

# **Statistics Approach to Rainfall Triggered Landslide Susceptibility case of using different interpolated method for rainfall value in the Zengwen Reservoir Catchment, Taiwan**

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## **Abstract**

There are many methods which are commonly used to construct a landslide susceptibility map, such as geomorphological mapping, analysis of inventories, statistical method, physically based models, and artificial intelligence method. The statistical method is widely used to fit the mathematical relationship between observed landslides and the factors related to the influence of slope failure. The logistic regression model is the most popular for its robusticity and high accuracy. The purpose of this study is to establish a landslide susceptibility model in Zengwen Reservoir Catchment, Taiwan using statistical modeling techniques. Megi typhoon was selected to build the landslide inventories map, the models and nine of other events using validation of the new models. DEM, geological data, and rainfall data are analyzed to achieve causative factors, besides that, the rainfall triggers are able to interpolated by Kriging method and Regression Kriging method to build four of landslide susceptibility models. The results show the spatial relationship between landslide occurrences and the causative factors, comparative differences between each model indicate Regression Kriging is better, suitable for interpolation the rainfall triggers and it is the good point to build the stable model. The model is used to produce landslide susceptibility map of the region and used for prediction of future shallow landslides under different rain events.