

Interactive comment on “Headwater sediment dynamics in debris flow catchment: implication of debris supply using high resolution topographic surveys” by A. Loye et al.

Anonymous Referee #1

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This is an interesting paper. The authors presented an analysis on the headwater sediment dynamics in a debris flow catchment located in the French Alps. The catchment was surveyed periodically during 16 months using terrestrial laser scanning (TLS) with the purpose to analyze the coupling between sediment dynamics and torrent responses in terms of debris flow events. This is one of the first papers I've seen where the TLS was used so extensively on a landscape for the analysis of Earth surface processes at catchment scale. It absolutely deserves to be published in ESurf, and probably it will be a solid reference point for the Earth science community in the future. Having said that, the general impression is that the paper is a little long, not so easy to read. In my opinion it should be simplified in several sections, summarizing the re-

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sults and making the discussion simple and direct. The conclusion section needs to be significantly reduced, while adding one or two sentences on future challenges of such kind of analysis.

Minor issues

The equations should be numbered as commonly happens in scientific papers. Green circles in Fig. 9 should present the same style of Fig. 8 and 7, so with a black rings. I suggest to add 2-3 figures representing detailed views of erosional areas, in addition to one picture showing the TLS during the survey.

Overall I recommend moderate-to-major changes, very easy to address.

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