

## ***Interactive comment on “Multi-level qualification of Parafluvial Exchange within the Hyporheic Zone Affected by River Sinuosity and Seasonal Change using Multi-tracer Methods” by Amin reza Meghdadi and Morteza Eyvazi***

**Anonymous Referee #2**

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This manuscript details extensive field work and analysis of multiple tracers to characterize hyporheic zone, with particular emphasis on parafluvial exchange, in the Ghezal-Ozan riverbed in Iran. The topic is of interest to the readers of HESS, and the authors have used appropriate and current field methods. However, the analyses of the measurements collected is lacking. The authors provide detailed qualitative analysis of groundwater-surface water interactions, but no quantitative analyses. With the data provided there are several methods to obtain an estimate of exchange. For example, several thermal modeling tools are available to quantify these fluxes using temperature

C1

data similar to those presented here. I also expected a detailed discussion of how each method compared with the others – did their analyses provide the same results, and if not, why not? Using these comparisons the authors could then develop and present a conceptual model of flow through this region as opposed to the disconnected analysis presented currently.

In addition, the clarity, organization and grammatical quality of this manuscript needs significant improvement before it can be considered for publication. While, for the most part, the manuscript is understandable, the flow and sentence structures often make it difficult to read.

It is clear that the authors have spent a great deal of time collecting and analyzing this extensive set of data. I believe with some additional effort they can provide significant scientific contributions with an interesting and impactful manuscript, and I would look forward to reading that work. However, at this point I don't feel it is suitable for publication, but strongly encourage the authors make the changes suggested here and in the other reviews and resubmit.

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C2