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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Exploring the potential relationship between the occurrence of landslides and debris flows: A new approach" *by* Zhu Liang et al.

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Dear review First of all, thank you for your valuable time in reviewing this paper. And I am now I will reply to your comments one by one. 1.Random forest is a popular and efficient algorithm among many ensemble learning machines. Other ensemble machines, such as GBDT, AdaBoost-decsion Tree, etc., have also been apply to landslide susceptibility prediction. There are three basic ways of machine integration, Boosting, Bagging and Stacking. In addition, some deep learning machines, such as ANN and SVM, are also common in landslide sensitivity prediction. Of course, traditional modeling methods, such as logistic regression and bayes, have also achieved good

performance. The evaluation of a model is inseparable from several points: accuracy, robustness and analytical. Scholars have published a lot of papers on the comparison and application of evaluation methods in landslide susceptibility prediction, so the focus of this paper is not on the applicability of evaluation methods. But the application of random forest have achieve great performance, which guarantees the following research. The new approach referred to in the title of this article is not random forest, which may be a misunderstanding. A new approach introduces a new way, which combines two susceptibility zoning maps to explored the potential relationship between two geological hazards (landslides and debris ïňĆows). 2.I have made relevant explanations of the point that different type of landslides has different mechanishm of occurrences. But, actually, there is some papers that do not differentiate between different types of landslides. I agree with your comment, so I selected different controlling factors for different types of landslides. 3.We have referred to relevant literature, and the classification of landslides is complex and diverse. The debris flow referred to in this paper refers to wet flow caused by rainfall, while landslide refers to various forms of rock or soil sliding that can provide a material basis for the occurrence of debris flow. Many studies show that landslides can be the source of debris flow. 4.We are sorry for the mistakes and please point them out. 5.It can be given at anytime if you need. Thank you again for the corrections you made. The focus of this paper is to explore the potential relationship between two geological hazards in a new way. What we want to emphasize is "way" rather than "method". Because there are too many papers on landslide susceptibility mapping, it is difficult to make new breakthroughs in both methods and mapping units. Therefore, our focus is on the relationship between the two types of landslides, intended to provide a new way to explore the disaster chain. As for the language, we will revise and polish it. Best wish, Liang

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