

Authors' Response to Comments by Anonymous Referee #2

1. P15, Ln9. This discussion of groundwater dynamics in the field is fine, but the inclusion of snow, forest, and desert regions in Figure 8 seems unnecessary. The study did not monitor groundwater behavior in those regions, therefore the figure just shows those regions as stationary through each stage. Because no information is provided for those regions, they are best omitted from the figure.

Response:

Thank you for the suggestion. Although our study did not monitor groundwater behavior in the snow, forest and desert areas, we had read quite a few literatures to explore the groundwater dynamics in these areas. Moreover, Fig.8 is the sketch of seasonal groundwater dynamics and only represents the typical qualitative patterns, and is not an indication of quantitative results. Fig.8 is quite helpful for readers to understand the groundwater dynamics in the whole region with a broader perspective. Therefore, this figure has been retained. However, the limitations of our study have been added into the Conclusions Section, and the caption of Fig.8 has been revised to be clearer: Fig.8 Sketch of seasonal groundwater dynamics (typical qualitative patterns in this region).

2. Fig 4) This figure shows the data, while the caption states that it shows the variation. If the variation is the objective, the figure would be benefit from a moving average line and perhaps a shaded area showing 1 std dev -- or something comparable that makes the variation of the values more easily interpreted.

Response:

Thank you for the suggestion. The caption of Fig. 4 is 'The variations in daily averaged sensible heat (H), latent heat (LE), net radiation (Rn) and soil heat flux (G) during 2012-2013'. Actually the 'variation' here refers to the change of values between different days, but not the variability of the data. Therefore, the figure is exactly what we want to show. To avoid misunderstanding, the caption has been revised as 'The daily variations in averaged sensible heat (H), latent heat (LE), net radiation (Rn) and soil heat flux (G) during 2012-2013'.

3. Fig 7) Add text to the caption to correlate direction and sign of EF, something like "Negative EF indicates flow downward (out of the control volume)." This may seem redundant, but it will help tie the results and method equations together conceptually.

Response:

Thank you for the suggestion. Done according to the suggestion.

4. Lastly, this study provides a good foundation for future more detailed work. In the previous review I recommended a limitations section. I suggest this again, and it could be presented as "limitations and next steps", allowing the authors to identify future research opportunities. The authors do mention that the flush stage should be optimized in future studies (P21 Ln18-19), and others could include a more detailed salinity balance study, GW dynamics under other crops, a detailed study of the influence on the natural vegetation mentioned in the study, etc.

Response:

Thank you for the suggestion. The limitations and next steps have been mentioned accompanied with the relative results in the Discussion Section. For example, P20 Ln30, a more detailed salinity balance study was recommended; P21 Ln18, the flush stage should be optimized in future studies; P21 Ln23, the exchange flux should be paid more attention in water management; P21 Ln31, Socio-hydrology may address the challenges in human-water system in future, and an integrated model should be introduced or improved based on the field investigation. Therefore, we did not present the separate "limitations and next steps" in the Discussion Section to avoid repetition. However, a separate paragraph has been added into the Conclusions Section to clarify the limitations of this study and further research opportunities.