Interactive comment on "Using ordered weight averaging (OWA) for multicriteria soil fertility evaluation by GIS (case study: southeastern Iran)" *by* Marzieh Mokarram and Majid Hojati

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Dear Reviewer Thank you for your great comments.Here is the responce

(1) What is kind of "risk" the authors mentioned in this paper? The "risk" is degree of uncertainty that farmer can has for soil fertility in the parts of the different fields for the amount of crop growth. For example with low risk, the farmer can select an area that has more soil fertility to yield maximum produce (page 18, line 270). (2)Page 6, line 117. ". . .located at longitude of N 29âŮę 31ÎDËĞ - 29âŮę 38ÎDËĞ and latitude of E 52âŮę 49ÎDËĞ to 52âŮę 57ÎDËĞ ". Please check whether it is "longitude" or "latitude. It was corrected (page 3, line 72) (3) In each part of the paper, the criteria: K, P, Cu, Fe, Mn, OC and Zn should have the same sequence of writing, such as in

Table 2, in line 127 and in line 143. The order of criteria's is changed all over the manuscript as following: K, P, Cu, Fe, Mn, OC and Zn (4) Page 8, line 137. "krining" or "Kriging"? Please check it. The Kriging is true (page 7, line 165). (5) please check the grammar of the sentence in line 151-152:" In order to homogenize each parameter for weightedness by OWA method for preparing the ïňĄnal soil fertility fuzzy method was used." The abovementioned sentence is changed into:" In order to homogenize each parameter the maps are weighted by OWA method and then fuzzy method was used for preparing the final soil fertility maps" (page 10, line 185). (6) In Table 3, all the values of the row "rank" are 1st, 2nd, 3rd,: : :, 7th. Is it possible to simplify the table? The Table is simplified as the page 13

(7) Which sub-ïňĄgure in Figure 6 is ïňĄgure 6(1), Figure 6(2), etc? Please also give the ïňĄgure name of all sub-ïňĄgures. The figure is corrected now (page 14 and 15) (8) Page 17, line 192. "So, only the parts of west and southwest of the study area were suitable for soil fertility." Please check that "the parts of west" or "the parts of east" in this sentence. Yes, it was a mistake in addressing the areas on map. Now it is corrected. (Page 15, line 229) (9) In Figure 7, each class of all the sub-ïňĄgures should have the same color. Please also give the ïňĄgure name and serial number of all sub-ïňĄgures. Each class of all the sub-figures was corrected in page 16-17, line 250. Also the figure name and title of all sub figures are corrected. (10) In Table 4, the classiïňĄcation method is Equal Interval. Is it reasonable to use this method? Please explain it. The description of each class was corrected (page 17, line 255). If we can establish equal distances between ordinal numbers they become interval. Rating scales can be scaled to have equal intervals. The distance between the numbers can be equal, but the labels vary depending on how we interpreted their meaning. This method is used in most of fuzzy inference methods so we used the same method to classify. Other methods can be used with some considerations.

(11) Figure 8 and Table 5 presented the same information that the area of each classes using OWA method for soil fertility. In my point of view, it is appropriate to keep only

one of them (Figure 8 or Table 5). The Figure 8 is removed. (12) The conclusion section should summarize the research procedure of this study. Page 19, line 285- 290 is summarize of the research procedure. The study is meaningful for the soil fertility evaluation work of the study area. But the novelty of the paper is not very significant. About the novelty of the work we can say that the 7 factors of (K, P, CU, Fe, Mn, Oc and Zn) are used for determination of soil fertility combining with OWA and fuzzy methods which are somehow the new methods in agricultural studies and also the definitions of risk is used in this study which farmers can decide base on their budget and the inputs. As farmer can accept more risk it can use more areas for farming and also the amount of needed budget increases too.

The final edited version is uploaded as supplements.

Thank you so much.

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/se-2016-17/se-2016-17-AC2-supplement.pdf

Interactive comment on Solid Earth Discuss., doi:10.5194/se-2016-17, 2016.

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