

# ***Interactive comment on “A novel method of sensitivity analysis testing by applying drastic method and fuzzy optimization method to assess Groundwater vulnerability to pollution, case of Senegal River basin in Mali” by Keita Souleymane and Tang Zhonghua***

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The authors would like to thank the referee for his/her very relevant and constructive comments. . In the following text we present your comments followed by our answers and the modification that we propose following your comments to the new version of the manuscript. 1) Introduction lack references support your literature with exact reference. Response: more recent and exact references were provided to support our literature. 2) Introduction lack literature about the comparison of Fuzzy and DRASTIC

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method which is your basic study. Add a paragraph about. Response: more literature about comparison of Fuzzy and DRASTIC methods was provided. 3) Information about study area is missing. Response: study area information was provided. 4) Need to justify your results with discussion and previous studies. Response: results were justified with discussion and previous studies. 5) Better to add few recent references too. Response: some recent references were added. 6) Also need to provide study area map with details of nearby water bodies, river or any other hydrogeologic parameters to get acquaintance with the study area and to get idea about recharge and other parameters. Response: study area map was provided with details about rivers, hydrogeological conditions and geographical location. 7) Few grammatical improvements are pointed through sticky notes in the manuscript. Response: pointed grammatical mistakes were corrected in the manuscript. The following are our answers to reviewer's comments regarding the text of the manuscript by adding sticky notes in the manuscript pdf file: Sticky notes (Page 3, line 70): use appropriate word here. Response: coming was replaced by being. Sticky notes (Page 4, line 102): mention briefly difference between intrinsic and specific vulnerability. Response: difference between intrinsic and specific vulnerability was briefly mentioned. Sticky notes (Page 4, line 104): Introduction lack references support your literature with exact reference. Response: more recent and exact references were provided to support our literature. Sticky notes (Page 4, line 104): Introduction lack literature about the comparison of Fuzzy and DRASTIC method. Response: more literature about comparison of Fuzzy and DRASTIC methods was provided. Sticky notes (Page 4, line 106): information about study area is missing. Response: study area information was provided. Sticky notes (Page 4, line 117): his?? Response: the mistake was corrected (his was replaced by this image). Sticky notes (Page 5, line 141): better adjust this paragraph in introduction. Response: this paragraph was adjusted in introduction (see manuscript). Sticky notes (Page 6, line 209): continue it with the former paragraph. Response: it was continued with the former paragraph. Sticky notes (Page 12, line 413): also justify your results with discussion. Response: results were justified with discussion. Sticky

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notes (Page 12, line 421): spelling mistake. Response: the spelling was corrected (ration was replaced by ratio). Sticky notes (Page 15, line 534): better to add few recent references too. Response: some recent references were added. Sticky notes (Page 22, line 675): Also need to provide study area map with details of nearby water bodies, river or any other hydrogeologic parameters to get acquaintance with the study area and to get idea about recharge and other parameters. Response: study area map was provided with details about rivers, hydrogeological conditions and geographical location.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2017-116/nhess-2017-116-AC2-supplement.pdf>

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