

## ***Interactive comment on “Maintenance and risk management of rockfall protection net fences through numerical study of deteriorations” by Andrea Luciani et al.***

### **Anonymous Referee #2**

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This research article offers a methodology to numerically investigate the performance of a rockfall protection net, at varying levels of deterioration. The methodology is largely driven by guidelines provided by ETAG 027 report. Although I can clearly understand the reasoning supporting this choice, in my opinion this limits the potential of the numerical investigation.

Rockfall is a natural phenomenon (hazard) with many interesting features such as, randomness, exchanges between translational and rotational velocity of a boulder-projectile during impact, etc. By strictly following the ETAG 027 guidelines, all these features, that could affect initial conditions of the performed numerical simulation, are simply reduced to a standard impact. This fact also limits the usefulness of the numer-

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ical model. In example, would there be any change in the behavior of the net when the impact location moves away from the center, towards the base of the structure or at heights close enough to over topping? what is the influence of the rotational velocity during impact on the performance of the net? Is the impact angle important? Questions like these can be addressed in the simulations, providing a LINK between structure performance and impact variability due to rockfall activity. In my opinion this could significantly improve the manuscript. Ideally, a trajectory simulation of rockfall driving the initial parameters for the impact simulation, would have been a much more appropriate and interesting approach to the problem under investigation. I also believe that the numerical model and its richness can be better depicted in the article by including more graphs, i.e. graphs showing the distribution of stress and strain on structure elements at different time stages during impact? I get the feeling that the simulation results are not well represented in the existing graphs.

Grammatically the manuscript can be improved and some typos i.e. figure 5 y-axis title: (Maximum elongation) should be corrected.

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