Natural Hazards
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Discussions

Interactive comment on "Technical Note: An operational landslide early warning system at regional scale based on space–time variable rainfall thresholds" by S. Segoni et al.

Anonymous Referee #1

Received and published: 18 November 2014

I have started to review the paper "Technical Note: An operational landslide early warning system at regional scale based on space–time variable rainfall thresholds" by S. Segoni, A. Battistini, G. Rossi, A. Rosi, D. Lagomarsino, F. Catani, S. Moretti, and N. Casagli. The paper describes an early warning system for the prediction of rainfall-induced landslides in Tuscany. The system compares rainfall measurements and rainfall forecasts to intensity-duration rainfall threshold. The paper presents an interesting research topic and good ideas, but the manuscript is not acceptable for publication in its present form.

The manuscript is written in poor English and should be revised by an English speak-

ing person before submitting it for a detailed revision. Some analyses are not clearly described and thorough. Several statements are too long and lack of clarity, precision, and completeness. For this reason, it is difficult to figure out what the authors have done (see comments below). Figures have to be explained with appropriate and detailed captions. Figures 6, 7 and 8 include Italian terms; please translate.

Based on the above considerations, the manuscript is not acceptable in its present form and has to be rewritten in a proper English.

I enclose some preliminary comments on the first pages of the paper.

Lines 18-24, page 6600: These sentences are not clear and are written in poor English. In particular: what do you mean for "thresholds that may vary in time adapting at the conditions of the rainfall path"; what are the conditions of the rainfall path? What does it mean "compare with the thresholds all possible starting times"? In my opinion, you can't compare an intensity-duration threshold to a time. Later you compare the rainfall path to the critical threshold! What is the "critical threshold"? Is it different from the above-mentioned thresholds?

Lines 25-26, page 6600: What do you mean for "hazard scenario" and "hazard levels"?

Lines 10-12, page 6601: This sentence is not clear! Rainfall is the main triggering factor of the landslides you are dealing with. At regional scale, landslide warning systems are mainly based on empirical rainfall thresholds. The use of physically based models requires detailed spatial information difficult to collect precisely over large areas.

Line 17, page 6601: I suggest to change the text as follow "A broad literature exists on empirical rainfall thresholds for the possible initiation of landslides".

Lines 21-22, page 6601: What is "the critical rainfall event"? In the abstract, you refer to a "critical threshold".

Line 22, page 6601: What is the "temporal variable"?

Lines 6, page 6602: I suggest to change the text as follow "real-time rainfall measurements obtained by.."

Lines 8-12, page 6602: These sentences are very cryptic! English is poor. Please rewrite.

Page 6602: You use both the present and the past tense. You need to be consistent.

Lines 20-21, page 6603: Poor English.

Lines 22, page 6604: I am somewhat concerned since the equations listed in Table 1 do not show an uncertainty associated with the threshold parameters. The analysis of the uncertainty associated with the definition of the thresholds is fundamental especially if they are used in operational landslide warning systems.

Line 26, page 6603: Please specify the measurement units for I and D.

Lines 3-5, page 6604: Poor English.

Lines 9-16, page 6604: These sentences are not clear and are written in poor English. I find difficulties to figure out what has been done. Please rewrite.

Line 27, page 6604: I suggest to replace memorized with stored.

Line 1, page 6605: The rainfall data are updated at hourly time steps. Especially during severe storms, delays in the data transmission are very frequent. Have you considered this possibility?

Line 6, page 6605: I suggest to change the text as follow "... updated CSV files, downloads them and stores the data in a local DBMS".

Lines 13-27, page 6605: Poor English.