

General comments

Two machine learning methods (SVM, RF) combined with particle swarm optimization (PSO) support, total four models were used to evaluate landslide susceptibility in this paper. The results show that the PSO algorithm has a good improvement on SVM and RF models. This paper has a clear research framework and the outcomes I believe it is beneficial to readers. However several issues are not clearly stated in the current article that need more clarifications. For example, the landslide inventory used in this study is very important since it directly affects the performance of susceptibility models. However the detail information of landslide inventory such as a single rainfall event inventory or a compiled inventory cover different events, material types (rock, earth, soil, mud, debris), landslide patterns (new landslides or old landslides), minimum mapping area, generation methods (satellite or aerial images interpretation, field investigation) etc. are not mentioned in the article. The second issue, multi-temporal satellite images have been widely used to extract the LULC and NDVI information under different time backgrounds. However, in this paper the only one date (2017/12/24) Landsat 8 OLI image was used to extract temporal information like the LULC and NDVI seeming insufficient to reflect the temporal variation of land covers. The third issue, in order to more completely establish the relation of rainfall scale, natural environmental characteristics, and LULC change with the landslide occurrence potential through the susceptibility model. In my opinion, it's necessary to build the landslide susceptibility model by using the landslide inventories compiled from different scale of rainfall events. For the predisposing factors, except those geology and geomorphological factors, some temporal predisposing factors like rainfall intensity or rainfall accumulation of each event as well as environmental factors like land use, vegetation cover etc. are also suggested to consider. Finally, I can't find the results or discussions for part of the goals and conclusions (P. 5 and P. 29, please see specific comments). Overall speaking, the several main issues mentioned above are suggested to improve before this paper can be considered for publication.

Specific comments

1. P. 5, Ln 79-80, "(1) determine the landslide susceptibility assessment factors by multi-source data fusion and correlation factor analysis", What do you mean "data fusion"? And I didn't see "correlation factor analysis" in the article.
2. P. 7, Ln 108, "...there are 345 hidden danger points of landslide...", please explain what "hidden danger points" means.
3. P. 8, Table 1, the classification interval for aspect level 1 is 22.5°, for level 8 is 67.5°, for the remaining six levels the interval is 45°. Why the classification

interval for level 1 and level 8 is different? Additionally, the level 1 and level 8 actually reflect similar aspect, however the extreme different grading number (1 and 8) could seriously affect landslide susceptibility. Please give more explanations.

4. P. 15-16, P. 18-19, the description of basic theory for SVM and RF model can be simplified but need some reference citations.
5. P. 25, Ln 342-344, "...because of the sensitivity of the RF and PSO-RF models to the proportion of landslide samples, it is necessary to carry out sample screening before using RF and PSO-RF models to evaluate the susceptibility of landslide.", this description is unclear. Please explain more about the sensitivity results and how to carry out sample screening?
6. P. 25, Table 5, how to calculate the percentage of landslide points in different susceptibility? The summation of the percentage number in each column should be 100?
7. P. 26, Ln 360, please give more explanation for the field investigation results.
8. P. 29, Ln 398-400, "...our study also found that the selection of training samples will affect the susceptibility evaluation results during the process of landslide susceptibility evaluation using four ML methods.", I can't find the discussion in the manuscript?

Technical corrections

1. P. 2, Ln 25, the method "RF" was misspelled as "FR".
2. P. 3, Ln 51, the author name of reference (Tien Bui et al., 2012) was repeated.