

Interactive comment on “Current glacier recession causes significant rockfall increase: The immediate paraglacial response of deglaciating cirque walls” by Ingo Hartmeyer et al.

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This manuscript presents a fantastic data set with some very interesting results - I believe that it is likely to be widely read and help move the science forward. I do not have expertise to comment on the data collection/processing methodologies, but they were fairly easy to understand as presented and I don't see any big problems. I would encourage the authors to use the observations to more carefully test some hypotheses on what controls the rate of cirque-headwall rockfalls. Specifically, please elaborate on the pattern of rockfall with orientation. The bedrock is described as having prominent cleavage to the NE and lots of jointing (without orientations provided). The majority

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of rockfalls are on NW or N facing slopes - which is attributed to specific locations? Perhaps the figure could be clarified to differentiate between rockfalls in different locations. Can this be clarified? There are faults in the vicinity of the major rockfalls? Can those faults be shown on the images? Can joint/fracture spacing be quantified on the different faces? (Perhaps using the existing Lidar data?) Is there a difference in the thickness of the rockfalls with orientation (or a pattern related to location)? I would expect that microclimates would impact the rate of development of the active layer and the ultimate thickness of the active layer - and I would also expect that the microclimates might be largely controlled by aspect. Could the diurnal/seasonal temperature variations be modeled for the rockwall faces? Are any instrumental temperature data available? Basically, I think that this data set could be probed in more detail to discern the influence of structure (jointing, foliation, faults) vs. climate in the rates and size of rockfalls. Doing so has the potential to increase the impact and significance of the paper.

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