RE: NHESS 2017 20 Imaizumi et al. Interactions between the accumulation of sediment storage and debris flow characteristics in a debris-flow initiation zone, Ohya landslide body, Japan

Overview

The authors improved their work but there are some parts to be refined:

1) The subsection 4.3 is not understandable. The first sentence is not clear: what does it mean "We estimated the volume of storage from periodical photography and terrains …". For the following part, I suggest the authors to write that 36 cross section lines were considered along the reach and volume of storage was computed for each of the 35 areas between the cross-section line. Moreover, at the beginning of the second sentence did the authors confuse storage for channel?
2) About debris flow monitoring (5.1), the reviewer does not understand the different separation time of rainfall durations for the two thresholds, 10 h, when the rainfalls are classified in two groups based on rainfall duration smaller or larger than 5h. Moreover, legend of Figure 5 should be corrected: no debris flow instead of debirs flow. The unknown points of Figure 5 need some specification or explanation in the caption or in the text: do they correspond to fully saturated debris flows or both to partly and fully unsaturated debris flows? About the weak positive dependence of partly saturated debris flow on the storage volume, a reason could be the dependence from another factor: the precipitated depth before debris flow occurrence (see point 4).
3) About subsection 5.3, where are the points F and G on Figure 2?
4) About section 6.1, the sentence at the lines 16-19 of page 21 is not very clear: could you rewrite? Moreover, the writer agrees with the authors that the storage volume can influence the debris flow type. About the two debris flows occurred at Cancia in summer of year 2015 (Gregoretti et al., 2016), the former was partly saturated in the first minute while the latter was fully saturated. The reason is that the upstream storage volume in the second case was negligible because washed out by the first event occurred 12 days before. Authors, if willing, could insert this fact in this subsection. Considering Figure 7, another factor controlling the debris flow type could be the rainfall precipitated before the debris flow occurrence in the case of long duration rainfalls (typhoons). In this case the storage volume could be partly or entirely saturated by the rainfall previous debris flow and the degree of

saturation could influence the proportional amount of partly saturated debris flow. Authors could explore this possibility after analyzing the rainfall data.

5) In section 7, authors should add some specification to support the sentence “In addition, our study elucidated that the slope geomorphic units is the key factor in the estimation of predominant type of the sediment transport…”

The following are the detailed comments and specifications.

1. Page 5 – line 9: ratio instead of ration?
2. Page 22- line 27: what is it the length ratio of the channel sections? (see also Figure 11)
3. Page 23– line 20: please insert could before exist.
4. Page 24 - line 27: is instead of are after Paolo Tarolli.

Gregoretti C., Degetto M., Bernard M., Crucil, G., Pimazzoni A., De Vido G., Berti M., Simoni A. Lanzoni S. Runoff of small rocky headwater catchments: Field observations and hydrological modeling. *Water Resources Research*. 52(8) doi: 10.1002/2016WR018675