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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

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First of all, we would like to thank for your detailed review and useful comments. In this study, we attempt to assess the spatial and seasonal variations of hyporheic exchange in the meandering river (in the manuscript is Parafluvial exchange within the hyporheic zone which will be changed into hyporheic exchange in the revised version) by simultaneous application of EC and δ18O. The integration of EC and oxygen isotope were adopted due to their inverse functions in the groundwater and surface water (see figure 5 and figure 8) to develop a hyporheic flux assessment tool and subsequently ad-

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vance the fundamental understanding of groundwater-surface water interaction. This combination not only make the discrimination of gaining/ losing banks at multi-level scale possible but also yield an innovative alternative monitoring framework which can be qualitatively applied for more accurate and spatio-temporal evaluations of stream-Aquifer connectivity. You mentioned that we should have a broader picture at the scale of the alluvial plain. It is worth to mention that was our scope first but lack of existing bores in the Ghezel-Ozan river floodplain limit us to just focus on the riverbank-hyporheic zone exchange only. So the scope of our research become to qualify the spatio-seasonal variation in the gaining/losing characteristics of stream-aquifer located in the meandering areas. Furthermore, in the revised version not only the manuscript will be edited but also, the Vertical Groundwater Flux (VGF) will be quantified by Arriaga and Leap (2006) methods using the Microsoft Excel Solver. Microsoft Excel Solver is an optimization modeling system that combines the functions of a graphical user interface (GUI), an algebraic modeling language, and optimizers for linear, nonlinear, and integer programs. Each function is integrated into the host spreadsheet program. It employs the Generalized Reduced Gradient (GRG2) Algorithm for optimizing nonlinear problems and uses the solution values to update the model spreadsheet.

Arriaga, M. A., and Leap, D. I. (2006). Using solver to determine vertical groundwater velocities by temperature variations, Purdue University, Indiana, USA. Hydrogeology journal, 14(1-2), 253-263.

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