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Interactive comment on "Aggregate breakdown and surface seal development influenced by rain intensity, slope gradient and soil particle size" *by* S. Arjmand Sajjadi and M. Mahmoodabadi

Anonymous Referee #1

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Firstly, I would like to congratulate the authors for the work they are doing. I recommend publish this work after some improvements. I hope the authors find the comments and suggestions constructive to improve the article.

Reading the manuscript is sometimes a bit cumbersome, phrases are slightly muddling, and some sentences are rather redundant. A friendlier and more direct writing could attract more potential readers.

Authors have used three replicates for each combination of maximum aggregate size, rain intensity and slope. The number of replicates has been mentioned in Abstract, but it has not been mentioned in Material and methods section. I advise authors to include

the number of replicates (three) in Material and methods section.

On the other hand, the number of replicates is really scarce. I think it would have been more appropriate to increase the number of replicates, increasing the number of experiments and/or decreasing the number of slopes considered.

I suggest authors to increase the size of graphics' axis titles, tick labels and legends.

Section 2.2. Treatments and experimental setup, first paragraph. Authors refer to the publication Mahmoodabadi et al. (2007) for the coefficient of Christiansen. This work was written in Iranian, therefore difficult to understand for most people potentially interested. I think that this reference is appropriate to describe the rainfall simulator, not for the uniformity of rain intensity. I think that a little change in this paragraph could improve it: Totally, 60 experiments were carried. . ..was placed 1.5 m above the soil surface (Fig. 2) (Mahmoodabadi et al., 2007). In order to measure. . ..the coefficient of Christiansen was calculated (Grierson and Oades, 1977). Grierson, I.T. y Oades, J.M. 1977. A rainfall simulator for field studies of runoff and erosion. J. Agric. Eng. Res. 22: 37-44.

Section 3.1. Rain-induced particle size redistribution. Is there any indicator of statistical significances of increases or decreases in size classes as a consequence of rain treatments? Maybe I am wrong, but I think that the data analyses have been only applied to the infiltration rate.

Interactive comment on Solid Earth Discuss., 6, 3303, 2014.