Nonlinear Processes
in Geophysics
Discussions

NPGD

**Interactive
comment**

Interactive comment on "Quantifying the changes of soil surface microroughness due to rainfall-induced erosion on a smooth surface" *by* Benjamin K. B. Abban et al.

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We thank the reviewer for the valuable input, which has helped improve the quality of our manuscript. Our responses to each of the comments and suggestions are provided in detail in the attached supplement document.

In summary:

1. We have significantly enhanced the flow, clarity, and precision of the text. The abstract is also very clear in terms of objectives, methodology, and findings.

2. We have put all our results into context, by providing all the relevant literature that has quantified soil surface roughness at the examined bare smooth soil surface conditions,

explicitly acknowledging the studies with results that show the increase in roughness and added missing references (e.g., Kamphorst et al., 2000; Vázquez et al., 2008). We have also updated Fig. 5 to depict the changes seen in RR with respect to initial RR from our study and other studies.

3. We discussed the advantages by focusing on a single rainfall event rather than successive events in the context of this study.

4. We have added information regarding the soil characteristics considered in the study.

5. We have provided two additional commonly used indices for soil surface roughness. Their values and trends with rainfall are in good agreement with RR and crossover length, and in support of our conclusions.

Please also note the supplement to this comment:
http://www.nonlin-processes-geophys-discuss.net/npg-2016-76/npg-2016-76-AC2-supplement.pdf

Interactive comment on Nonlin. Processes Geophys. Discuss., doi:10.5194/npg-2016-76, 2017.