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Comment

# ***Interactive comment on “Analysing the relationship between rainfalls and landslides to define a mosaic of triggering thresholds for regional scale warning systems” by S. Segoni et al.***

## **Anonymous Referee #2**

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The paper presents thresholds for a regional scale landslide warning system. The theme is particularly hot because, as authors clearly point out, rainfall triggered landslides are one of the main hazards, in terms of casualties and economical losses worldwide. The manuscript is surely interesting, has a pragmatic approach and is surely potentially worth to be published. Here above two main topics, beyond the others pointed out by other comments. The authors should go deepen on these points for a better impact of their work.

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1. Rainfall events, especially in a Mediterranean climatic context, are usually due to two different kind of physical processes: “regional scale” rainfall phenomena, typical of wet seasons, and convective thunderstorms which occur on very small spots with relatively short durations, often in dry seasons. For example in June 1996, northern Tuscany was hit by a typical "mediterranean storm" which produced a catastrophic flood and triggered hundreds of shallow landslides on an area of a few hundreds of square kilometres (all the rest of Italy was absolutely dry) causing 16 victims. The effects of the two process categories, in term of general triggering of landslide hazards, are quite different as their predictability in space and time is. In the paper no mention is made on the kind of processes mainly targeted by the proposed method (and those used for calibration). This is also interesting for the quantitative rainfall forecast which lies behind the landslide warning system and whose uncertainty has to be considered as a part in the overall forecast system. A discussion on this point should be useful.

2. As pointed out by other comments, the partitionning criteria of AZs should be better clarified, also because authors claim the downscaling of thresholds below the regional scale as a main feature in the paper. It seems the the AZ is somehow decided by the Regional Administration regardless to the specific landslide warning problem. If so, the author should explain why they use the same scale (1000 square kilometers as an average) for defining and calibrating their model. Is there any sensitivity analysis on the subregional area scale versus the model performances?

As a last, minor observation, citing a paper of 1994 (Rapetti and Vittorini) seems to be unadequate to describe present Tuscany climate (though in an introductive and preliminary part of the paper).

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