

Earth Surf. Dynam. Discuss., referee comment RC1  
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## Comment on esurf-2021-62

Anonymous Referee #1

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Referee comment on "Failure mode of rainfall-induced landslide of granite residual soil, southeastern Guangxi province, China" by Shanbai Wu et al., Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2021-62-RC1>, 2021

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### General comments

This paper presented a study on the failure mode of rainfall-induced landslide of granite residual soil using artificial flume model tests. The authors observed the macroscopic phenomena of landslides and analyzed moisture content and pore-water pressure. They finally discussed the initiation patterns of landslides. This topic is very interesting and is of great significance for the prevention and early warning of residual soil landslides in southeast Guangxi. The testing program is reasonably designed, and testing results are reliable. However, some aspects should be modified to achieve more agreeable paper.

### Specific comments

1. In section 2.2, the authors selected two dry densities (1.2 g/cm<sup>3</sup> and 1.4 g/cm<sup>3</sup>). Why two dry densities (1.2 g/cm<sup>3</sup> and 1.4 g/cm<sup>3</sup>) are selected? Why does the test not consider 1.3 g/cm<sup>3</sup>? Please explain it.

2. The size of Figure 5 (b) should be normalized. The unit of model size and soil depth should be consistent in the paper.

3. There are many figures on volumetric water content and pore-water pressure in Sections 3.2 and 3.3. Can they be streamlined according to the content of the paper? For example, the similar change trend can be presented with a figure or a paragraph. In addition, abnormal data in the figures should be clarified.

4. In section 3.2, Figure 10(b)-Figure 12(b) show that the fluctuation of volumetric water

content occurs in the second rainfall. Please offer a brief explanation for this phenomenon.

5. In Section 3.5, the authors explore the close relationship between the initial dry density, slope angle, rainfall intensity, and landslide initiation. Additionally, the initiation time of six landslides are compared. However, the detailed mechanism is still not clear. A deep discussion is needed.

6. In section 4, the authors stated that the failure process of the granite residual soil landslide can be classified into five stages. Is it based on the six tests? Are five stages only summarized by the six tests?

7. The conclusion is not clear enough, such as "the starting time of a landslide will be delayed". Can the quantitative result be offered? In addition, I suggest that some conclusions on the initial conditions can be condensed.