

## ***Interactive comment on “Direct or indirect recharge on groundwater in the middle-latitude desert of Otindag, China?” by Bing-Qi Zhu et al.***

**Anonymous Referee #1**

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The objective of this manuscript is the understanding of groundwater recharge under arid conditions. The authors provide a detailed discussion on the different assumptions they made to explain this recharge. However, this discussion is mainly based on geochemical data including isotopes. To my knowledge, the developed methodology is not new, or, in other words, the authors did not sufficiently highlight the originality of the methodology. Furthermore, the discussion lacks of hydrological considerations. For example, the measured concentrations are the result of the mixing of water moving in the aquifer and the water coming from the recharge. The resulting concentration depends on the different water fluxes which have to be estimated for proper interpretations. Moreover, the travel time in the unsaturated zone has to be discussed in detail. It can be of several decades under these climatic conditions for a groundwater depth

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up to 60m. For these reasons, the paper should not be accepted for HESS.

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C2