RE: NHESS 2017 411 Tiranti et al. Comparison of landslide forecasting services in Piemonte (Italy) and in Norway, illustrated by events in late spring 2013.

Overview

The authors improved the paper that now is easily readable. However, there are two points to be exploited/discussed:

1) A final comparison between warned phenomena and those occurred is missing for the Norway territory hit by the cyclon: they show the map of occurred phenomena in Figure 11 and the warnings in Figure 14. A new figure showing warned area and locations of the occurred events should be provided as done in figure 17. After that, the value of POD and FAR (see page 30 of the submitted manuscript) should be computed.
2) About the EWS of Norway, some simple explanation should be addressed about the use of the same threshold for all the phenomena: shallow landslide, debris avalanches, slushflows and debris flows.

Suggestion: values of POD and FAR should be used to strengthen the outcomes in the conclusions.

The following are the detailed comments and specifications.

Introduction

At page 2, line 5 “of and”???; line 31 the reference Hungr et al (2014) should be between bracktes. At page 3, line 1 perhaps it is better “volume inferior to 5000 m^3”, line12 perhaps it is better “tens of minutes” instead of “minutes”; line 32 “shortage of personnel” it is better than “loss of personnel”. At page 4, lines 16-17 the sentence does not sound; line 24 large-scale pattern of what????. Moreover, as the authors study the hazard phenomena triggered by synoptic scale meteorological processes, the writer suggests the reading of the work of Underwood et al (2016) that studied the meteorological processes associated to the convective rainfalls that triggered debris flows on Italian Alps.

The landslide forecasting service in Piemonte region and Norway

Table 1: as threshold parameters “the rainfall from rain gauge” is setted for Piemonte, Italy columns. This seem to contradict the type of thresholds, where radar hourly intensity rainfall threshold is used. Perhaps, it is rainfall, the threshold parameter. Moreover, I suggest the authors to change the threshold parameters into threshold quantities.

General comment: it seems that this EWS warns the channelized debris flows occurring after large-scale meteoric processes. Unfortunately on summer debris flow of large magnitude could occur after local high intensity convective rainfall: the case of Rovina di Cancia where the 23th of July a debris flow was triggered by an isolated precipitation of about 30 mm in half of hour, concentrated in about 1 square kilometer while in the surrounding area for an extension of more than 50 square kilometer no rainfall was recorded according to Gregoretti et al. (2016). Therefore, authors should add a sentence where it is specified that channelized debris flows caused by isolated intense convective rainfall are not considered by the present EWSs.

At page 12, I would suggest some more details on the areas where radar visibility is good. How much is it deep starting from the mountains feet?

Page 14, line 10: compares perhaps it is better than consults; page 15, lines 12-13, perhaps there is a contradiction: how a hydrological model that use precipitation as input variable can predict rainfall? Line 28, latter shape is it correct?

Meteorological conditions in late spring 2013

At page 21, line 9: please substitute Saturday and Sunday with the day number. At page 23, line 14 most of????. At page 24 line 13 100-year return period of what? Flood?. The writer think it could be the peak flood discharge. Therefore, specify it and also at lines 14-18

Gregoretti, C., Degetto, M., Bernard, M., Crucil, G., Pimazzoni, A., De Vido, G., Berti, M., Simoni, A., Lanzoni, S., (2016a). Runoff of small rocky headwater catchments: Field observations and hydrological modeling. Water Resources Research. http://doi.org/10.1002/2016WR018675

Underwood S.J., Schultz M.D., Berti M., Gregoretti, C., Simoni A., Mote T.L., Hayser A., and Saylor A.M. (2016) Atmospheric circulation patterns, cloud-to-ground lightning, and locally intense convective rainfall associated with debris flow initiation in the Dolomite Alps of northeastern Italy. Natural Hazard and Earth System Science, 16, 509-528, doi:10.5194/nhess-16-509-2016