

Dear Editor,

Please find our responses, point by point, in red letters. Line numbers refer to the corrected version.

Comments of Referee 2

GeneralComments:

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.

To apply statistical methods to rockfalls is very difficult, because the data on rockfalls is often very limited and thus not statistical representative. Most statistical methods can't cope with little data sets (Melzner et al. in prep.). In the present work "a brief communication" was chosen, because not a lot of data and experience about wildfire induced rockfalls is existent. The scope of this brief communication is to stress the need of research and publish preliminary results. Rainfall is important, as one (among many other) parameters affecting rockfall occurrence and surely within the scope of future research.

A map showing wildfire limits and rockfall event may also help the reader to understand the dimension of the event.

In figure 1 the wildfire and rockfall affected area in the rockwall is displayed (3 ha) and coordinates of the study site are given. Unfortunately, the manuscript is already longer than most brief communications accepted by the journal. We will surely add another map in a future, full research paper.

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.

We address the severity in lines 88-92 but in a very limited form, due to the restrictions of a "brief communication"

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 not clearly exposed if rockfalling take origin from bedrock or from blocks on talus or already available on the slope.

The origin of rockfalls is both from rockwalls and rockfalls (from scree) are affecting the settlement area. Authors agree on comment and erased some "probably" and "may be".

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.

Time of persistence of fire is mentioned in the paper in terms of "spotty fire pattern" in lines 96 and 169. The organic matter accumulated on the slopes is mentioned in lines 54 and 89-92.

Moreover, if the temperature reached during the burning are high enough, also decarbonation in the limestone may occur, so a discussion on that kind of data could be interesting.

We added a discussion on this topic. Lines 140-149.

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.

We added a discussion on this topic. Lines 157-164.

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.

We agree with this comment, however the scope of this brief communication is to present first observations on an uncommon wildfire event in the Alps and to stress the extremely needed further research on this topic – especially in a zone that experienced very few past wildfires. Further research is surely needed to understand such evens and their consequences, that in recent years become more and more frequent

By the way, the paper is presented in a clear, concise, and well-structured way

Thank you

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!

Vertical rockwalls simplify the “falling through the air” (see fig. 1 and 4). The kinematic description will be further referred in a future full research paper on this topic. Unfortunately, the "brief communication" cannot include a longer introductory chapter.

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.

We added a discussion on this topic. (Lines 132-135)

Then, rockfalling during the fire could also be induced by human activities, like helicopters and firemen's operations: no discussion about this is presented.

We added a sentence on this topic. (Line 155)

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.

Rainfall might be an extremely important agent inducing rockfalls. However , this issue is not under the scope of the current paper .

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.

The authors would like to thank the reviewer for the very useful comments that helped improving this manuscript and will surely be taken into consideration in future research in this topic.