

Earth Syst. Sci. Data Discuss., referee comment RC2
<https://doi.org/10.5194/essd-2022-377-RC2>, 2022
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Comment on **essd-2022-377**

Anonymous Referee #2

Referee comment on "Stable isotope ($\delta^{18}\text{O}$, $\delta^2\text{H}$) signature of river runoff, groundwater, and precipitation in three river basins in the center of East European Plain" by Julia Chizhova et al., Earth Syst. Sci. Data Discuss.,
<https://doi.org/10.5194/essd-2022-377-RC2>, 2022

Review of Stable isotope ($\delta^{18}\text{O}$, $\delta^2\text{H}$) signature of river runoff, groundwater, and precipitation in three river basins in the center of East European Plain by Chizova et al.
(revised ms for ESSD)

The ms under review is a resubmission of a previously rejected one. The main reason for rejection was the potential improper treatment of samples before analysis, as resulting from the reported values of $\delta^{18}\text{O}$ and $\delta^2\text{H}$ and lack of clear description of sampling and storage. A recent paper by Skrzypek et al. (2022) discusses minimum requirements for publishing such data and I encourage the authors to adhere to these (available here).

Now, onto the paper, and considering the issues raised above, there seems to be something very wrong with the groundwater data from Zakza. In fig. 2c a clear evaporative trend for water sampled here is discernable, which is difficult to reconciliation with an artesian well rising from well below 80 m. Simply put, there is no way that water could have been evaporated before reaching the surface. Is it possible that water was sampled from a pool sitting on the surface for quite a while? Ethe other option is miss-handling of the samples after collection (storage in low density plastic bottles, at high temperatures, for extended periods of time). While the other data warrants publications, the authors need to explain this discrepancy before the paper could move to a more advanced state.