CC1

Thank you for taking the time to review our manuscript again. We have thoroughly considered your feedback and made further refinements to the manuscript. **In response to your feedback and the comments from reviewers #RC1 and #RC2, your comments are presented in red font, our responses in black, and the revisions to the manuscript in blue. This is our reply to your second comments.**

The authors have thoroughly addressed all the reviewers' comments they have received, making detailed revisions, clarifications, and additional analyses. These changes notably improve the manuscript's clarity, rigor, and broader implications, especially in defining key mechanisms, addressing uncertainties, and incorporating relevant literature. I therefore recommend acceptance for publication in HESS with minor revisions.

Response: Thank you for your constructive feedback. The specific revisions are shown below.

1. There are too many dashes in the text; it is recommended to revise and simplify.

Response: Based on your comment, we have reviewed the entire manuscript and revised the sentences with dashed expressions.

2. I suggest replacing the keyword "connectivity" with "hydrological connectivity", and if possible add a keyword "groundwater recharge".

Response: We have revised and added keywords. The specific revisions are as follows:

"Keywords: surface water, spring water, pore water, fissure water, **hydrological connectivity, groundwater recharge"**

3. It is unclear why the legend colors in Figure 6 cover the text instead of being right-aligned.

Response: Thank you for your detailed comment regarding the format of Fig. 6. In the original manuscript, the legend (colors) in Fig. 6 represented both the x-axis categories of the δ^2H boxplot and the y-axis categories of the $\delta^{18}O$ boxplot, creating a composite legend. To avoid confusion, we have placed the explanatory text above the legend to clarify that it applies to both subplots. As

suggested, we have also centered the text in Fig. 6 for better clarity. The specific revisions are as follows:

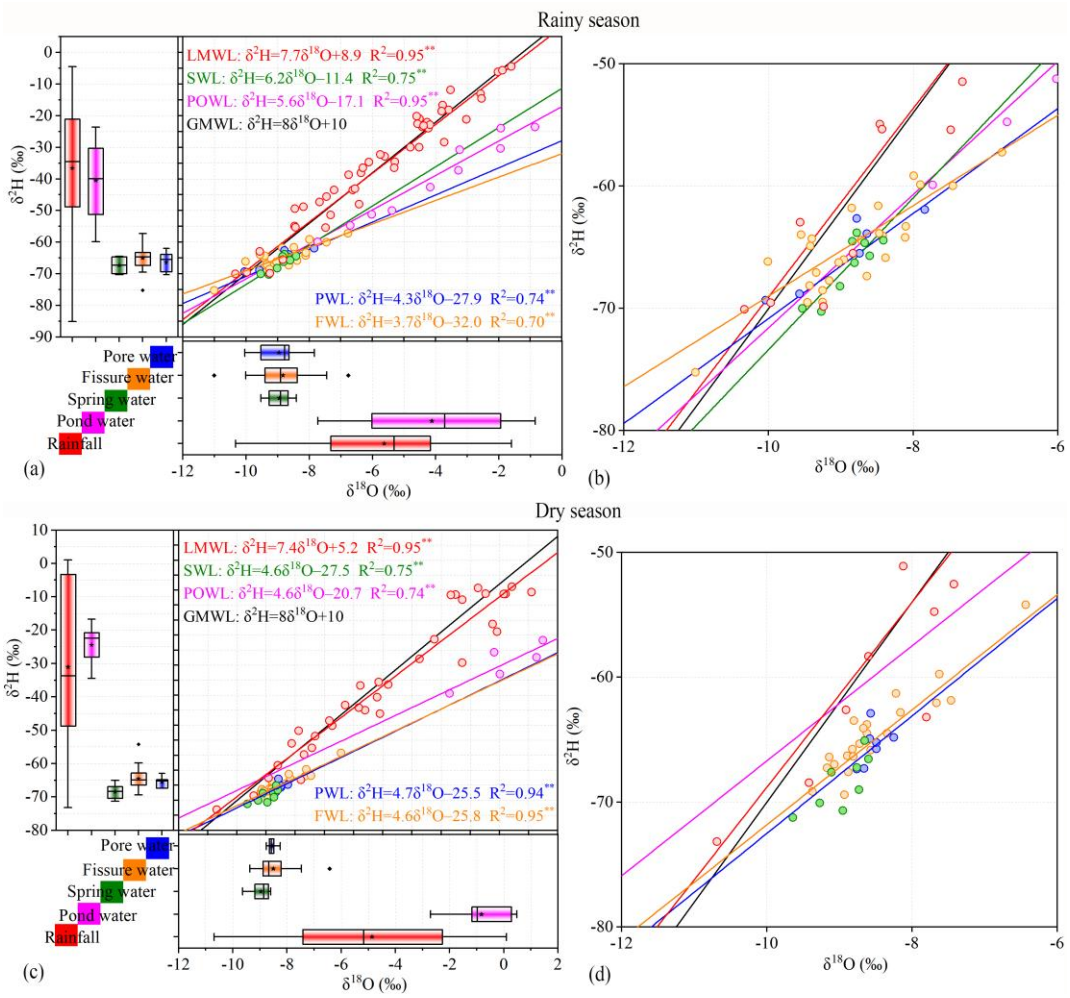

Fig. 6. Dual stable isotopic compositions of rainfall, pond water, spring water, pore water, and fissure water during the rainy season and dry season in the gully region of the Loess Plateau. The black line represents the global meteoric water line (GMWL, $\delta^2H=10+8\delta^{18}O$). GMWL is the global meteoric water line of Craig, LMWL is the local meteoric water line, SWL is the spring water line, POWL is the pond water line, FWL is the fissure water line, and PWL is the pore water line. Panels (b) and (d) are magnified views of (a) and (c), respectively, highlighting the isotopic compositions of pore water, fissure water, and spring water (x-axis: –12 to –6‰; y-axis: –80 to –50‰).

4. Redrawing Figure 10 to include the main findings of this study would be beneficial.

Response: We have revised Fig. 10 (original manuscript, and now Fig. 11 in the revised manuscript) based on your comment, systematically integrating the main findings of this study

into the conceptual model. Additionally, we have addressed the updates to Fig. 10 in the discussion section to ensure consistency between the figure and the text. The specific revisions are shown below:

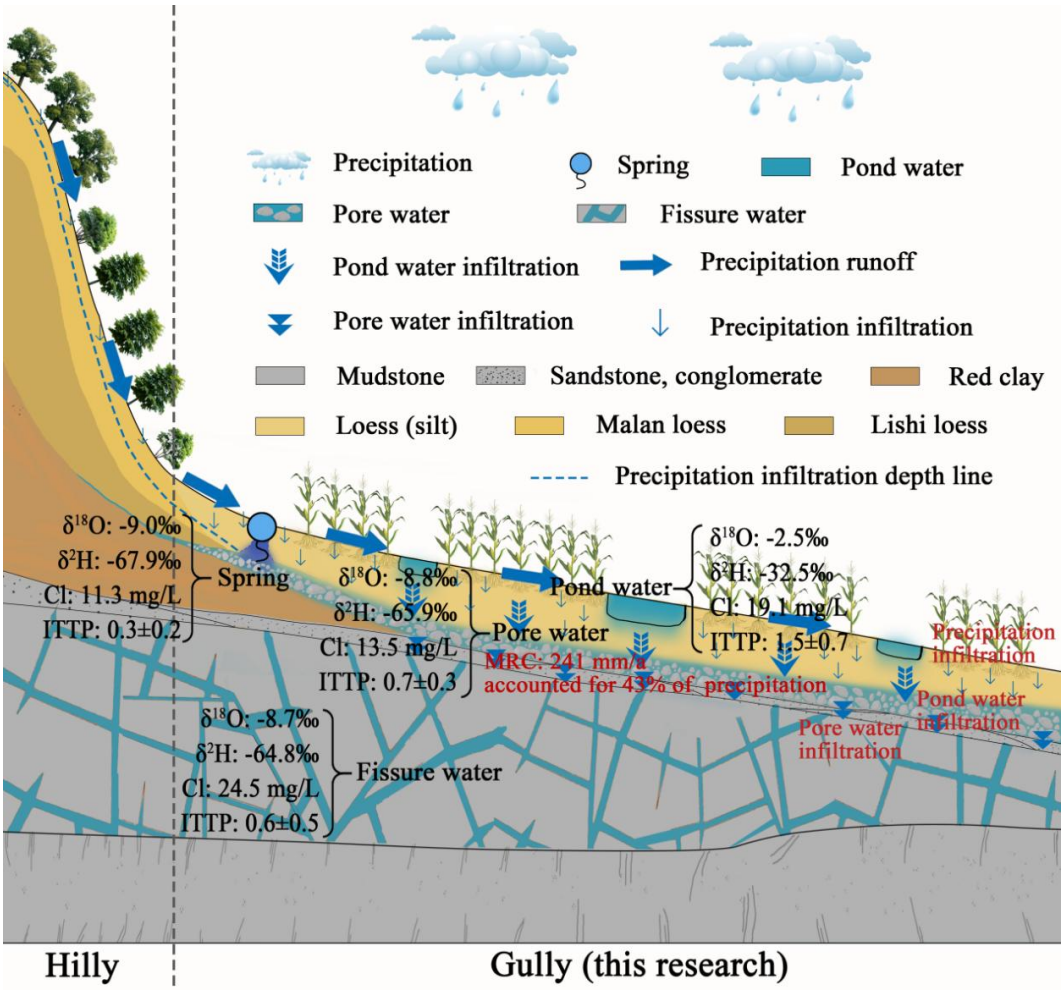

Fig. 11. Hydraulic connections between different water bodies in the hilly-gully region of the Loess Plateau. The study area consists of hilly and gully regions. In the hilly area, the stratigraphic sequence from top to bottom is Malan loess, Lishi loess, red clay, sandstone, and mudstone. Rainfall infiltration within the Malan loess is less than 1 m, and the area is mainly covered by vegetation. In the gully area, the stratigraphy from top to bottom includes loess (silt), sandstone and conglomerate, and mudstone. Pore water is found within the sandstone and conglomerate, while fissure water occurs in bedrock fractures (mudstone). Numerous check dams or ponds are distributed throughout the gully area. The vertical separation between the pore water and pond water ranges from 3 to 5 m. Corn is the main crop cultivated in this region. Most springs in the study area are located at the junction of the hilly and gully regions and are discharged from pore water.