

Interactive comment on “Effectiveness and efficiency of slot-check dam system on debris flow control” by Y. H. Zou and X. Q. Chen

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Received and published: 22 December 2015

Reply to Reviewer's Comments

The authors thank the reviewer for the examination of the manuscript and the suggestions for improvement. The manuscript will be revised according to the comments. Specific responses to the review comments are itemized separately for the reviewer.

The manuscript has been sent to be edited by a native English-speaker so that the English would be proofed and grammar would be improved.

(1) The references will be reordered in chronological order. We will list references within the text starting from the oldest one to the newest.

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(2) The introduction will be rewritten to clearly state the main objectives of the paper and how to fulfill these objectives.

(3) The contents in the methodology, results and discussion will be revised for better understanding.

(4) We will add the variables definition (symbol and name) at the end of each equation to help the readers to understand clearly both the equations and the meaning of variables.

(5) More information about geological settings would be presented. The type of debris flow will be given in the revised paper. The grain-size curves of the debris flow deposits will be given in the revised paper.

Specific comments:

(1) Line 5-7 (page 5779): The function of check dams to contribute to the stability of the neighboring slopes has been considered.

(2) Line 16-18 (page 5779): When the deposition upstream the check dam during ordinary events is negligible, the storage capacity of the dam can be left for the very large debris flows.

(3) Line 1 (page 5780): Preliminary study on the efficiency of the subsystem in a slot-check dam group has been proposed in the paper (Zou et al., 2014). After the above sentence, when we are talking about “In the study, a new way”, we are mentioned the work presented within this paper. The paper (Zou et al., 2014) is a preliminary study of this paper (Zou and Chen, 2015).

(4) We will draw on the map the location of the apex and give additional information to help the reader to figure out the activity of the torrential watershed.

(6) Line 24-27 (page 5780): Some basic information about the climatic data will be given based on the data from the weather stations setting in the region.

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(7) Line 6 (page 5781): The peak discharge of flood with return year of 50 years is obtained from the local hydrological station.

(8) The check dams were built by the local government. The soil or geological information will be added to describe the basin.

(9) The authors measured after the event. The records and measurements before the event and the volume of each sediment reservoir are obtained from the local government who build the dams.

(10) Line 10-11 (page 5788): 60% of the sediments deposited in the dam group.

(11) Figure 2: The scales will be added on the photographs.

(12) Figure 7: the dot-line box will be changed to solid-line box. More quantitative information including the efficiency model will be added to make the design procedure more expatiated.

We hope the study will be interesting for the readers. We will try our best to be better. Thank you very much for your suggestion!

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 5777, 2015.