

***Interactive comment on* “Brief communication: Using punctual soil moisture estimates to improve the performances of a regional scale landslide early warning system” by Samuele Segoni et al.**

Anonymous Referee #1

Received and published: 21 November 2017

Dear Editor,

Thank you for the opportunity to peer review the paper with title “Using punctual soil moisture estimates to improve the performances of a regional scale landslide early warning system”.

In this paper the authors have demonstrated using the mean soil moisture and SIGMA-U approach for improvement of regional scale landslide early warning system in the Emilia Romagna Region (Northern Italy). Authors have attempted to reduce numbers of false and missed alarms by the back analysis using landslide events, soil data and rainfall data from the period of 2011 and 2014. From the content as a whole it can

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be seen that described method and procedure can be integrated into the landslide warning system but further tests are needed before.

General referee comment The objectives defined by the authors are quite clear and paper is good structured and the reader can distinguish between material and methods, results and discussion. The drawback in this manuscript is lack of detailed review of literature about the importance of the soil moisture and antecedent rainfall period that significantly influence on triggering landslides. The authors just mentioned the Italian researches and totally overlooked the important researches from the other European and non-European countries where different natural background prevails as well different climate regime (Kim et al., 1992; Heyerdahl et al., 2003; Crozier, 1999; Glade et al., 2000; Aleotti, 2004, Chleborad, 2003, Zezere, 2005, Jemec Auflič and Komac, 2013, etc.). The authors should also improve mean soil moisture values by means of reviewing also rainfall events that not triggered landslides where amount of rainfall was above the rainfall threshold as well indicate why each TU has the same MSM value. According to the above mentioned facts the present paper will be ready for publication after major revisions.

Here are listed specific comments that I would recommend the authors makes.

Page 1 Line 25: Cardinali et al. 2006 is not listed in the chapter of References Page 3

Line 9: Please explain how you know “under which landslides never triggered”. Have you done any correlation that for the defined MSM threshold landslides never occurred?

Line 14: Please explain and add why you set MSM =75% equal for all TUs? There is no evidence for this. Moreover if the geological setting in each TU is different there must be a difference in MSM values per TUs then.

Linguistic alterations In general the manuscript is written in acceptable English, but some sentences have to be rewritten. Nonetheless, the entire document should be revised by a native speaker.

Kind regards, reviewer

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