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Landslide Susceptibility Mapping in the Anfu County (China) Using Rotation Forest and Artificial Neural Network Model

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Landslides are a serious natural hazards in Anfu county, China, hence, landslide susceptibility mapping is useful tool for local people and land use planner. In this study, the main aim is to investigate and compare the application of rotation forest and artificial neural network model in landslide susceptibility mapping, the Anfu County was selected as the case study. First of all, the landslide inventory map with 302 landslide events was generated by field survey, historical records etc. Secondly, landslide events were then randomly divided into a ratio of 70/30 for the training and validating the models. Thirdly, ten landslide conditioning factors were prepared such as slope, aspect, altitude, lithology, distance to faults, distance to rivers, distance to roads, land use, normalized difference vegetation index (NDVI), and rainfall. Using the rotation forest and artificial neural network, a total of two landslide susceptibility maps were generated. Finally, the overall performance of the resulting models was assessed and compared using the Receiver operating characteristic (ROC) curve method. The result showed that the rotation forest model is the best model. The success rate is 83.19 %; and prediction rate is 81.03 %.