



Interactive  
Comment

## ***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 the manuscript. The revision is now under modification, and the replies to the comments are as below.

### 1. Reply to the General Comments

About the English writing, the revision was modified and is now polished by editing service to make it more readable. The whole manuscript was rehauled according to the referee’s suggestions and comments. The correct Fig 11 has been attached in this

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reply and will be used in the revision.

The authors appreciate the referee for providing the related references; they were included in the literature review of the revision. About the methodologies (including the assumptions, rainfall frequency analysis, and the landslide susceptibility analysis), the descriptions were modified in a more logic way, to make the manuscript more self-content and more readable.

The updated results will be used in the revision. And more descriptions, quantitative comparisons, and discussions on the results will be done before making the final conclusions.

## 2. Reply to the second paragraph Specific Comments

(1) About the TCCIP rainfall estimates, the typhoon in considered in the dynamical downscaling procedure of the simulations. More descriptions were added, and the comparisons between the TCCPI estimate with the rainfall frequency analysis results was added as well.

(2) About the background and assumptions of the rainfall frequency analysis and the landslide Susceptibility were described in more details. Some of the weak statements were either modified or supported by references.

(3) 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.

(4) 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 ex-

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treme 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 with various extreme rainfall scenarios). About the landslide susceptibility of the near future and the far future, description with quantitative comparison was added to clarify the confusion.

(5) As suggested, the mathematic notations have been rechecked and modified to make them well-defined and their font uniform.

(6)The figures have also been modified accordingly. The terminologies in the captions and legends for the figures were rechecked. The color legends of similar figures were adjusted to the same for comparisons. The correct Fig 11 and Fig. 15 have been attached in this reply and will be used in the revision.

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

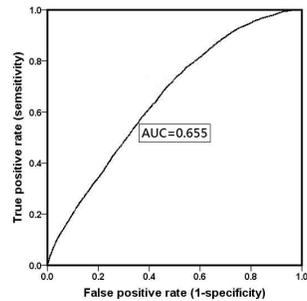
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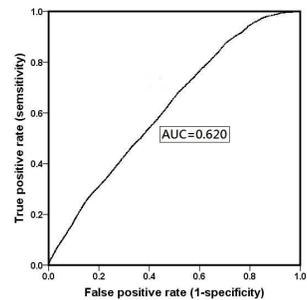
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(a) 2007 Krosa



(b) 2009 Morakot

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

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