

## ***Interactive comment on “Infiltration-Friendly Land Uses for Climate Resilience on Volcanic Slopes in the Rejoso Watershed, East Java, Indonesia” by Didik Suprayogo et al.***

### **Anonymous Referee #2**

Received and published: 8 April 2020

The study by Suprayogo et al. addresses a relevant topic and will be of interest to the hydrologic community. However, the work lacks the quality that is expected from a HESS publication. Some of the major issues are - ) Introduction section is quite weak and doesn't offer enough lit review to gauge the novelty of the work; 2) research questions are vague and need to be carefully thought through; 3) Several method related details are unclear, and the statistical aspect of the work requires more effort. 4) Discussion lacks critical thinking, and authors need to carefully think about the key messages that they want to discuss and convey. Lastly, the work needs clarity and organization throughout the sections. I would recommend the authors to revise the manuscript substantially and resubmit.

Section specific comments are below, and the line specific comments are in the attached pdf.

**Abstract** – Too much unnecessary detail and the relevant information is missing. Most of the abstract focuses on introduction and methods and relatively little text on interpretations and implications of the work.

**Introduction** – The authors need to highlight the novelty and research gap in their work. What is the research gap that you want to address? Is it about the volcanic landscape, erosion in a forest to open-field-agriculture continuum or, both? How many studies have done similar work in a volcanic landscape? If any, what were their findings? Research questions could use some clarity and can better. In question 1, “. . .limit infiltration below the required rate” what do you mean by required rate? How do you define it? Please be more quantitative about it. Similarly, “infiltration friendly” is also a vague term.

Generally, the topical sentence of a paragraph introduces an idea and rest of the texts expand on it. In the manuscript, several ideas have been introduced in the same paragraph, resulting in an incoherent passage with no clear message. This is true for many paragraphs throughout the draft. Lastly, the entire section could use better organization.

**Methods** Several method related details are unclear, and assumptions made during measurements have not been clearly laid out. How many places did you measure rainfall/through fall underneath the canopy? How do we account for the spatial variability in rainfall due to heterogeneity in canopy cover? The method used for estimating canopy cover is unclear, and the citation is missing in the References section.

“A probability level of 0.05 was set for rejecting null-hypothesis of no difference in tests of statistical..” what were the hypotheses that you tested? No hypothesis has been shared in the manuscript. Are you referring to LSD tests? In the field conditions, most of the key drivers will “interact” in response to rainfall. The regression model with a

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single explanatory variable may not be an ideal approach here. Would it be possible to use models that incorporate some interaction effect between the explanatory variables? Also, did you explore the correlation among explanatory variables? If you are really interested in exploring the influence of an individual explanatory variable on erosion, please use partial correlations that allows to control the effect of other related variables on responses. Results and Discussion The discussion section could use some critical thinking, especially about the key messages that you want to convey. Most of the discussion revolves around the major drivers of responses. The section barely discusses questions 1 and 3. Lastly, you want to show how the work advances our current understanding of runoff and erosion processes in the volcanic region.

Line specific comments are annotated in the attached pdf.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2020-2/hess-2020-2-RC2-supplement.pdf>

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2020-2, 2020>.

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