We thank the Editor for the comments that allowed us to clarify and improve the contents of the manuscript. Our answers to the Editor's comments are listed by a point-by-point basis as follows. The green text in the manuscript indicates the revisions that we made in response to the two referees' comments. The blue text in the manuscript indicates the changes that we further made after the latest comments by the Editor.

Comments by Editor Hayakawa: The authors have corrected their manuscript following the reviewers' suggestions. There are some more rooms to revise it as listed below.

NE#1: #1-2 and #2-1: The authors now showed that both the UAS-derived DSM and ALS-derived DTM are used for the geomorphological analyses. However, in some cases, the descriptions remain unclear. Therefore, I would like to recommend to further revise the manuscript text and figures to clarify which data were actually used for each analysis. For instance, Figures 6 and 7 provide a hillshade image by ALS-DTM, but the authors state that UAS-DSM is also used for the landslide body area. The data source for profiles in Figure 9 must be from ALS-DTM (I guess), but it is not explicitly shown. By clarifying the more detailed morphological characteristics of the landslide (even if they are significantly modified), it will become possible to argue the issues on the largeness of the landslide size (#2-3a), which can be due to multiple occurrences of sliding.
Answer: Thank you for the comments. We have deleted original Fig. 8 and added a comprehensive new figure, now Fig. 7, to demonstrate the datasets used for this study. The text in the manuscript is also revised accordingly. The data source for profiles in now Fig. 8 is also indicated as did for other figures (Figs. 10, 11, 12) that were not clearly indicated in previous version.

NE#2: Related to the issue above, Figure 6 only shows the hillshade data by ALS-derived DTM. Is it possible to overlay the hillshade by UAS-derived DSM onto this image? Or, as noted below, adding some magnified views of the key morphological features (somewhat like the case in Figure 4) to this or next figure is another option.
Answer: Similar to the previous comment, we have revised relevant figures in the text. Actually, we used the UAS imageries to create true 3D models, which are the most useful product from UAS system. Regarding Fig. 6 (now Fig. 5), we did not modify the figure. Instead, in order to better illustrate the morphologic features, we newly created Fig. 7 for the suggested purpose. This also responds to the comment of

NE#3.

NE#3: Figure 8 is only mentioned once in the text. This anaglyph may be somewhat useful but not fully because the geomorphological details must have been assessed using the UAS-derived DSM, not only the ALS-DTM. This figure can therefore be omitted. Instead, I would recommend adding more detailed views of key features (main scarp, ridge, etc.) in Figure 7 with their magnified views by UAS-DSM.

Answer: The original Fig. 8 is now deleted and we have added a new figure (now Fig. 7) to conform the recommendation.

NE#4: The terms DTM and DEM are mixed. In general, DEM is often an inclusive term, while DTM is more specifically used to indicate the land surface (terrain) data after filtering. I would recommend defining the terms of DSM and DTM when they appears firstly in the manuscript, and replace DEM with DTM thereafter.

Answer: We have now defined the terms in P. 5, l. 31 to P. 6, l. 4. in this manuscript as suggested. (Note: The Taiwan government and the geomatics community define the term DTM as a general term, whereas the DEM was defined as the geomorphologic elevation after removing the buildings, trees and vehicles, etc. DSM defines the first return of the LiDAR pulse of terrain data, including buildings and tree canopy.)

NE#5: #2-1e: I could not find the detailed descriptions regarding the relative age of the landslide in the main text.

Answer: We have revised the text regarding the time scale issue for landsliding and faulting. The text is distributed within mainly the Discussion sections 5.1 and 5.3. To be more specific and focused, we added a new paragraph in P. 13, l. 7-14 to clarify the comment as follows: "To conclude the landslide generation, the normal faulting in the region started from 400 Ka and is activated continuously ever since. The faulting was identified in the Taipei basin area and northeastern offshore Taiwan, with the fault line situated on both sides of the study area (Figs. 4 and 5). And the fault line was recently identified and linked together as only one normal fault in Tatun Volcano region. In conclusion, for the relative age of the landslide, we interpret that the landslide has been triggered since right after normal faulting started and the formation of Tatun Volcano, which is far later than 200 Ka. Regarding to the different generation of landslide, the geomorphologic components also show different degrees of preservation within the two observed landslides. Furthermore, the CSL is interpreted to have occurred from a combination of multiple landslide events."

NE#6: #2-2a: I could not find the relevant documentation in the manuscript.

Answer: The revised text is located in P. 4, l. 21 to P. 5, l. 4. Here we would like to emphasize our previous response to this question. In Taiwan, heavy precipitation induced by the annual northeast monsoon modifies easily the landslide topography. On the other hand, the study region is situated within a national park and preserves dense forest very well. Both effects conceal detailed topography and nearly impossible to study directly from aerial photographs and/or satellite images. The same situation can be found in the two giant landslides (namely, Tsaoling and Jiufengershan) triggered by the Chi-Chi earthquake, where the vegetation colonization concealed almost all the topographic details, especially for the zone of accumulation in just ten years after the landslides occurred. That is why we employed high-resolution and high-precision datasets/methods, the UAV and the airborne LiDAR, to decipher the landslide features of the study area. And that is why we assert the quality levels of the datasets, and illustrated them in Figs. 2 and 4. We have newly revised and clarified the documentation in the manuscript.

NE#7: #2-2b: I could not find the relevant documentation regarding the significance of gullies in the manuscript.

Answer: The revised and newly added text is in P.13, l. 29 to P. 14, l. 2. We would like to stress that the gully incision is a minor factor to estimate the overall landslide volume. The method is used only to assess the landslide morphology and evolution. We have clarified the documentation in the manuscript.

NE#8: #2-3a: The authors revised the descriptions, but still it is unclear why the two landslides are so large. In page 12 lines 16-17, the authors seem to argue that the multiple occurrences of sliding resulted in the extremely large landslide, but in page 13 lines 20-21, the total volume is compared with the previously-reported landslides. As noted before, detailed morphological characteristics within the landslide body using UAS-DSM should be provided to further argue this issue.

Answer: Please refer to the revised and some newly added text in P. 7, l. 19-26. We have also created a brand new figure shown as Fig. 7. Regarding why such large landslides occurred, as we have emphasized in the Discussion section, it is likely to be resulted from the active normal faulting and rapid erosion process in the region. Regarding the UAS DSM, the dataset is useful for detailed ground identification and validation, however it is easily concealed by dense vegetation. That is why it is necessary to integrate several methods to decipher the landslide evolution as shown in the manuscript.

NE#9: (#2-3a cont.) Moreover, the way of reproduction of the geological map (new Fig. 5) is unclear. Did the authors performed field validation, or just re-draw the existing geological map on the ALS-DTM image? (P7, L18-20) Please clarify.

Answer: We have clarified the comment by revising and adding a paragraph in P. 7, l. 19-26 as follows: "A detailed regional geologic map was reproduced by investigation from the high-resolution DEMs prior to the landslide study, as illustrated in Fig. 4. The geological structures, e.g. lineament, fault, fold and especially the landslides, are interpreted directly from LiDAR DTM and DSM, and UAS DSM and 3D model, then validated in the field. The color patches represent strata boundaries initially from existing geologic maps, and they were then modified with LiDAR and UAS data (Yeh et al., 2014 and 2017), and again validated in the field if possible. The components contain faults, lineaments and landslides shown by scarps (Fig. 4). For the first appearance, there many landslides occurred in the study area and in the Tatun Volcano region. Comparing the size, distribution and classification, data accessibility especially for UAS flight mission, the two largest landslides (XSL and CSL) were thus chosen as the target for this study. "

NE#10: #2-3b: I could not realize what "slope daylight" indicates. Also, the last part of this response is unclear. The newly added description in page 15 lines 18-21 is uncertain: What does "erosion by alluvial processes at the slope toe"? Does this mean that the base-level lowering by fluvial erosion or fault displacement, or both? Please clarify.

Answer: The "slope daylight" is a civil engineering term, frequently used for slope stability study and we have added a relevant reference (Yeh, et al., 2017) in the sentence. Regarding the slope toe erosion, graben subsidence is considered a major contributor for the observed phenomena. We have modified the text in P. 16, l. 14-18 to clarify what we meant as follows: "New tectonic activities because of normal faulting will likely result in the reactivation of the existing landslides posing life-threatening situations, particularly if the slope toe is being eroded by alluvial processes transporting sediments downstream and by graben subsidence daylighting the dip slope and reactivating landslide."

NE#11: #2-3c: I could not find the relevant documentation in the manuscript.

Answer: Overall, this comment is similar to the comment NE#5. Please refer to the answer for NE#5.

NE#12:#2-4a: The citation to this finding by Lee seems missing in the manuscript. Please provide an appropriate citation (around P2, L27-28?).

Answer: Because the finding was not officially documented in the literature, we have revised and added the following sentence in the text to clarify the citation question: "Two large-scale landslides have already been suggested by C. T. Lee of National Central University (personal communication) from LANDSAT images and 40m grid digital terrain model of the region but without existing documentation in the literature."

NE#13: #2-4a: I could not find the relevant documentation in the manuscript.

Answer: We have changed the subtitles of the manuscript and reorganized the text which now differs from the first submitted version. The changed subtitles are as follows: Introduction, Geological background, Methods of data acquisition, Results of morphological analysis, Discussion, and Conclusions. We also stress that pertinent literatures are now added into the manuscript. Due to the lack of available datasets and without distinct features, the studied landslides were not analyzed in depth till this study. From climatologic point of view, the annual rainfall is more than 2500 mm in this area, thus a vast portion of the study area is covered by vegetation. Dense forest thus partially conceals morphological features and has prevented detailed geomorphic studies in the past. That's why this study is crucial to reveal the true characteristics of the unusually large landslides. On the other hand, the heavy rainfall also enhances the surface processes, e.g., incision and erosion. As a consequence, the erosion effect also obscures the landslide features. We have improved the documentation in the manuscript based on the abovementioned points.

NE#14:#2-4c: Please follow the reviewer's suggestion regarding the chapters.

Answer: We have changed the subtitles of the manuscript and revised the text which now differs from the first submitted version. The changed subtitles are as follows: Introduction, Geological background, Methods of data acquisition, Results of morphological analysis, Discussion, and Conclusions.

NE#15: Please follow the styles of NHESS, in particular the references (e.g., P14, L8-9).

Answer: We have revised the mentioned references and also checked other references to fit the journal's text styles.

NE#16: North arrows are missing in Figures 3b-c, 4, 7, 9 (inset), 11, and 12 (inset). That in Figure 6 has an error. The north direction of Figure 8 may also be incorrect.

Answer: We have revised north arrows in the figures as suggested. The errors in the mentioned figures are updated. The old Fig. 8 is now deleted as suggested.

NE#17: Scales are missing in Figures 3b-c, 4f,h,i, 7, and 9 (inset, unknown numbers are shown in the frame).
Answer: We have added the scales in the figures and revised the numbers in the frame.

NE#18: Figure 1: Show the summit location and extent area of Tatun Volcano. Please show the extent areas of Figures 3a, 4a-c, 5, and 6.
Answer: We have labeled two main summits, Mts. Chising and Tatun, in the figure and the Tatun Volcano Group is indicated by the warm colors, which we think is enough for the purpose of the paper. We also have shown the extent areas of figures where appropriate and necessary as suggested by the comment.

NE#19: Figure 2: I do not see this figure is necessary for this paper. The hillshade image (inset) is already shown in Figure 1, while the IKONOS image does not provide clear appearance of the landslides studies. I would recommend simply removing this figure.
Answer: We have deleted the figure as suggested.

NE#20: Figure 3: Please show the location and direction of panels b and c in a.
Answer: We have revised and shown the features in the figure as suggested.

NE#21: Figure 5: Does "study area" mean the extent of Figure 6? If so, please show it as Figure 6.
Answer: The study area means Figure 6. We have revised accordingly.

Thank you very much for your time and comments for improving the manuscript.