

Interactive comment on “Geologic and geomorphic controls on rockfall hazard: how well do past rockfalls predict future distributions?” by Josh Borella et al.

Martin Mergili (Referee)

martin.mergili@univie.ac.at

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Borella et al. analyze a set of geometric and topographic characteristics of past rockfalls – one set related to the 2010-2011 Christchurch Earthquake Sequence (CES), and one set of older events. Using their measurements and a set of RAMMS simulations, the authors elaborate similarities and differences between the CES and non-CES rock falls, concluding that pre-CES rock falls were generally characterized by lower mobility because slopes were still forested to a higher degree in earlier times than at the time of the CES.

The work addresses an important issue in terms of forecasting of rock fall hazards,

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which is certainly within the scope of the journal. The research presented appears sound, and the manuscript is well-written and well-illustrated. Background, methods and results are to a large extent adequately presented and discussed. Before recommending the manuscript for publication, I would like to address some issues and provide some suggestions to the authors to further improve their work. My comments are provided below. In summary, I recommend moderate revisions, but particularly the first issue raised below is critical and important to be addressed adequately.

- An earlier paper led by the same first author (Borella, J. W., Quigley, M., & Vick, L., 2016: Anthropocene rockfalls travel farther than prehistoric predecessors, *Science advances*, 2(9), e1600969) appears partially similar to the present manuscript in terms of the work described. It should be made clear in this manuscript what are the innovative aspects, compared to the earlier paper.

- Even though I appreciate the very detailed discussion chapter, I have the feeling that there are some redundancies with the results chapter, and some parts of the discussion which might better fit to the results. Consequently, I recommend to revise the results and discussion chapters and to condense the discussion to those issues which are really essential and have not been covered in earlier chapters. This would make it easier for the audience to capture the main points.

- Despite the fact that the manuscript is generally well written, I have found a couple of minor issues of grammar and style – so, please go through the paper carefully again in order to polish the language.

In case the authors would like to discuss the one or the other issue, they should feel free to contact me at martin.mergili@univie.ac.at.

With best regards Martin Mergili

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