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Hydrology and Earth System Sciences
Discussions

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

Anonymous Referee #1

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The subject of this manuscript is interesting and worthy of publication. I believe that the topic will be of broad interest to readers. In my opinion, the key contribution of the manuscript is that it aims to investigate soil water migration processes using isotopes, integrated with sampling in the field, experimental observation and laboratory analysis, and to integrate data from several different compartments of the hydrological system, i.e. precipitation, soil water, plant xylem and root etc.

However, I think some minor modifications are required before the manuscript's publication.

2.2 Sample collection and field experiment "Samples of precipitation, soil, xylem, stem, leaf and root were collected in the study area." "Stem samples (about 0.5 to 2 cm

diameter and 5 cm length) were obtained." While no linkage of analysis about stem and leaf was found with the previous and the subsequent discussions. This paragraph should be moved and edited.

4.1.1 Evidences for piston-type flow There are two continuous rainfall events on 20 July 2014 and 24 September 2014, which infiltrating uniformly into deep depths, as shown by the reducing δ D and δ 18 O values with time after the precipitation.

Here how many days did the two continuous rainfall events last respectively? What about the precipitation values? Please give specific explanation.

4.2.1 Water origin of water sources are uptake by plants "The results show that isotope composition of xylem water of various plants is different. In the paper, what part can explain this point? There is no such comparative analysis about different plants, so please give further explanation or delete.

In addition, please give explanation about the reason of choosing 130cm as the maximum sampling depth. What about groundwater? Why no discussion in this study?

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