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Predictive landslide susceptibility analysis along mountain highways in Central Taiwan

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Climate change caused by global warming affects Taiwan significantly for the past decade. The increasing frequency of extreme rainfall events, in which concentrated and intensive rainfalls generally cause landslide hazard, especially along the mountain highways. The extraordinary, such as 2004 Mindulle and 2009 Morakot, hit Taiwan and induced serious landslide hazard and damaged the mountain highways.

This study employs rainfall frequency analysis together with the atmospheric general circulation model (AGCM) downscaling estimation to understand the temporal rainfall trends, distributions, and intensities in the adopted study area in Central Taiwan. To assess the spatial hazard of the landslides along the mountain highways, landslide susceptibility analysis was also applied. Different types of susceptibility models were tested, in which the control factors were analyzed and discussed. The results of predictive analysis can be applied for risk prevention and management in the study area.