

## ***Interactive comment on “A decision support system (DSS) for critical landslides and rockfalls and its application to some cases in the Western Italian Alps” by Davide Bertolo***

### **Anonymous Referee #1**

Received and published: 15 January 2018

Dear Editor,

Please find here below my review of the paper nhess-2017-396:

A DECISION SUPPORT SYSTEM (DSS) FOR CRITICAL LANDSLIDES AND ROCKFALLS AND ITS APPLICATION TO SOME CASES IN THE WESTERN ITALIAN ALPS

By

Davide Bertolo

This paper presents the strategy of a DSS that have been experience in Aosta Valle. It shows the lessons acquired during different crisis period of the La Saxe landslide. The

C1

goal of the paper is to objectivize the decisions, taking into account expert knowledge in addition to threshold values that can be updated within the DSS. The proposed solution include Bayesian approach based on clinical diagnosis approach. It also explain how this DSS is now applied to other instabilities.

#### General comments

The paper is interesting, because it present a real experience of EWS on a very high hazardous landslide. It is noteworthy that such a paper based on experience is valuable and must be published. Nevertheless, the paper suffer from a few problems:

- It is a bit too long and can be reduced.
- The paragraphs (new lines) are too short all along the text; several new lines must be cancelled.
- The abstract must shorten, and to be a real summary of the paper instead of arguments.
- The paper dos not include a real introduction. The section 1 must reworked accordingly. It means emphasis on what are the issue with monitoring and a presentation of where and how existing EWS and DSS exists. A few more references must be added.
- The section 1.1: can change to 2. What do we learn from La Saxe. AS La Saxe is the base of the thoughts, the system must be fully presented with a map of sensors and monitoring system.
- I am not sure that the example of Lilianes site and the Brenva rock avalanche necessitate sections, in my opinion the mention that it has been applied to other site with providing the value of Pr, Se, etc. is sufficient. It does not bring any new arguments in the discussion.

If these recommendations are followed, in my opinion, the paper will be a very interesting and important contribution.

C2

#### Specific comments

- P2 line 13: Introduction
- P2 line 15: what does mean “numerical monitoring”?
- P2 line 20: Fukuzono references can be added.
- At the end of the introduction must mention La Saxe landslide where it has been developed.
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: what does it mean?
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P4 line 16: V24?
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P4 line 18: “neo-formation scars and fractures” can expressed in a different way.
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P5: lines 13-14: I do not follow!
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P6 lines 3-18: part of this can be moved to introduction.
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P6: lines 34-38: = repetition.
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P7 line 5: I am not used that formulation, but in my opinion “=H0” is not standard notation for the Null hypothesis.
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P7: a

C3

few words must be added concerning the link between formula 1 and 2. It is not very informative to use A and B, may be they can be replace explicitly and better explained.

- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P9 line 12: (cit.) is not used in NHSS format. In addition, Rose and Hungr are not cited before.
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: P16 line 15: you can add the reference to the recent landslide classification (geotechnical) by Hungr et al. (2014).
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: Figure 1 it can be improved: Italy is not visible (lines would be better).
- P4 line 4: add a reference to “dispatching system” or explain. The 24 of V24: Figure 2: too small characters.

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C4