

# ***Interactive comment on “Approaches for delineating landslide hazard areas using receiver operating characteristic in an advanced calibrating precision soil erosion model” by P. T. Ghazvinei et al.***

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The authors thank the Referee for the comments to strengthen the presentation of our results. The manuscript was modified to respond to the Referee’s issues as following descriptions: The paper was revised to improve the scientific vocabulary by the co-authors having Professorship position in the fields of Water Resources, River Engineering, Hydraulic, Geotechnical Engineering, Eco-Engineering, and Coastal Protection. Besides, the grammar of text was improved after editing by a journal expert editor.

C3360

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Regarding the main objective of the paper no initial similarity was found in the literature between landslide and surface erosion while some factors such as: rainfall, slope steepness, and coverage (vegetation) were considered to be involved in both landslide and soil erosion (RUSLE). Therefore, this lead to find overlap between shallow landslide map and the map created by RUSLE. In line with Pradhan et. al (2011) reported a satisfactory agreement between the soil erosion intensity map and landslides. In this research RUSLE was applied to understand whether the proposed model can predict landslide area (polygon) according to “Relative Operating Characteristic” (ROC) for correlation purposes where the result showed reliable predictions. Therefore, the results of the current paper are a small step towards better understanding of the superficial landslide.

The authors agree with the Referee comment that “soil erosion due to water” or simply “soil erosion” is a more meaningful phrase instead of “water erosion”, although “water erosion” has not been made by the authors of this paper and this phrase had been used in the published literature. For instant it was used by M. A. Nearing (1989) that has been referenced in our paper. In line with the Referee comment “soil erosion due to water” were used in the manuscript instead of “water erosion”. Naturally, most of the landslides type occurred in the study area are categorized as superficial landslide (shallow landslide). Therefore, additional information about landslides was added to the manuscript (i.e. landslides are superficial and active with size ranged from small to large). Based on the Referee comment we agree that the phrase of "surface landslide" and "slope angels" describes the type of landslide and slope statues that was targeted in the paper better than the "superficial landslide" and “slope”, respectively. Consequently, "surface landslide" and "slope" was replaced by "superficial landslide" and "slope angels".

Regarding the mentioned modifications, revised paper including improved sections and descriptions will be forwarded to the editorial panel of the NHES journal to be considered before final publishing.

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1 Biswajeet Pradhan, Amruta Chaudhari , J. Adinarayana, Manfred F. Buchroithner (2011). Soil erosion assessment and its correlation with landslide events using remote sensing data and GIS: a case study at Penang Island, Malaysia. Environ Monit Assess. (DOI:10.1007/s10661-011-1996-8).

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