



Analyzing Critical Rainfall Conditions for Typhoon-Triggered Landslides

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Many landslides in Taiwan are triggered by heavy rainfall during typhoon events. Previous empirical studies of the relationship between landslides and rainfall have concentrated on deriving minimum rainfall thresholds that are likely to trigger landslides. Though useful, these minimum thresholds do not offer any measure of confidence in a landslide monitoring or warning system. This study presents a new method for incorporating rainfall into landslide modeling and prediction. Using radar reflectivity data during a typhoon event, the method estimates radar rainfall data, develops a landslide logit model with rainfall intensity and rainfall duration as explanatory variables, and uses the logit model to compute probabilities of landslide occurrence. The study then discusses validation of the probability model by using radar rainfall estimates and landslides associated with another typhoon events and potential applications of the probability model.