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Reply on RC2

Qiwen Lin et al.

Author comment on "Multiscale effects caused by the fracturing and fragmentation of rock blocks during rock mass movement: implications for rock avalanche propagation" by Qiwen Lin et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2021-127-AC3>, 2021

Thank you for the invaluable and insightful comments. We have read all your comments and suggestions. These comments and suggestions are important to improve our manuscript.

(1) According to the references provided by the referee, the description of rock avalanches have been revised in a more "geomorphic" way in the Introduction section.

(2) The methodology is not specific enough according to referee. So we presented more detailed information to better explain some steps. For example, the gravitational acceleration (g') is enhanced to 1962 m/s^2 , this choice is based on previous literature. We believe that the comprehensibility of our work will largely be enhanced with these revision.

(3) The referee indicated that the given explanation of the relation between the number and spacing of fractures and the distance reached by blocks doesn't sound accurate enough. Actually, in that part of discussion, we attempted to discuss the relation between the strength of joint and the travel distance of fragments, which is still problematic. Thus, we detailed analyze the data, and trying to give a more robust explanation.

(4) The figures are revised with different colours, and the fitting equations are presented at the plots.

(5) The usage of fracture, fracturing, cracking, and fragmentation are reconsidered. After the revision, to further correct the English usage, grammar, and sentence structure, we will ask an English editing service to polish our revised manuscript.

(6) All the corrections and comments in the attached pdf file are concerned. A final revised manuscript and response letter will be presented latter.

Thank you again!