no isotopic fractionation. Please check this statementï¼□

Line 67: Change "first" to "firstly";

Line 71, controls □controlling;

Line 83-86, the isotopic fractionation by roots should be removed because this study did not refer this relevant data and experimental design;

Line 88: Change “insight” to “insights”;

Line 140, This part should be listed the detailed information on the plots. The experimental design is very vital to determine the monitoring data of this study. Plant and soil properties should be explained in the section. According to this, the study can select which plant and soil samples can be collected. Hence, line 143, one or two plant species refer to which plants? This plant represents the typical? Shrub? Trees?

Line 146 remove the minimal damage;

Line 150, why do you collect samples from surface soil layers (< 10cm)? Other deep soil layers? Plant use water sourced from not only surface water but deep soil layers;

Line 231: Missing something, rephrase the sentence;

Line 232-234, this statement moves to the discussion section.