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Comment on nhess-2021-317

Anonymous Referee #1

Referee comment on "Rainfall-induced landslide early warning system based on corrected mesoscale numerical models: an application for the southern Andes" by Ivo Fustos-Toribio et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-317-RC1, 2021

The paper is suitable for NHESS. Unfortunately is not acceptable in present form. There are the following main deficiencies:

- In the abstract authors should resume what they did instead of writing a sequence of sentences in which the reader gets lost. If the writer is right, they should write that starting from a forecasting (WRF) corrected using data of 12 meteorological stations 4 distributions combining……were used.
- The abstract and the introduction seems two separate topics. In the abstract a forecasting model and 4 four logistic models were used combining precipitation and slope, while in the introduction a mesoscale logistic model is used. At lines 86-92 it is written that a mesoscale model provides precipitation data that are corrected with the data of the stations and combined in a logistic model with geomorphological features.
- Authors should explain that rainfall data are obtained computing rainfall by means of a mesoscale model . The authors should also explain what is it a mesoscale model because the reader could not know it.

Line 4. "The models were forced by corrected simulations of precipitation and geomorphological features." Which models?

Lines 21 "What is it AUC?

Please considers also the references of Tiranti et al. (2014), Devoli and Tiranti, (2018), Cremonini et al. (2018), Piciullo et al. (2020). Moreover the use of models has also be tested in early warning systems against debris flows (Sattele et al., 2015, Bernard and Gregoretti, 2021).

Lines 90-91 "A database of previous RIL was studied (Gomez-Cardenas & Garrido-Urzua, 2018), divided into calibration subsets with subsequent validation of the method" Unclear sentence

Line 102 "which allowed represent" poor English form

Line 107: what is it a mesoscale? Please explain.

Line 119 "corrected simulations of precipitation" substitute it with "modeled and corrected precipitation data"

Quantities, S, P and E of equations (3) and (4) must be explained in the text.

Line 148 Perhaps "Therefore" would better than "Finally"

Lines 156-158 "The stations were compared in the uncorrected simulation showing (~0.26-0.49) to medium (~0.32-0.67) correlation values by Pearson and Spearman coefficients." Unclear sentence

Line 245 "a low uncertainty precipitation representation" should be substituted " "precipitation representation characterized by a low uncertainty"

Line 260 It is "becomes"

Line 262 "The bias-correction using meteolab improved the precipitation representation to compared with weather stations (Figure 4)." Unclear sentence

Line 273 "has a complex topography that triggers precipitation events" How topography can trigger a precipitation? Perhaps the complex topography influences…..

Line 283 "slope memory approach" what is it? Slope is it relative to the terrain morphology? Please explain

Line 294 "The Andes in one of the most propensity zones to be affected by intense precipitation product of climate change." Unclear sentence

Lines 294-295 "Moreover, the complex topography needs a high temporal resolution to reproduce the precipitation variability of the Southern Andes." Meaningless sentence

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