Santiago, Chile, March 2021

Authors' Response

Nhess- 2020-279 - Cascade effect of rock bridge failure in planar rock slides: explicit numerical modelling with a distinct element code.

Dear Editor,

The authors thank the 2 reviewers that took time to review the revised version of our manuscript. Referee #1 does not have further comments. Referee #3 added some interesting comments in relation with the use of the ITASCA code. In the following we present a response to its comments. Moreover, we will submit a revised version of the manuscript, with the modifications highlighted in the red color.

<u>Comments of Referee #3</u>

Dear authors, your answers for points 1 and 2 make sense but show a not so great familiarity with the ITASCA codes. In fact, all the issues regarding regions and stochastic distribution can be easily bypassed by preparing a simple script in Matlab (or whichever scripting code you like) to generate the stochastic configurations using every random distribution you prefer (Bossi et al, 2016, Engineering Geology) and also to modify the geometry. This approach would have significantly improved your paper since it would have been possible to account for some contiguity effect using different distributions with respect to an uniform one. And should be certainly considered for future works.

> **<u>Response</u>**: This is a really good point. We added a paragraph in the conclusion of the second revised version of our paper to highlight this limitation. It will certainly be taking into account for further work.

Thank you for all the other answers and for incorporating the considerations about monitoring in the new version. In the light of some limitations of your work, that are now honestly stated in the text, I would advise you to change the title to "Cascade effect of rock bridge failure in planar rock slides: numerical test with a distinct element code".

> **<u>Response</u>**: Thank you for this proposal of title. We have changed the title accordingly.