

## ***Interactive comment on “UAV-enabled reconnaissance and trajectory modeling of a co-seismic rockfall in Lefkada” by Charalampos Saroglou et al.***

### **Anonymous Referee #1**

Received and published: 8 March 2017

#### GENERAL COMMENTS:

The manuscript presents a back analysis of a rockfall event which was triggered by an earthquake. An off-the-shelf quadcopter was used to inspect the slope and identify the rockfall source location. In addition, it was also used to capture images (or videos) of the slope which were then processed to generate a high-resolution orthophoto and a digital surface model (DSM). The orthophoto was used to establish the impact locations and the path of the rockfall, whereas the DSM was used in the back analysis. First, a simple back analysis based on an analytical approach using the ballistic equations is performed. Then a 2D and 3D rockfall analysis is carried out. The concept of the study is very interesting and the topic definitely suits the journal. The authors have the

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opportunity to work with a very comprehensive dataset but the back analysis lacks in many aspects. Although the study is very comprehensive, it looks more like some kind of preliminary work as many aspects mentioned in the manuscript (such as high values of restitution coefficients, slope roughness, DSM vs. DTM, resolution and accuracy of DSM) have not been addressed in detail. Nevertheless, I would like to thank the authors for their contribution and hope they can improve the manuscript following my critical comment and suggestions.

#### SPECIFIC COMMENTS:

The title should probably be changed in something like “UAV-based back analysis and trajectory modelling of a co-seismic rockfall in Lefkada”. From the manuscript is not clear how the images or videos have been processed nor is the accuracy of the DSM discussed in detail. In the 3D simulations it looks like the authors used the DSM that still includes vegetation. This might create unrealistic obstacles. The influence of the slope roughness is not addressed in detail. The authors also use inconsistent and uncommon notation. In addition, language and style should be improved. More specific comments are given in the attached pdf file.

#### TECHNICAL CORRECTIONS:

See attached pdf file. Note that only a few corrections regarding language and style are pointed out. Not sure if any of the authors are native English speakers (maybe co-authors from the US?) but the authors are encouraged to improve the language.

Please also note the supplement to this comment:

<http://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2017-29/nhess-2017-29-RC1-supplement.pdf>

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2017-29, 2017.

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