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Interactive comment on "Empirical prediction for travel distance of channelized rock avalanches in the Wenchuan earthquake area" *by* Weiwei Zhan et al.

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This is an interesting paper showing that with a limited amount of factors one is able to predict the travel distance of rock avalanches provided that they occur in the same area, are of the same type and have the same triggering conditions. This was already shown in this paper where the validation with landslides with other triggering conditions and lying in another area gave sometimes poor results I am wondering why the authors did not mention in the introduction explicitly the use of the energy concept for runout modelling, which gives a simple transparent insight in the most important factors (relief and friction) influencing run-out distance Interesting question arises also from the introduction about advantages and disadvantages of the use of

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deterministic physical models and statistical models. In the introduction the authors mention examples of important fast landslides but they must more precisely describe triggering condition and type I have great difficulty in presenting the total height (H) as an important factor for the run out distance since it is highly correlated with run-out distance (L) Therefore Equation 2 and 3 are really not useful predictive equations because you need the travel distance L which you have to predict? May be a trial an error procedure for L is a solution when using this equation? It would be nice to test this. The authors solved the problem by making a correlation of Hs with H (Eq 4) which is a practical solution but has of course no physical meaning and it has to be questioned whether it works in other areas. I want to see comments on this in the discussion paragraph. The energy approach to model run-out (not used in this paper) shows that volume does not play a role. But in that case it is assumed that friction is not influenced by volume, which in practice seems to be the case due to all kinds of physical processes in the mass. Therefore in order to show this, I asked the authors to make also a correlation between H/L (mean friction during run-out) and volume. The effect of slope angle beta is a bit strange In Eq, 2 and 3 it is negative while in Eq 4 it is a positive factor. The authors should comment on this. The authors give sometimes unclear and peculiar explanations of their findings regarding the effect of volume on travel distance and the effect of total height and channel angle on run-out distance. A lack of clarity for me sometimes occurred in the text where the authors give no definitions of some terms like flow capacity, projectile motion etc., (see my annotations and comments) The English is fine but a final check is necessary to make some small corrections (see some of my annotations) I think the authors are able without much difficulty to correct some typos, rephrase some sentences and give comments on my general remarks and annotations. Therefore I recommend minor revision

Please also note the supplement to this comment:
http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2016-372/nhess-2016-372-RC2-supplement.pdf

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