

Interactive comment on “Debris flow sediment control using multiple herringbone water-sediment separation structures” by Xiangping Xie et al.

Anonymous Referee #1

Received and published: 6 February 2017

The paper has some value for it illustrates a laboratory research on a physical model of a special debris-flow protection structure. Nevertheless, the paper is rather poor from the scientific point of view: there are a number of errors in scientific terminology (see revised file) several obvious sentences and many typing errors (specially missing blanks between words, present in the hundreds). From the conceptual point of view I have to say that the paper is focused on the capacity of the modelled structures ("herring- bone water-sediment separation structures") to sort debris-flow sediments, while the first purpose of debris-flow protection measures should deal with hazard reduction by stopping/slowing debris-flow surges or storing the material in debris basins etc. Sorting debris-flow sediments is a challenge which usually isn't worth it, since the resulting sorted material is normally of very poor quality as building material, useless for any kind of engineering works, even for road foundations (this is certainly

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true for debris flow material from the whole European Alps!). Moreover the results obtained in laboratory can hardly be considered representative of the working of that kind of structure in the field: real debris flows often consist of several successive surges and the water/sediment separating capacity of a "herringbone" structure would be quickly reduced to zero by the accumulation of material on and around the grid structures, letting alone the fact that the grain size distribution of debris-flow sediments changes, even in the same basin, from event to event and during a single event. I suggest to rewrite the paper greatly reducing the emphases on the sorting ability of the structures (which are not reproducible in the field!) giving more attention on the risk reduction capacity of the structures.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-340/nhess-2016-340-RC1-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2016-340, 2016.

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