Section 2.1: *Please give some more information on the point cloud data like scan settings, achieved point density and alignment error. I expect that TLS and ALS data show quite different point densities. You talk about the creation of a surface/slope model. From Fig. 2 it seems it is a raster model. Please add more information about how this model was created (interpolation method) and which cell size was used. The same applies to the photogrammetric model, please add details.*

The point densities of the models can be provided in Section 2.1. The TLS and combined TLS/ALS slope models refer to the point cloud data generated from the LiDAR scans. This can also be specified. The slope model was converted into a raster DEM using an inverse distance weighted interpolation and 1m grid size, as specified in the paper. Details on the scan settings, scan processing, and photogrammetric model generation are provided in many of the papers that have been cited. Some further details could be added to Section 2.1.

Section 2.2: *You cite Jolivet et al. (2015) regarding the methods used for classification. Please add some more information on what these methods are, especially as this report seems to be difficult to access.*

A reference can be added on Page 4, Line 18, to another paper by the author (van Veen et al., 2016) which describes the methodology in more detail, also referencing Jolivet et al. (2015) who originally developed this method.

Figure 4: *why are there gaps in the maps?*

The gaps are occlusions in the dataset. This can be noted in the caption to Figure 4.

Section 2.3: *You cite van Veen et al. (2017) regarding the applied (semi-automatic) change detection methods. Please add some more information: which method was used to calculate distances/volumes (2D/3D, raster or point based)? How were individual locations detected/delimited? Again, it would be interesting on which cell size these operations were performed (see above).*

The operation was performed using 3D point based methods as described in detail in van Veen et al. (2017) and other papers by the authors which have been cited. They have not been included in this paper as the focus of this paper is the presentation of the methodology for taking the extracted rockfall data and using the simulations to provide a refined estimate of the rockfall hazard at track level. A brief summary can be added to Page 4, Line 27.

General comment - *Regarding the high number of small events in the TLS data – might this be related to the alignment accuracy of the datasets (see above)? Did you apply a level of detection (LOD) threshold to distinguish between real change and measurement error?*

This is also described in van Veen et al. (2017) and other papers that have been cited. A LOD of 0.05 m was applied based on the alignment error. In addition, other filters were applied to remove noise from the data, as described in the referenced papers. Some smaller rock falls have been validated using high-resolution photographs of the slope, therefore the small events are real. This can be noted on Page 4, Line 30.

General comment - *Regarding rockfall locations and volume: are there any relationships between volume and GSI?*

There is not a clear pattern between the rockfall locations/volumes and GSI. In general, the lowest GSI range produces the most rockfalls and largest GSI produces the fewest rock falls, but in between the relationships is not as clear. This analysis is outside the scope of this paper therefore no changes are proposed.

Section 3.3: Figure 8: *why do you show the minimum deposited volume (and not the worst case)? To make the differences in travel length with regard to block size more obvious? Please comment.*

The minimum deposited volume is shown, as any block size larger than this will also be deposited in these locations. Therefore, by showing the minimum volume, we can understand the full range of block sizes that could be deposited in each location. This can be specified on Page 6, Line 15.

Figure 9: *there seems to be a more or less strict order regarding the distance of the source zone from the track and the percentage of rockfalls deposited. Did you investigate if this could be related to the simulation model assumptions? I would have expected that GSI/roughness and changes in slope could result in a more heterogeneous result. Is it really just that there are only fewer complex geometrical features and fewer zones of talus present in the nearer sections?*

It is expected that there would be a strong relationship between the distance of the source zone from the track and percentage of rockfalls deposited. It is possible that the local slope roughness does impact the results, and that there may be certain areas of the slope where the roughness or slope angles play a larger role than others, but the distance from the track is the controlling factor in the overall percentage of rockfalls making it to the track. A detailed sensitivity analysis of the modelling parameters is beyond the scope of this study. This can be made clear in the objectives (Section 1.1).

Section 4.1: *How did you determine the bin size? In the example for the 0.1m3 volume class you use a bin range from 0.05m3 to 0.5m3. How does that match with your statement that the modelled volume is the central point of each bin? Is the bin size constant or differs the size for each modelled volume? Please comment.*

This can be reworded/clarified on Page 8, Line 11 and 12. Instead of specifying that the modelled volume is the central point of each bin, we could state that each of the rock falls was assigned a probability based on being rounded to the closest modelled volume. We also propose to add a diagram to further show the different bins.

Section 5/6: *Regarding rockfall fragmentation: from change detection you also know at which locations material has been accumulated. Did you balance the erosion / deposition volumes, and if so, how much do they differ? Did you compare the total area covered by either erosion or deposition? That might give a hint on fragmentation.*

At this site, it is difficult to match areas of material accumulation to individual rockfall events for several reasons. The talus piles at track level are cleared out regularly by railway operating crews and result in negative change along the base of the tracks. In addition, when then rock falls fragment, sometimes the fragments spread out and the accumulation is below the limit of detection. This is why we are investigating the use of simulations at this site to determine what percentage of rockfalls will make it to the track level, as it is difficult to do so otherwise.

The following comments are understood and will be addressed/corrected:

In general, I think the introduction could be elaborated – references to previous studies/approaches and some comments in which aspects this paper goes beyond.

A minor comment: you mostly write “frequency-magnitude” relationship throughout the text, but also use “magnitude-cumulative frequency (MCF) curve”. I think the usage of “magnitude-frequency” relationship is more common, so it might be worth to homogenize this throughout the manuscript.

Please provide a small note (and not only in the discussion) that such a short time period of only 18 months may be problematic in order to establish a magnitude-frequency relationship. This also applies to the differences seen compared to the historical inventory (large events may be missing).

Technical corrections:

p. 8, l. 31: I think the “and” should be removed p.12, l. 30: add missing line break

p. 13, l. 17: fix typo in “frequency”

Figure 1b: please add a scale bar