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Discussions

Interactive comment on "Automated reconstruction of rainfall events responsible for shallow landslides" *by* G. Vessia et al.

Anonymous Referee #2

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The manuscript deals with a very interesting and challenging issue concerning the identification of a standard and automated procedure for identifying rainfall events triggering shallow landslides. Due to both the high scientific relevance of the topic of rainfall thresholds triggering shallow landslides and the scarcity of scientific contributions regarding criteria to be used for distinguishing triggering rainfall events, the manuscript tries successfully to fill a not negligible gap in scientific literature. The paper is generally well structured and written and only few conceptual improvements can be given to improve its consistency. These improvements are described following though general and specific comments.

General comments 1) Introduction. Authors could preferably give more information about the dataset of 100 shallow landslides by means of a general description of ge-

ological and physiographic features as well as descriptive statistics of local bedrock lithology and morphological features of landslides (e.g. histogram for the bedrock lithology; box plots of mean slope angle, slope length, etc.). 2) Discussion. Besides the significant increase of the slope values for power law trends (D,E), descriptive statistics regarding differences among rainfall events identified by expert and automated procedures, in terms of cumulative rainfall, duration and average intensity, would give a better understanding about the performance of the proposed automated procedure. 3) Final remarks. Authors could try to expand this section widening the discussion of the applicability of the automated procedure to different geological contexts in which a different calibration of the minimum change in rainfall intensity (epsilon) is to be expected (e.g. high vs low hydraulic conductivity values of weathering, colluvial or pyroclastic overburdens prone to shallow instability). A possible insight could derive by clustering of the 100 shallow landslides forming the used dataset (preceding point 1) into different classes of bedrock lithology. All cited references correspond with those reported in the reference section.

Specific comments âĂć To substitute the term "cumulated" with "cumulative" throughout the manuscript and figures. âĂć Line 207: the expression "non-overlapping time windows" seems to not explain clearly the wanted meaning. Probably "moving time windows" could explain better the used algorithm.

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