Comments by Editor:

Dear Authors,

You - as the contact author - are requested to individually respond to all referee comments (RCs) by posting final author comments on behalf of all co-authors no later than 26 Feb. 2019 (final response phase) at: https://editor.copernicus.org/nhess-2018-192/final-response.

Comments by Anonymous Referee #1 (nhess-2018-192-RC1)
[Answers in blue]

AC1-supplement, page 3, item 3 of 'SECTION 0: ABSTRACT': Consider rewording: "This model is especially useful for predicting the risk of landslides in scenarios of heavy unpredictable rainfall. We have called it (TS) Terrain Stability and programmed in MATLAB, which it allows us a simulation of the slope stability in a 2D spatial distribution. As originality in our algorithm a hydrological assumption has been incorporated in steadystate." to something like: "This model is especially useful for predicting the risk of landslides in scenarios of heavy unpredictable rainfall. The model, hereafter named 'Terrain Stability' or TS is a 2D model, programmed in MATLAB and includes a steady state hydrological term."

(2) The comment seems right to us and we introduce the change in the Abstract.

(3) *"This model is especially useful for predicting the risk of landslides in scenarios of heavy unpredictable rainfall. The model, hereafter named 'Terrain Stability' or TS is a 2D model, programmed in MATLAB and includes a steady state hydrological term."*

Comments by Anonymous Referee #2 (nhess-2018-192-RC2)
[Answers in blue]

AC1-supplement, page 5. Make sure to translate 'entre otros'.

(2) The comment seems right to us and we introduce the change
(3) *"among others"*

Authors, make sure to address the following comment provided by the 2nd reviewer: 'First, the Authors state that the proposed model "defines fairly well areas that intuitively appear to be susceptible to landslides and defined rigorously the failure curve". In this sentence, "fairly well" and "intuitively" are not good enough to assess the predicting performance of a quantitative model. Moreover, the "rigorous" definition of slip surfaces does not appear to be substantiated by the presented results, as I will explain at length in the following. Then, the expression "this model is probably the most powerful tool for determining slope stability", is again not substantiated by the presented results.' Provide additional information so the reader can better understand how the authors came to the conclusion that the model preforms 'fairly well', same with 'intuitively'. Additionally, by describing your model as 'the most' powerful tool assumes you did a thorough literature study and comparison with other models, so this paper would become more like a review paper, rather than a paper where a new model is presented. Maybe instead consider using: 'this model is a powerful tool for…'

(2) The comment seems right to us and we introduce the change several manuscript sections such as:

(3) In the Analytical results:

 "We applied the TS model using topographic data obtained from the ArcGIS 10 software program. We did so to obtain the degree of stability of the sliding land based on the angle of internal friction, the cohesion, the density and the angle of the slope we analyzed. Figure 9 shows the analytical results from the real slope, by studying and analyzing the most unfavorable profile of the landslide studied. In addition we compared the results given by the developed TS model and the results given by STB 2010 model, using free surfaces in both cases. In our model the worst curve (shown in green) was calculated automatically from the initial curve (show in blue), resulting in FS = 2.300, in the dry state (Figure 12)."

In the Conclusion:

"………………so we obtain a topographic map, a key element to obtain the topographic profile to be studied with our algorithm"

"……this model is a powerful tool for determining slope stability."