Title: Soil salinity patterns reveal changes in the water cycle of inland river basins in arid zones

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General comments:
This study examined the soil salinity patterns reveal changes in the water cycle of inland river basins in arid zones. The results contribute towards a better conceptualisation of soil salinity patterns in inland river basins in arid zones China. The topic of these article is appropriate for the journal of Hydrology and Earth System Sciences. However, the manuscript still has many shortcomings and needs to be further improved. Therefore, I would recommend the manuscript for major revisions.

Specific comments:
Abstract:
Line 6: Add to the abstract the country where the Shiyang River Basin is located. It will help to make it easier to find the article during following reviews and meta-analyses.

Introduction:
The Introduction is conceived too generally and in a broad context. I recommend focusing more on changing soil salinity in the context of landuse management.

Materials and Methods:
Lines 104 – 108: General description of climatic conditions at the sites, include specific ranges of long-term meteorological variables (air temperatures, precipitation) for the period of the last 30 years (1991 – 2020).

Lines 108 – 111: Add bedrock for all four geomorphological units.

Lines 111 – 116: Change the soil classification to one of the international classification systems, e.g. *"World reference base for soil resources 4th edition (2022)"*. Please add also estimated soil texture and water permeability of these soils based on available references.

Lines 104 – 116: Add main landcover and land type for all geomorphological units.

Lines 104 – 116: If information is available, add the groundwater level for all geomorphological units.

Lines 162 – 174: The methodology of data processing and synthesis is too concisely conceived and requires expansion and logical continuity.

Line 172: For field sampling points, add the number of points, sampling depth and design of soil sampling at sites, e.g. regular grid, irregular grid or random sampling. If necessary, add a map with field sampling points.

Results:
Line 180: Nowhere in the methodology is there an explanation of the classification of mild, moderate, and severe soil salinization. Are there differences in the various salt concentrations in the soil (µS/cm) for these three categories? Please, add this classification to Material and Methods chapter.

Lines 211 – 212: I would recommend that the results in the previous subsection *"3.1 Spatial distribution of soil salinisation"* should also be described according to administrative boundaries so that the results are clear. The division of areas according to administrative boundaries should also be described in the methodology.

Line 217: Why did you use the unit hm^2/a? It would be more accepted to use km^2/a, which will be understood by more people from different country. For example, in Europe, the hm^2 unit is used rarely. What does "/a" mean? Is it a change in a year?

Discussion:
In my opinion, the discussion chapter seems to me to be a continuation of the results chapter, with detail on river water transfer, Red Bluff Mountain Reservoir, and irrigation and salinization. I believe that research uncertainty and research perspectives need to be added to the discussion section so that manuscript studies can be made more complete. The chapter lacks a clear critical view of the issue and a confrontation of the results with other science results. In this chapter, I expect critical evaluation of the author's results, a follow-up to the current state of knowledge in the issue of soil salinization in a global context. At the same time, it is appropriate for critics to evaluate the limits, weakness of this study (methodical, interpretative, etc.) and, on the contrary, also the study strengths that contribute to the understanding of knowledge in the issue of global soil salinations.

Lines 305 – 308: What is the source of this information? Were they observed directly by this study, or were these results from some previous study? If yes, please add a reference.

Conclusion:
In this chapter, there are unfounded conclusions that were not presented in the results or discussed subsequently. Lines 381 – 383: "*Farmland, grassland, and wasteland are at the most significant risk of being converted into saline soils, challenging farmland management.*" However, landuse was not analysed in this study, and the extent of changes in landuse during the studied period is not study.

Technical corrections:
In Figure 1: Please add compass rose to legend. The Figure 5 is not cited in the text.

Lines 155 – 160: Please, add references (sources) to the used software (ENVI and GIS software) and to the used digital data (Slope and DEM data).

There are occasional typos in the entire text, especially in some places there are missing spaces after the end of the sentence. Please check all text.

I hope that my comments will not discourage you and will contribute to the improvement of this work. Thank you for allowing me to review this manuscript of your article.