

## ***Interactive comment on “Application of isotopes and water balance on Lake Duluti–groundwater interaction, Arusha, Tanzania” by N. P. Mduma et al.***

### **Anonymous Referee #3**

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This manuscript presents a hydrochemical data set (stable water isotopes and major ions) to evaluate interactions between in- and out-flows of Lake Duluti (Tanzania). The authors present an extensive dataset from a relatively data sparse region. Hence, once collected and analysed systematically and comprehensively, this work could make an important contribution. Unfortunately, the work is not presented well and I would not recommend the manuscript for publication in its current form.

Firstly, the work is currently presented as a case study which might be relevant for the local area only. The authors do not recognise the vast amount of scientific literature on lake surface water groundwater interactions (including the use of tracers) and do not clearly indicate what the relevance and wider implications are of this particular study

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for the wider scientific community.

Secondly, the manuscript is quite difficult to follow owing to poor English, unclear structure and poor quality of the tables and figures (and inappropriate references in the text, e.g. where is Figure 0 or Table 6?). I would recommend to split the results and discussion section so that all results are presented clearly and systematically first. The discussion should then focus on the interpretation of the dataset as a whole. It would also be helpful if there were clear objectives or specific research questions that the discussion could be framed around.

There are also several methodological shortcomings as already pointed out by the other reviewers including some of the data collection procedures and the assumptions in the mass balance calculations. It was also not clear if precipitation was sampled locally during this study. The hydro-geochemical facies section presents the data separately for two seasons, but a clear interpretation that describes the processes underlying the different patterns is missing.

A detailed list of specific comments is not provided as the authors need to address the major issues as addressed above first. It might also be helpful if the manuscript could be proofread before re-submission.

Please also consider revising the title as it does not flow well and does not represent the full contents of the paper well.

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