

## ***Interactive comment on “Predictive analysis of landslide susceptibility in the Kao-Ping watershed, Taiwan under climate change conditions” by K. J. Shou et al.***

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We would like to thank the referee for the valuable comments, such that we can improve the quality of manuscript. The revision is now under modification, and the replies to the comments are as below.

1. Reply to the first paragraph of the referee's comments.

About the English writing, the revision is now polished by editing service to make it more readable. The correct Fig 11 has been attached in this reply and will be used in the revision. About the major issue of adopting "slope" as a variable in the sus-

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ceptibility analyses, the analyses have been redone. The results show that the AUCs of the ROC curves are slightly lower than those of the analyses with variable "slope". The updated results will be used in the revision. In addition, more descriptions, more quantitative comparisons, and discussions on the results will be done before making the final conclusions.

2. Reply to the second paragraph COMMENTS AND SUGGESTION TO THE AUTHOR TEXT

As suggested, the sentences in Pages 576, 577, 578, 579, 580, 583, 586, and 587 have been rephrased to make them more clear and readable, the terminologies have been modified, and necessary references have been added. In addition, the descriptions have been deleted or moved to other sections according to the suggestions.

About the landslide interpretation threshold, this study tends to use and verify a general threshold that can be used in the study area. The threshold was studied and compared in a preliminary study before adopted. More descriptions, discussions, and references were added for the adopted criterion.

The mathematic notations have been rechecked and modified to make them well-defined and their font uniform. For the methodologies, more descriptions and references were added to indicate their general assumptions and advantages, including the K-S test and GIS environment used.

This study aims to establish a reliable susceptibility model that can be used to predict the landslide susceptibility with more extreme climate conditions possibly happened in the future. Although the rainfall and the induced landslide hazard of 2009 Morakot are heavier than those of 2007 Krosa, they can be used to test the robustness of the susceptibility model. In other words, the 2009 Morakot can be used as an extreme sample for testing. The results show that the susceptibility model based on 2007 Krosa is slightly better than the one based on 2009 Morakot. However, it suggests that the adopted susceptibility model is practically acceptable for predictive analyses (analyses

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with various extreme rainfall scenarios).

3. Reply to the third and fourth second paragraphs of the referee's comments.

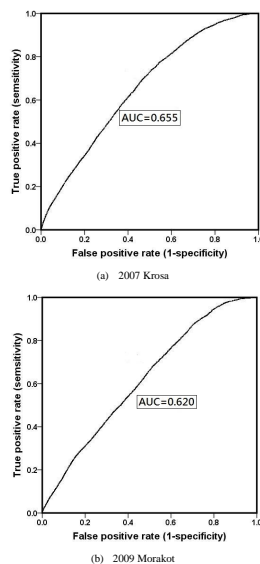
The terminologies in the captions and legends in the figures were rechecked and modified according to the suggestions. The color legends of similar figures were adjusted to the same for comparisons. The correct Fig 11 has been attached in this reply and will be used in the revision.

More descriptions were added to explain the derivation and meaning of L1 and L2 in Figure 2. About Table 1, appropriate statistical terminologies were used in Table 1 and the text. The last value of the last column has been rechecked and it is correct. As the total number of landslide cells is relatively smaller, the influence of the lower accuracy of the landslide cells on the accuracy of the total cells (landslide and non-landslide cells) is not significant.

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 575, 2015.

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**Fig. 1.** The ROC curves of the landslide susceptibility results by Instability Index method for 2007 Krosa Typhoon and 2007 Morakot Typhoon (the correct Figure 11).

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