

**Journal: HESS**

**Title: Spatial pattern analysis of landslide using landscape metrics and logistic regression: a case study in central Taiwan**

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**MS Type: Research Article**

**Specific comments.**

Is not clear if landslides are triggered by earthquake or by typhoons;

Is not clear the aim of the study;

Spatial frequency of occurrence depends on rainfall intensity, geological settings, land cover, slope, curvature, and landslide typology also. Please, discuss this extensively in the text;

The abstract is quite confused, please go directly to the point and focus on the study area characterization, method and results (briefly);

We can do attempt to mitigate the landslide risk; mitigation of hazards is more difficult. Please clarify this;

Is the frequency of occurrence comparable with landslide index (the ratio between the area under landslides and geological formations, or slope, or land cover for example)? Please clarify;

The paper concerns the reconstruction of the relationships between driving factors and landslide occurrence (based on frequency of landslide occurrence) by means of logistic regression analysis. I understand it a bit late in the text;

Rocks and soils are poorly described, such as landslide typology and style of activity;

I would like to see some data regarding the landslide density relating to geology, topography, land cover, distance to the rivers, distance to faults, etc;

Landscape metrics is too poorly described. I would like to find highlights, advantages and pitfalls of this methodology, and comparison with other indirect methods. Please discuss this more in the text;

ROC curves allow for the choice of predicted value threshold (the threshold used to compute the correctly predicted events and evaluate the success of the model) and also for comparing different tests. For evaluating of the logistic model reliability, the LR test (likelihood-ratio test) should be performed;

Table 4 needs to be discussed extensively in the text. Please try to explain for example why distance to river and distance to road are reliable driving factors for low occurrence landslides but not for high occurrence set. Also why “Nanchuang” is positively correlated for entire landslide and low occurrence sets, but negatively correlated with the high occurrence set.

Discussion should take into account for advantages and pitfalls of the presented methodology and remarks on results. How the results fit the real geological and geomorphological characteristics of the study area? Further investigation will confirm this approach to landslide susceptibility mapping?

Landslide susceptibility map. Probably you can reduce the nine classes' classification using five classes. Please try this solution, will take the reading of the map easier.