

Interactive comment on “Soil water migration in the unsaturated zone of semi-arid region in China from isotope evidence” by Yonggang Yang and Bojie Fu

L. Bing (Referee)

liubing2014@lzb.ac.cn

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The purpose of this paper is to probe into the migration process soil water, and identify each potential water source, which is well justified. There are also good data sets. To my knowledge, this would be the comprehensive study of soil water migration in the unsaturated zone in the western China. It does look like the data are very good and useful, especially the isotopic data. Publication of this study could advance our understanding of alpine hydrology and also be of interest to hydrologists. There are some problems with the paper, and it will be revised to get it for publication in the journal. They are as follows:

(1) Add an inset map (e.g., a small China map) showing where the basin is relative to
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Beijing and Dingxi.

(2) On page 13 it is stated that isotope composition of xylem water of various plants is different. Soil water at the 40-60cm depth is mainly used by caraganakorshinshikom. Groundwater? Precipitation? Why? I am not saying that the recharge is not possible but the stronger hydrogeological background is needed for it to be plausible. The Area description, especially the Hydrological Background, is also required.

(3) Vacuum distillation was considered as a reliable and accepted method for soil water and pant water abstraction in this paper. Please give a description on detailed procedure, such as time and temperature selection.

(4) On page 12, “Through analyzing the δD and $\delta^{18}O$ in xylem water of caraganakorshinshikom, and the δD and $\delta^{18}O$ in potential source such as soil water and precipitation in Anjiagou Gully basin”. Here what is the meaning of “in Anjiagou Gully basin”?

(5) How about terrain and vegetation on soil water?

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