Interactive comment on "Geomorphological evolution of landslides near an active normal fault in Northern Taiwan, as revealed by LiDAR and unmanned aircraft system data" *by* Kuo-Jen Chang et al.

Anonymous Referee #1

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nhess-2017-227 Geomorphological evolution of landslides near an active normal fault in Northern Taiwan, as revealed by LiDAR and unmanned aircraft system data

This study analyzed landslide morphological characteristics and geomorphological evolution using lidar and UAS data in northern Taiwan. The morphological reconstruction showed that the total volume of landslides reached 820 x 10ˆ6 mˆ3. This paper is interesting for the evaluation of landslide evolution and the assessment of related landslide hazards. However, the reviewer has some comments regarding landslide types, data, and methods that would need to be verified by authors.

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Discussion paper

1. Little information on landslide types in the study area was explained in the manuscript. Landslide types are important for discussing the landslide evolution. It would be better to show landslide types and processes analyzed in this study referring Varnes (1978) or Cruden and Varnes (1996).

2. The authors emphasized importance of UAS and lidar data. However, it was not clear how did authors use these DSMs for the geomorphological analysis, respectively. For example, the authors explained that USA had the disadvantage that the DSMs included the vegetation height. How did authors use the DSMs for the analysis? Were the geomorphological analysis and the reconstruction performed by lidar data alone?

3. The volume of the CSL was six times larger than that of the largest landslide ever reported in Taiwan which was triggered by the Chi-Chi earthquake. How did the authors assume that the CSL triggered by the single earthquake event? Additionally, the authors assumed that current topography in the CSL corresponded to the slip surface of the original landslide (Fig. 13). Did authors have geological evidences of that? Detection of the slip surface is important for estimating the volume.