Response to Editor and Reviewer

Dear Editor and Reviewer,

We are very grateful for your help with the manuscript entitled “Failure mode of rainfall-induced landslide of granite residual soil, southeastern Guangxi province, China”. Your valuable comments effectively improve the quality of the paper. We have carefully revised the manuscript following your detailed comments, as well as proofread the content to remove mistakes about grammar and spelling in real earnest.

Please find the following response to the comments of the reviewer.

Best wishes,
Shanbai Wu and other authors

Notes

1. The comments from the reviewer are listed in black.
2. The explanations to the comments are in **blue.**
3. The change made can be found in the marked-up manuscript.

Reviewer 1

General comment

I do appreciate the efforts the authors devoted to this revision. I almost fully satisfy with this revision. However, I still have some follow up and minor comments as follows.

Specific comments

1. It can be found that 21 figures are included in this manuscript. Are all of them necessary?
Authors' response: Thanks a lot for your comment. After serious thought, we think these 21 figures are necessary. The reasons include four aspects. (1) Figure 1 - 4 show the study area, soil particle gradation, test equipment, and sensor locations, respectively. (2) Figure 5 reflects the failure phenomena of the most representative slope. (3) Since the position C, D, and E is close to the sliding surface, we show the variation of volume moisture content (VMC) and pore water pressure (PWP) at these three positions in curve graphs (Figures 6 to 11, Figures 13 to 18). In addition, for the positions A to E of the six tests in the first rainfall stage, we show the response time of VMC and PWP, stable VMC, and variation of PWP in bar graphs (Figures 12 and 19). (4) The five stages of slope failure are summarized in the discussion section. Based on the mechanical properties of the residual soil, the relationship between the landslide formation and the PWP fluctuation are explored (Figures 20 and 21).

2. In Table 2, Figure 5, and 20, it can be found that the slides were tend to occur on the right side of the slope in your experimental tests. Is this related to the locations of sensor were on the right side? If it is, please discuss the limitations of your experimental tests.

Authors' response: Thank you for your comment. We have supplemented the relevant discussion in the revised manuscript, which can be found in lines 507 to 519. The detailed content in the revised manuscript is as follows.

Finally, the limitation of the model tests in this paper should be discussed. All sensors are embedded in the center section of the slope (Fig. 4). Therefore, the sensors are less affected by the left or right boundary. Monitoring data are reliable and can reflect the variation of VMC and PWP during landslide formation. Because the sensor is connected to the data collector, the connecting line is embedded in the slope. The surrounding soil is compacted to achieve the preset dry density. However, the influence caused by the material heterogeneity of the connecting line, and the soil cannot be eliminated. The effect is reflected in difference in rainwater infiltration. This may cause the right side of the slope to tend to slide locally (Fig. 5 and Fig. 20). Nevertheless, this trend is temporary and does not dominate the five similar stages of landslide formation. In addition, the five stages are basically consistent with the field survey in Southeast Guangxi (Wei et al., 2017). In conclusion, the model tests in this paper reproduce the failure pattern of granite residual soil slope well. In future research, wireless transmission system will be employed to collect sensor data. This can minimize the disturbance caused by the sensor line.

References

Wei, C., Wen, H., Liao, L., Yang, Y., Ma, S., Zhao, Y., and Chen, L.: Failure characteristics and prevention measures of granite residual soil slope in the southeast of Guangxi Province, China, Earth and Environment, 45, 576-586, 2017 (in Chinese).