



Statistical Seismic Landslide Analysis: an Update

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Landslides are secondary or induced features, whose recurrence is controlled by the repetition of triggering events, such as earthquakes or heavy rainfall. This makes seismic landslide hazard analysis more complicated than ordinary seismic hazard analysis, and it requires multi-stage analysis. First, susceptibility analysis is utilized to divide a region into successive classes. Then, it is necessary to construct a relationship between the probability of landslide failure and earthquake intensity for each susceptibility class for a region, or to find the probability of failure surface using the susceptibility value and earthquake intensity as independent variables at the study region. Then, hazard analysis for the exceedance probability of earthquake intensity is performed. Finally, an analysis of the spatial probability of landslide failure under a certain return-period earthquake is drawn. This study uses data for Chi-Chi earthquake induced landslides as the training data set to perform the susceptibility analysis and probability of failure surface analysis. A regular probabilistic seismic hazard analysis is also conducted to map different return-period Arias intensities. Finally a seismic landslide hazard map for the whole of Taiwan is provided.