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Interactive comment on "Assessing the performance of regional landslide early warning models: the EDuMaP method" *by* M. Calvello and L. Piciullo

Anonymous Referee #1

Received and published: 10 November 2015

I have read the manuscript "Assessing the performance of regional landslide early warning models: the EDuMaP method" by M. Calvello and L. Piciullo. In my opinion, the paper addresses a topic that is of interest among the readers of this journal: a standardized validation procedure to evaluate the performance of landslide warning systems operating at the regional and local scale. Landslide literature frequently produces new models and applications that are presented as possible tools to forecast and manage landslide hazards at different scales. However, too often a quantitative and rigorous validation is missing and standards have not been fully established. This work introduces a methodology to fill this gap. I therefore consider its scientific signif-

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icance very high. The manuscript is well structured, well presented and well written. Maybe it is a little bit too long and the discussion of the results is too small if compared to the exhaustive introductive sections. To sum up, I recommend publishing the manuscript after some minor revisions.

Hereafter I list my specific comments for the revision process.

P6022L11. This sentence is confusing. When I first read about "features of the warning systems" and "input parameters", I thought you were referring to geotechnical and rainfall parameters (e.g. soil internal friction angle, rainfall intensity and so on), which usually are the input parameters of the models used by warning systems. I suggest rephrasing to avoid similar misunderstandings.

P6022L18-20. In my opinion, this sentence is very clear once you have read the manuscript. It is not as much clear if you are reading the abstract for the first time. I think the authors should work on that.

P6023L2-5. "Landslide early warning systems (LEWSs) mitigate the risk to life associated to the occurrence of landslides by temporarily removing people – i.e. the elements at risk – from hazardous areas whenever landslide risk is considered to be not acceptable". This is true for site-specific warning systems. In case of regional scale warning systems, people evacuation is not feasible, because the number of people involved is too high.

P6023L20-21. It is true that no standard requirements exist; however, recently some approaches have been proposed to evaluate the effectiveness of early warning systems or to back-analyze their performances. See e.g. Gariano, S. L., Brunetti, M. T., Iovine, G., Melillo, M., Peruccacci, S., Terranova, O., Vennari, C., and Guzzetti, F.: Calibration and validation of rainfall thresholds for shallow landslide forecasting in Sicily, southern Italy, Geomorphology, 228, 653–665, 2015. D. Lagomarsino, S. Segoni, A. Rosi, G. Rossi, A. Battistini, F. Catani, and N. Casagli. Quantitative comparison between two different methodologies to define rainfall thresholds for landslide forecast-

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ing. Nat. Hazards Earth Syst. Sci., 15, 2413-2423, doi:10.5194/nhess-15-2413-2015, 2015.

P6023L28. I suggest deleting "differently to what it may seem at first sight ".

P6025L20. In P6023L28. More often, the objective of these warning systems is to warn authority or civil protection personnel, rather than to warn directly citizens.

P6026L22. Reference needed.

P6027L11-22. References are needed for the Norwegian and Italian warning systems. Besides, in the last lines of the paragraph, please refer to scientific works rather than to regional laws.

P6029L15-23 and P6031L13-28 I suggest using a list of bullet points.

P6036L20. I recommend a description pf the test site, including a description of its main physical features and a description of landslide typology. Please, clearly report the areal extension of the test site.

P6038. It is not clear to me the reason why you decided to use these values and not others.

P6039. I suggest making a clear distinction between the description of the results and the discussion of the main outcomes. The discussion could be improved: compared to the introductory parts of the manuscript, it seems hurried and concise.

Table 1: what do you mean with "other variables"?

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 6021, 2015.