

Earth Surf. Dynam. Discuss., referee comment RC1
<https://doi.org/10.5194/esurf-2022-16-RC1>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on esurf-2022-16

Anonymous Referee #1

Referee comment on "Rockfall trajectory reconstruction: a flexible method utilizing video footage and high-resolution terrain models" by François Noël et al., Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2022-16-RC1>, 2022

The authors present an cost-effective method to reproduce 3D rockfall trajectories from and CAVR. It has the advantage that uses the 3D terrain model as the spatial reference for the falling block instead of the videocameras and considers a proper offset of the center of mass in the reconstruction of the trajectories. Nice study, clear presentation and meaningful results.

Only a few comments:

1) In my opinion, the sentence "only dissipative impacts are observed with CAVR..." should be removed from the summary. The authors to the SLF experiments. The sentence may be misleading because although it refers to the SLF experiment, the reader may interpret it to be generalizable to other experiments.

2) Lines 34-35 For ease of reading, it is convenient to explain here the difference between the rebound model parameters and the apparent coefficient of restitution.

3) Section 3.3. As the authors mention, it is necessary to evaluate the geometry of the rock block to adequately compensate the impact positions to the center of mass to obtain the correct trajectories. However, the reconstruction the 3D model of the blocks is not fully described. It seems that the model is obtained from the frames but there may be hidden parts of the blocks that can affect the reconstruction of the shape and volume, as well as the measured dynamic parameters. It is convenient to explain in more detail the procedure followed to reconstruct the volume of the blocks and also provide an estimation of the errors.

4) There is an issue that has not been treated by the authors but that appears in other experiments. It is the presence of dust during the impact. Has dust been generated? If so, how have the authors resolved this circumstance? Is it the algorithm that determines the point of impact and the kinematic parameters?

5) Please, check the references, some references are incomplete or the source can not be easily identified (e.g Berger, 2011; Domaas, 1995; Garcia, 2019; Girardeau-Mountaut, 2006; Sanchez 2020; ...)