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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Satellite-based emergency mapping: Landslides triggered by the 2015 Nepal earthquake" *by* Jack G. Williams et al.

Anonymous Referee #2

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The paper presents and discusses an interest topic, i.e., the emergency mapping of landslides, with examples from the 2015 Nepal earthquake. I have some concern about the typology of publication. Indeed, the paper does not presents a typical research based on the analysis of data, but rather a speculation on the problems related to landslide mapping in emergency condition. For this reason, I believe that the paper could be accepted for publication as a brief communication (after significant shortening) and not as a research paper. I'll try to substantiate my opinion hereafter. 1 -The first and main problem is that the paper is based on a single case study. The four figures presents four successive steps of advancements of the inventory, and have been published online first, and they are probably still available in the HDX site (https://data.humdata.org/). The real problem of the paper is that the general conclusions on the emergency map-

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ping of landslides are rooted in this specific case study. While they pretend to be "general", they are indeed "specific". A few examples. One of the conclusion is that manual mapping is not fast enough (session 4.2), and a faster approach is needed (Robinson et al, 2017 is cited as an example). Indeed, the delay in mapping in Nepal was mainly due to the clouds that covered the sky soon after the earthquake. This required a few days to be have good images available. However, this is not always the case. For instance, if good images were available since the first day, one could have mapped hundreds of landslides within 4 or 5 days (consider that a good geomorphologist could map tens of landslides a day). Hence, manual mapping is not the issue. The issue is how good the weather is (for instance) and how lucky we are in having satellites ready to take the images on time. Another conclusion (session 4.3) is that linear mapping was a good compromise between velocity and the need to assess the landslides size, even roughly. Part of reason for this choice is that the georeferencing of Google Crisis maps was very poor, hence hampering a meaningful mapping of polygons. Again, this is not always the case. In the future, we could expect Google to provide better and better image datasets, and we could expect to have a good georeferencing soon after the event. Hence, the conclusion is true for this case study TODAY, but it is not general and probably not completely true for the future.

2 - A second significant problem is that part of the speculations are not supported by any analysis. For example, the potential of crowd-sourced information. I agree that this may be relevant in the future, but the case study does not say anything about that. The same for other speculations. For instance, the accompanying information of the output (last 4 numbered points in the discussion) are not discussed based on the present case study. A third example regards the comparison of the inventories (session 4.1). The authors state that, even if their inventory has less landslides than the others, it still holds value as a rapid assessment etc. etc. Again, this could be true but it is speculated without any analysis of the data. In such case, data analysis could have been done by trying to overlap polygons to identify positional mismatch and overlapping ratio.

3 – the third problem is that large part of the paper is not transferable to other similar emergency situations. For instance, the data selection (session 2.2), and the mapping platform (session 2.3) are very site specific and may be different for other case studies. Hence, a long description of these issues are not relevant, and may be strongly reduced.

My conclusion is that the authors should resubmit the paper as a brief communication after significant shortening. They could keep session 1.1 and 1.2. The should strongly reduce chapter 3 (maybe it can be moved in the supplementary materials) and chapter 4 (just the figures with appropriate long captions could be enough). Finally, they could save the discussion, stressing out what is of general purposes and what is case-study specific, and trying to figure out what could be the issue in the near future.

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