Dear Editor

Many thanks for your helpful comments. Please see below the answers to each topic and the insertions we have made in the manuscript. Our comments are in bold red italic, and the paragraphs included in the text were highlighted in bold black italic.

Comments to the Author:

Dear Authors, I'm sorry to ask you once more "minor revision - review by editor", but I found that, while you addressed properly all referees' comments, you did not considered my comments enclosed to my previous communication (17th of October). Probably you didn't noticed them, so I copy them hereafter, along with a short list of small amendments to the text. I look forward to receive your revised paper, which I believe could make a good contribution to the special issue.

We did not notice your comments. We apologized for not replying earlier.

- SMALL CHANGES TO THE TEXT:

L22-23: "In addition, population growth, 22 increased urbanization, recent estimations (CEPED 2012) indicates that..." This sentence is not clear. Please, rephrase.

The whole paragraph has been improved and rephrase. The original sentence was:

In addition, population growth, increased urbanization, recent estimations (CEPED 2012) indicates that more than 160 million inhabitants live in urban areas (about 90% of Brazilian population), and expansion of urban construction into hazardous areas have led to an escalating impact of this natural disaster.

And now is (line 22 to 25):

Recent studies (CEPED, 2012) indicates that more than 160 million inhabitants live in urban areas (about 90% of Brazilian population), which led to an increased occupation of landslide-prone areas of the urban outskirts.

L71: HIRESS

The indicate text was corrected (line 73)

L2016: are associated = can be explained

The indicate text was corrected (line 208-209)

L274-275: "low stability stable". Isn't it better simply "low stability zone"?

The indicate text was corrected (line 277)

L421: please link the DOI to the full reference

The DOI was linked to the reference (line 488 - 490):

Segoni, S., Rosi, A., Rossi, G., Catani, F., and Casagli, N.: Analysing the relationship between rainfalls and landslides to define a mosaic of triggering thresholds for regional-scale warning systems. Nat. Hazards Earth Syst. Sci., 14, 2637-2648, 2014. doi:10.5194/nhess-14-2637-2014

L487: the reference is incomplete

The reference was completed (line 488 - 490):

Segoni, S., Rosi, A., Rossi, G., Catani, F., and Casagli, N.: Analysing the relationship between rainfalls and landslides to define a mosaic of triggering thresholds for regional-scale warning systems. Nat. Hazards Earth Syst. Sci., 14, 2637-2648, 2014. doi:10.5194/nhess-14-2637-2014

- PREVIOUS EDITOR COMMENTS NOT ADDRESSED:

1- In response to R1L348, you provide an interesting comment on Fig.8 *(now is Fig. 10)*. I think it should be added in the text of the revised manuscript.

The comment on Fig 10 was included in the section 3.4 (line 303 to 307):

Under the influence of leakage, previous rainfall history played a critical role since the factor of stability is lower previously to the large rainfall event of the end of the simulation period. This can be seen in more clearly in the profile B-B' of Figure 10: in the dry period (between day 15 and day 22 after the beginning of simulation) it is verified a quick recovery of stability in the simulations that includes the effect of leakage (black curve), which is interrupted with the return of the rainfall.

Moreover, you changed "false alarms" in "late alarms": please, check if this change is appropriate.

In the text the more appropriate terms used were "false alarms" (line 364 to 365). We changed accordingly.

2- I think the suggestion of R2 at point 2 (influence of variability into FS) should be better addressed in the revised text.

In response to the editor comment, line 368 to 371 (Conclusions) of the previous version of the manuscript was written as:

Since simulations results indicated that the slope safety factor FS was sensitive to the anthropic factors, future studies should combine modelling tools with probabilistic analysis to consider a wider range of geological-geotechnical and anthropic parameters values to be able to reproduce more general conditions that occur in the study area.

And has been modified to:

Since simulations results indicated that the slope safety factor FS was sensitive to both geotechnical and anthropic factors, future studies of slope stability probabilistic analysis, which takes into account the wider range of parameters values that occur in the study area, are needed.

3- (something similar was added to the revised manuscript)

Nothing to add

4- R3 point e-bis: in my experience it happened a few times that using the lowest value of FS led to an underestimation of the dimensions of the rupture surface. I try to explain with an example: it could happen that the software identifies a small 0.9FS rupture surface and a larger surface with 0.95FS. If you take into account the 0.9 one, you end up with a small slide, while with the 0.95 option you would have a larger slide. In my opinion, it is more correct to take into account the envelope of all theoretical rupture surfaces with FS<1, because the physical meaning of the formula is that everything below 1 will slide. Please, take into consideration this issue.

In response to the editor comment:

The authors agree with these observations. Thus, in this work, the characteristics of the landslides (typology and quantity of mobilized material) obtained from field investigations were considered more important, since they allowed to validate the results of stability analyzes of the profiles studied for the general condition of F.S.<1.

In response to your comment, the following sentence was added in line 356 to 362 (Conclusions):

Once shallow landslides in the study area usually occur in cut and fill slopes, the rupture surface size and the amount of material mobilized do not vary significantly among events. Therefore, the most useful information for an early warning system perspective is to know whether the value of FS is below 1, regardless how much below that threshold the slope safety factor is. Another relevant information is the timing of the landslide events, since such information is crucial to determine the rainfall thresholds for issuing an early warning. Therefore, information about the rupture surface size, which is essential for assessing potential damages, is beyond the scope of this study.