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November 21, 2016

Dear authors:

Thank you for submitting your revision to the manuscript entitled " **Snow fracture in relation to slab avalanche release: critical state for the onset of crack propagation** " for publication in *The Cryosphere*.

Your manuscript received two reviews during the interactive discussion, all pointing out to major revisions being necessary and further review required. The referees rated good or excellent in all categories (Originality, Scientific Quality, Significance and Presentation Quality), which according to TC policies is needed to be accepted for publication. I agreed at the time with both reviewers and pushed for further review. The major points raised by both reviewers that still needed to be addressed included:

Reviewer #1 being concerned mostly with the model description, and some specific points that will be of interest to all readers (such as line 152, crack tip position), and will add considerable value to the manuscript. Given that one of the most important results (line 211) to the community depends on the model implementation significantly, most points raised by reviewer 2 were to be addressed.

Reviewer #2 was concerned with referencing previous PSTs that showed results of decreasing critical length with increasing slope angle dependence. This was in my opinion one of the most critical issues in the manuscript. I found reviewer #2's argument that the authors did not present any field evidence to support the modeled slope angle dependence quite convincing, and this point had be addressed thoroughly.

After further review, I have now received the inputs from reviewer #2 (reviewer #1 did not participate in this round) and from new reviewer #3. Both reviewers rated good or excellent in all categories, except presentation quality that was rated Poor by reviewer #2. This needs to be corrected.

Reviewer #2 is satisfied with the comments and modifications to the manuscript. He raises some technical points that should still be addressed concerning statements that might be construed as "not true". These points need to be addressed, but do not warrant further

review. In addition, he commented on the general level of English writing, which should be addressed further.

Reviewer #3 was brought in specifically to address the concerns of reviewer #2 on the issue of decreasing critical length with increasing slope angle dependence. He appeared satisfied (even impressed) with the way this was argumented in the modified manuscript. He however raised specific issues that should also be addressed prior to publication. Specifically, I would agree with his analysis that the modeling should be presented in a more sensible way, without necessarily being confrontational.

In view of these arguments, I am accepting the manuscript for publication subject to minor revisions, which I will review myself. I expect the points raised above to be addressed, and the manuscript to be thoroughly vetted for english grammar.

Sincerely yours,

Dr. Eric Larour,
Editor *The Cryosphere*