

Interactive comment on “Large Scale Physical Modelling Study of a Flexible Barrier under the Impact of Granular Flows” by Dao-Yuan Tan et al.

Anonymous Referee #1

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The paper Large Scale Physical Modelling Study of a Flexible Barrier under the Impact of Granular Flows has addressed the open question how flexible barriers can be better designed to mitigate the impact loads from debris flows. The experimental devices and the experiments were very carefully designed. The large-scale granular flows tests were performed and the resultant forces measured on the flexible nets and the static structures were analyzed. Thus the authors reported that the flexible barrier can effectively reduce the granular impact loads. In addition, the traditional hydro-dynamic and hydro-static force estimation methods were validated using the acquired field data.

This study is solid and has great importance to practical applications in the field of natural hazards mitigation. The paper is very well written and the whole experiment is very clearly described. It is thus recommended to accept the paper for publication after

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the following issues are clarified:

1) How did the authors define the word large-scale in their experiments? 2) In lines 195-197, how did the authors define the deposition height of the granular flow, and the maximum horizontal deformation of the flexible barrier? It is better to show them in the scratch. 3) What are the unique advantages of the experiments performed in this paper compared to the other researches, as the authors stated that an improved large-scale physical modelling facility for debris flow research has been conducted? 4) How many Test1 and Test2 experiments were performed by the authors? It would be great if the authors can comment how the experimental results vary between different rounds of experiments. 5) In Table 1, how did the authors determine the internal friction angle and the interface friction angle for granular flows? 6) In the 4th column of Table 3, the unit kN should not be italic.

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