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## Reply on RC1

Qiwen Lin et al.

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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-AC1>, 2021

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Thank you very much for your kindly comments and suggestions. We are glad that our work is read and discussed by any Anonymous experts. Based on your comments and suggestions, we've revised the manuscript.

Line 65/Lines 162, 163, 173, 187. The usages of fracturing and fragmentation in manuscript are reconsidered and revised.

Lines 86-89. It is unknown that is the main "after-fragmentation" effects. As shown by Lai et al. (2016), different fractal grain-size distribution may result in different runout of granular flow. However, the relationship between grain-size distribution and hypermobility of rock avalanches is still a very difficult question. Anyway, we've revised this sentence.

Line 150. "wall" is replaced as "one".

Line 271. We agree on that rolling is not a common process in rock avalanches. It is usually occurred at the surface of rock avalanching, but not the main body. Therefore, we added an explanation at this part.

In case any comments and suggestions arise, please do not hesitate to contact us.