

# ***Interactive comment on “Influence of uncertain identification of triggering rainfall on the assessment of landslide early warning thresholds” by David J. Peres et al.***

## **Anonymous Referee #1**

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Review of the manuscript “Influence of uncertain identification of triggering rainfall on the assessment of landslide early warning thresholds” By David J. Peres, Antonino Cancelliere, Roberto Greco, and Thom A. Bogaard

General Comments The manuscript of Peres and co-authors entitled “Influence of uncertain identification of triggering rainfall on the assessment of landslide early warning thresholds” is an interesting well-structured and well-written manuscript that addresses a very important scientific question that is within the scope of NHESS. However, it needs some minor revisions prior to be published.

Specific Comments

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1 - The exercise presented along the manuscript is based on synthetic data, which are easier to control and monitor. However, the exercise has the drawback of reporting a single ideal slope. So, there is also a matter of scale when we compare the obtained results with most rainfall thresholds reported in literature that were built to be applied and interpreted at the regional scale. May be this is not enough discussed along the manuscript.

2 - Within the simulation of uncertainty in triggering instant and the reporting of the landslide, authors establish the 'Observer's day' as lasting from the 6pm of Day D-1 to 6pm of the Day D. The explanation of this option is not clear. Although the reporting of a landslide in newspapers is usually delayed in relation to the actual triggering instant, the information about the timing of triggering may be quite precise namely in those cases where landslide generated severe human and/or economic damages. Apparently, this was not considered in the definition of the 'Observer's day'.

3 - Quite interesting, figures 6 a), 6 b) and 7 c) are very similar. Comparing figure 6a) and 6b) one can conclude that working at the daily scale the knowledge of exact timing of the landslide triggering is not essential, providing the reporting Day (D) is correct. In addition, when the daily rainfall depth is measured from 09:00 AM to 09:00AM it is clear that most of the rain that falls in the day D will be registered in the day D+1. Therefore, it is normal that threshold (c) corresponding to Scenario RS2 (Day D+1) in figure 7 is virtual similar to the Scenario RS1 (Day D) and RS0 (actual triggering instant) in figure 6. In the opinion of the reviewer, this topic should be discussed more in detail in the paper.

4 - Although this information is contained on Figures 8 and 9, the equations of thresholds could be provided in a summary table, allowing for a more easy comparison.

5 - When performing the exercise for the daily scale that is summarized in figure 6 and 7, a contradiction exists, between figures and text (page 6 line 35). on the assumed  $S_{min}$ . In figure caption it is referred  $S_{min} = 0$  mm whereas in text is referred  $S_{min} = 5$

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mm.

6 - In figure 10 authors present the “correct thresholds”. However, it is not given the information on the considered  $U_{min}$  and  $S_{min}$  parameters.

#### Technical corrections

In figure 2, the time scale should be respected. The position of 6pm in Day D and Day D-1 is not correctly scaled. Add the notation RS0 in figure 2.

Figure 3 The aggregation of data within figure 3 should be clearer. Rain gauge D+1 appear two times; why? The total amount of rain measured on calendar days and rain gauge days is not the same. Authors should acknowledge this difference and explain why.

Table 3 Some rainfall event identification instead of Some event identification.

Reference of the paper of Nikolopoulos et al needs to be corrected in reference list.

Page 2. Line 26 Rodriguez-Iturbe et al., 1987a, 1987b instead of Rodriguez-Iturbe et al., 1987; Rodríguez-Iturbe et al., 1987. Introduced a and b in the reference list.

Page 2, line 31 Baum and Godt, 2010, instead of Baum et al., 2010 ?

Page 3. Line 7 Schilirò et al., 2015a, 2015b, 2016; instead of Schilirò et al., 2015, 2016; Schilirò et al., 2015;

Page 3, line 38 Guzzetti et al 1997, 1998 are missing in reference list.

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