

## ***Interactive comment on “Brief communication: Post-wildfire rockfall risk in the Eastern Alps” by Sandra Melzner et al.***

**Anonymous Referee #2**

Received and published: 25 August 2019

General Comments: The paper describe an interesting event occurred in an area prone to rockfalls but not usually affected by wildfire. The descriptions of the wildfire, of the effect on the vegetation and on the soil/subsoil is exhaustive but qualitative. There are no comparison between areas burned and not burned so it is difficult to assess statistically how the fire affected the occurrence of rockfalls. Of course, it is a preliminary report but some quantitative indication about, for example, rainfalls event that caused rockfall should be given. A map showing wildfire limits and rockfall event may also help the reader to understand the dimension of the event. It could include a burn severity rating. Also a comparison to similar slope not affected by wildfire can be an “added value” in the report. All chapter 4 in full of “probably” and “may be” that limit the paper to a discussion or better to a preliminary report and no more. It is also

C1

not clearly exposed if rockfalling take origin from bedrock or from blocks on talus or already available on the slope. In my experience, very important is also the time of persistence of the fire and the quantity of organic fuel already available on the slope. No discussion about this factor is given. Moreover, if the temperature reached during the burning are high enough, also decarbonatation in the limestone may occur, so a discussion on that kind of data could be interesting. All discussion about post fire risk assessment are sharable. Evolution in time of the vegetation of the burned areas could also give suggestion about the evolution in time of the hazard. The manuscript does not represent a substantial contribution to the understanding of natural hazards and their consequences but is a clear description of field observation and general considerations. The scientific and technical approaches are only described, but any data is given so discussion are only general statements. By the way, the paper is presented in a clear, concise, and well-structured way

Specific comment A rockfall is a fragment of rock (a block) detached by sliding, toppling, or falling, that falls along a vertical or sub-vertical cliff, proceeds down slope by bouncing and flying along ballistic trajectories or by rolling on talus or debris slopes”: this is the Varnes definition. In these cases, and in that referred by De Graff, it seems to me that there isn’t the moving in the “free air”. So, a more precise description of the kinematic is aspected. Probably, is better to tell about rock bouncing rather that rockfalling! About changes in soil and rockmass structure, in my experience, wildfire interest no more than a few centimeters of soil and probably less on bedrock. Moreover, authors says that the duration of the fire was reduced. So, I have great doubts that mineralogical changes took place and probably only very surficial exfoliation could be developed. Then, rockfalling during the fire could also be induced by human activities, like helicopters and firemen’s operations: no discussion about this is presented. The last part of this paragraph deals about rainfalls, but no information or correlation between rainfalls and rockfalling in the following days/weeks have been described. Nothing to say about the 2 last paragraphs: I agree with all the considerations and all future development about risk assessment and management of post wildfire rockfalls.

C2

