

# ***Interactive comment on “Comment on “Origin of water in the Badain Jaran Desert, China: new insight from isotopes” by Wu et al. (2017)” by L. Zhan et al.***

**x. wu**

xiujiewu1990@gmail.com

Received and published: 2 July 2018

Thanks to the group of Dr. Zhan who wrote this Comment. Now, I find the mistake I have made. So I make the corrigendum below: Due to the ignoring calculation of annually weighted average values, I misused the mean values as the weighted average values of isotope ratios of precipitation at the IAEA-GNIP (IAEA/WMO, 1986-2003) station in Zhangye. So the words “weighted annually average” in the figure caption of Figure 4 in the page of 4225 and “weighted mean” in the section 5.2 (Page 4426, Line 28 left side), which should be “annually average” and “mean”, respectively. In addition, I add the true annually weighted average values (IAEA/WMO, 1986-2003) to

Printer-friendly version

Discussion paper



the Figure 4 and Figure 5a. As shown in the Figure 4 and Figure 5(a), the weighted average value (black square in the Figure 4&5a) is higher than the intersection of the evaporation line and the GMWL in the  $\delta^{18}\text{O}$ - $\delta\text{D}$  plot. This may indicate preferential recharge by winter precipitation in such an arid region, unlike in humid region where the groundwater generally has a composition similar to the weighed mean annual precipitation in the watershed. In other words, the local groundwater is perhaps recharged primarily by snowmelt in the area and/or surrounding mountains, with little or no summer rain making it to the water table due to high evaporation and/or the plant evapotranspiration in the summer. I also have two suggestions to this comment: 1. This comment make some good theoretic analysis of the altitude effect on the stable isotopes of precipitation, however, I did not see more isotopic data from the Qilian Mountain. Considering they questioned the representability of the samples from Shiyang River (Li et al., 2016), I think more data from the Qilian Mountain would make this comparison more clearly. 2. In my opinion, the more specific description of the hydrogeological processes and the evolution of water isotopes is necessary to support the remote Qilian Mountain as the major recharge area.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2018-229/hess-2018-229-SC1-supplement.pdf>

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2018-229>, 2018.

Printer-friendly version

Discussion paper



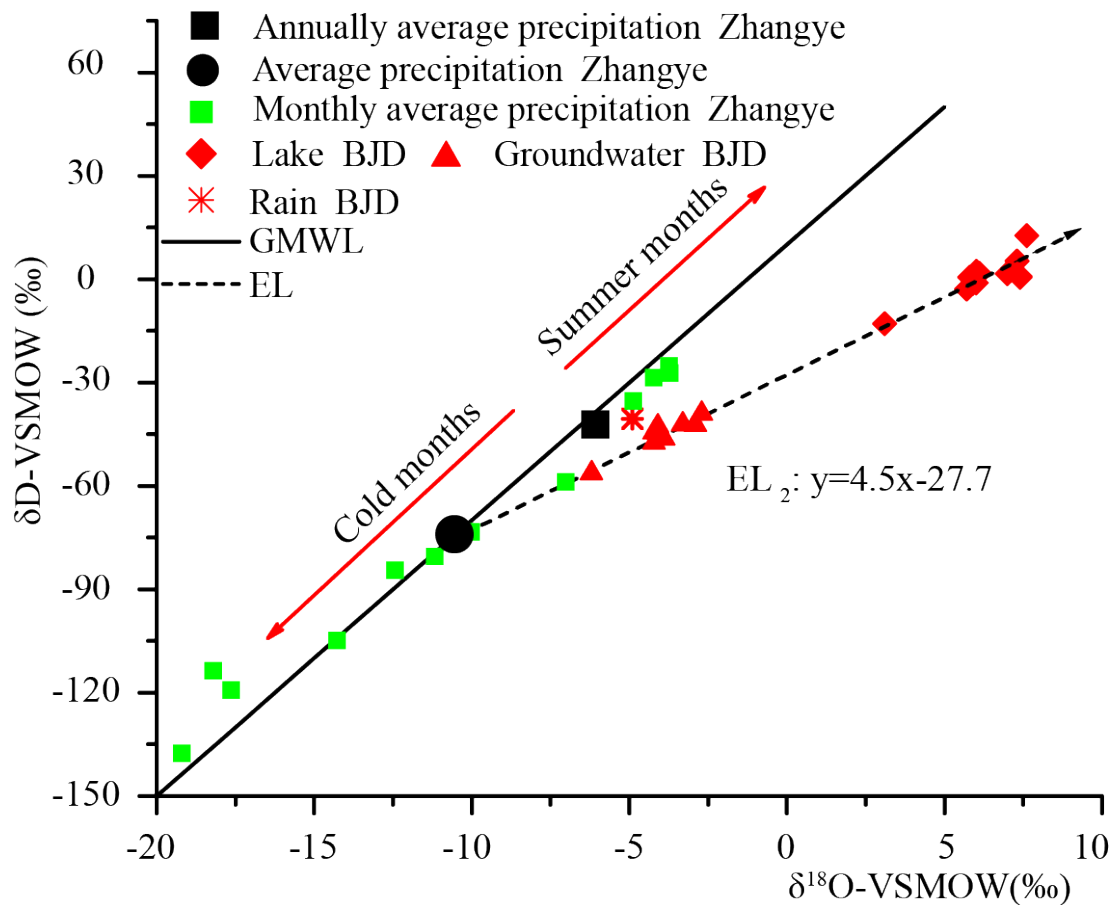


Fig. 1.

Printer-friendly version

Discussion paper



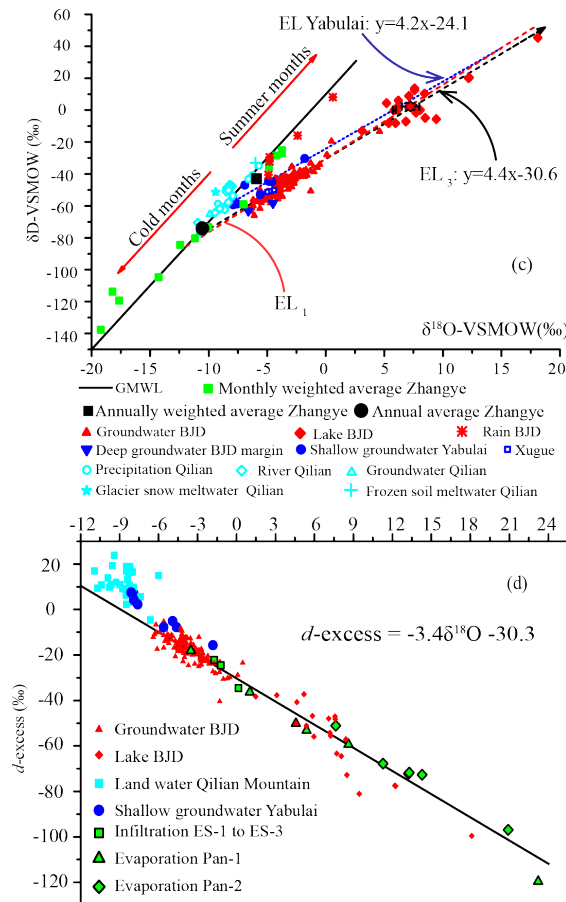


Fig. 2.