

Comment on **essd-2021-465**

Anonymous Referee #1

Referee comment on "Stable water isotope monitoring network of different water bodies in Shiyang River basin, a typical arid river in China" by Guofeng Zhu et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-465-RC1>, 2022

Dear Authors,

In your study entitled 'Stable water isotope monitoring network of different water bodies in Shiyang River Basin, a typical arid river in China' is an interesting work which tries to share key data (primarily water stable isotopes) from various water bodies. After carefully reading the MS and exploring the dataset attached, I came to the conclusion, that the way this dataset is presented is insufficient for ESSD in its present form.

Main overall concerns:

- The MS does not fit well into the scope of ESSD in its present form. It lacks to interconnect the data it shares and to show how it is valuable in relation to the Earth's system.
- The title says 'Stable water isotope...' yet it seems to me that sections 6.2 and 6.3 are the ones that truly reflect the title of the MS. Sadly, the other valuable information that was presented in the earlier sections is not tied into the main logical thread of the MS, nor it is demonstrated how vital those may be to be used with water stable isotopes.
- The presentation of the dataset is poor. I am missing at least one table/figure that really gives an overview on the whole dataset that is presented in the MS from the variables side. After all that is in the focus according to the title. The information provided in Sect. 4 is relevant, yet insufficient. I am missing an overview figure or table in which every variable, with measurement units, temporal sampling frequency, number of samples for the investigated interval etc. are provided. The reader must get an overview on the dataset that is presented, before any detail on the measurements is discussed.
- The study lacks to show how the data it shares is relevant in hydrological research as one would expect based on the introduction.

Specific comments:

Abstract

- “The purpose of this study is to clarify the hydrological and ecological processes of arid inland river basins in Eurasia and provide a scientific basis for their sustainable development.” However, this aim is not achieved at all. The MS lacks to show how the data presented are interconnected, let alone illustrate such aims.
- The paper is supposed to be about a water stable isotope monitoring network. Yet it only comes up in the second half of the abstract.
- The penultimate sentence tries to describe how the dataset could be utilized. This should be much more elaborated on and should be one of the main messages of the abstract.

The **Introduction** seems as if it was written to another paper. Considering sections 4 and onward, those are not tied to the questions described in the introduction, which is a major problem. The introduction correctly addresses issues that the dataset at hand could be used to solve. However, when the dataset is presented its values and possible applications are not presented in light of the Introduction.

Study area description is sufficient, but it lacks a discussion on how this particular area is important from an international perspective. Indeed, in line 47-49 it is mentioned that the area is important and unique, but there is no reference to back this up, nor it is compared with other similar areas from around the world. Thus the readers of ESSD would not know how important it is globally.

Observation network design

This is the section in which a much more detailed and primarily integrated picture has to be presented about the dataset. This is where a flowchart or table has to be included with the sites, variables, sampling frequencies etc. so the reader could see on one page what the whole dataset is.

In the **Data and methods**, the analytical procedures could be placed in appendix. Focus on the data. The **Data set** section could be placed in the **Data and methods** section.

Section 6 is way too thin. The dataset is not described sufficiently. It must be embedded into international literature, while meeting the requirement of ESSD "Any interpretation of data is outside the scope of regular articles." Thus the dataset should be described to such an extent which enables the readers to clearly know the value of the dataset and its applicability.

Minor comments related to the presentation of the study

In numerous cases you start the sentence starting with a reference to a figure or table. Please do not start the sentence referring to the content of the figure. State the new finding and refer to the figure in parenthesis. It is not the figure that is important, but the underlying information. Do present the information first and then cite the figure in parenthesis. Please correct this in every relevant place.

L53-56: This aim/hypothesis must be introduced in detail in the Introduction. In addition the Introduction fails to describe sufficiently why is the dataset of the Shiyang River have the potential to reflect on the whole of the Earth's system.

L63: Use the format $\text{m}^3 \text{s}^{-1}$ everywhere necessary.

L64: Please use the Köppen-Geiger climate classification system and refer to its codes.
doi: 10.1127/0941-2948/2006/0130

L73: Did you set it up before 2015, or in 2015, or at various point in time between 2015 and 2020? Please explain and if necessary, provide a figure illustrating the evolution of the system.

Figure 2. The meaning of the different shapes should be explained.

Figure 5. Please extend the figures' captions following:
<https://www.internationalscienceediting.com/how-to-write-a-figure-caption/> and the link above. Moreover, the panels are not named.

Dataset: The data is clear, but two temporary .xls files were also compressed with the actual datasets.

Please also find a commented pdf with additional minor comments, instructions, suggestions.

Although I suggested rejection, after major revisions, the work could be reconsidered upon resubmission, however, I would suggest considering

<https://www.journals.elsevier.com/data-in-brief>

<https://www.nature.com/sdata/>

and parallel publishing a study that describes the data in a lower rank journal than ESSD.

Best regards,

Reviewer #1

Please also note the supplement to this comment:

<https://essd.copernicus.org/preprints/essd-2021-465/essd-2021-465-RC1-supplement.pdf>