

Interactive comment on “Debris flow impact estimation on a rigid barrier” by F. Vagnon and A. Segalini

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Thank you very much for spending time reviewing this manuscript and providing useful comments. Your comments and critical observations are very informative and constructive. More specific replies to all comments are now given.

1 - [...] it is extremely influenced by the dynamic coefficient (α); can the authors add more details about this parameter?

The following paragraph has been added at page 4, line 26: "In particular, the drainage capability of the barrier reduces the magnitude of this coefficient due to the rapid discharge of the fluid portion through the barrier, preventing the formation of wave overpressure. Another aspect to take into account while choosing α is the grain size distribution of the debris flow: if it is predominantly coarse, the dynamic coefficient is greater

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since there is a local overpressure build up due to the impact of single boulders on the barrier."

2 - The pressure sensor used in the experimental test seems a very useful tool to understand the behavior of the flow during impact. I suggest to add more information about it.

The following paragraph has been added at page 3, line 24: "In the experimental tests, this device was also used to verify the occurrence of vertical wave overpressure. The capability to record impact pressure in real time allows to understand and to detect the most stressed zones of the barrier. In this way, it is possible to verify the accuracy of the hypotheses done about the behaviour of the current during the impact."

3 - Even if the paper is well written, for the publication the English should be improved.

The English has been checked and improved. You can find the revised manuscript attached as supplement.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-80/nhess-2016-80-AC3-supplement.pdf>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2016-80, 2016.

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