

Response to Editor Review:

Dear Editor,

Thanking for taking the time to provide the second review. We appreciate the comments and have addressed them accordingly.

In your response to #R1 you write: "The main novelty of this manuscript stems from the use of isotopes, as it gives context to understanding the different catchment responses."

This sentence should be included to the revised manuscript.

** We added this statement to the discussion section (L514-516).

L150 There are a few random references appearing next to the heading text

**Removed

3 Data and methods: #R1 raised some concern about a confusion here between seasonal patterns and response to storm events. A short mentioning why these two type of indicators are present here could easily resolve this confusion.

**We removed the sentence (L173-174) to avoid confusion. We only use the hourly precipitation data to look at storm events as well as hydrologic responses (i.e. flashiness, baseflow index) to these events.

L167 dot and space missing.

**Corrected

L174 there is an extra space here (October-May)

**Corrected

Fig. 2 feels very busy, and I am also worried if some detail could be lost in the final manuscript version. My recommendation would be either reducing the content of the figure, or moving its full version to the appendix and keep here only some zoomed-in time periods.

- I did not find any legend for the blue markers of the isotopes

**We moved the groundwater level plots to the supplementary material and added a reference to the figure in the manuscript. The grey grid lines have been removed to also reduce content. Otherwise, we would leave the figure as is – font size of legend has been increased.

- in general: the a)b)c)d) markings over the figures are inconsistent, here they are in bold, later just normal font

**Changed

L331 this sentence could use some figure references.

****Added reference**

Fig. 3 here the letter b) is missing

****Added**

in c) the in figure text is squeezed

****Changed**

I find it difficult that the plots a) and b) have inconsistent labelings. You should remove the arrows from b) and put there the Urban/Rural legend from a)

****Changed**

also the color choice for the second Y axis is very light, a standard black labeling here would be perfectly fine

****Changed**

general: be consistent with the ordering of the examples, if you always have the urban catchment first then the rural - in some figures it gets mixed up. In the caption of figure 3 I think the urban-rural is mixed up for c) and d)

****All figures now show first rural and then urban results**

L337 is this the correct figure reference?

****Changed**

Fig.4 typos in the caption

****Changed**

In your response to #R1 you wrote:

"As a general interpretation: the closer the values are together, the less variable they are - meaning a more constant and similar water source is present in a stream, while points spread larger apart indicate greater variability in the source water contributions and seasonal variability" Including these sentences to the main text would strongly help the understandability of this section.

****Included sentence in main text (L352-354)**

L376: are water ages and young water fractions shown in fig 5. If yes, this should be mentioned in the caption in some ways.

****Only young water fractions are shown. Explanation added to the figure caption.**

Fig.5 here the rural catchment comes before the urban which is very confusing.

What is the gray line?

****Grey line indicates the sinusoidal cycle for precipitation – added explanation to figure**

caption.

Fig. 6: in some captions you use abbreviations only (here TPLR), sometimes with full words and the abbreviations. From a reader perspective the second solution would be much easier to follow.

****Added full term in the caption**

Also please check if all abbreviations are introduced in the text properly. For example WY is not. As the SI is targeting a broader audience even some trivial conventional abbreviations should be introduced.

****Added explanation for WY abbreviation (L164) and checked all other abbreviations**

In the revised manuscript I found the discussion section more fitting to the whole text.

L454 there is a problem with a reference here

****Corrected**

L486 the abbreviation F_yw is just Fyw here.

****Corrected**

L560: Copernicus journals prefer to have a full reference for these data websites, for the Wasserportal a working way of reference would be:

****Corrected**

The data can be accessed at: Public discharge data is available from:

https://wasserportal.berlin.de/stationen_start.php (SenUVK, 2023) and the reference to it:

SenUVK. (2023). Wasserportal Berlin. https://wasserportal.berlin.de/stationen_start.php

Response to Reviewer #1:

Thank you to this reviewer for taking the time to review again our revised manuscript. We appreciate the attention to detail and final comments. We made the necessary changes in the manuscript.

Line 85: 'catchments' is missing between 'contrasting' and 'over'.

****Changed**

Line 150: There is a list of three references to be deleted after the section title.

****Changed**

Lines 157-158: There is a missing verb in this sentence.

****Corrected**

Lines 252-253: Please use normalized discharge values.

****Corrected**

Figure 2: Please increase font size in the legends.

****Changed**

Lines 355-356: You should refer to the LMWL, particularly if there is a marked difference in the slopes of GMWL and LMWL. Anyway, if most of the samples plots below the line, there is evidence of evaporation.

****Changed**

Lines 356-358: Is the reference to Figure 4b correct? I think this observation should be based on Figure 5.

****Changed**

Lines 377 and 379-380: Please write $p < 0.001$ instead of $p < 2.2e-16$.

****Changed**

Lines 384-386: If the correlations are negative, r must be negative. Besides this, it seems strange that young water fractions decrease with an increase in annual discharge.

****Changed**