



Re-evaluation of factors controlling earthquake-induced landslides based on new Chi-Chi landslide inventory and high resolution DEM

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A large number of landslides were triggered by the 1999 Chi-Chi Earthquake (Mw 7.6) and subsequent aftershocks. They were re-mapped from fused SPOT images and recently checked by using aerial photo-pairs. Some omitted landslides due to the limitation of satellite images resolution were added to the dataset. Deposit areas that previously recognized as landslides are removed. The new dataset was then re-examined to sieve out some exceptional cases of landslide not intended in statistical analysis, for example, structural-controlled landslides of the Tsaoling landslide and the Chiufengerhshan landslide. To better characterize the factors affecting earthquake triggered landslides, we used newly surveyed 5-m resolution DEM for statistical analysis. Result can be summarized as follows: (1) Slope gradient is the most important factor affecting landslides in each drainage basin. (2) Closest distant to fault-rupture plane is the most important source-distance factor controlling landslides. (3) Arias intensity presents good correlation to landslide failure, especially the corrected Arias intensity does. (4) Most landslides concentrated in the region exceeding 250 gals. (5) Slope aspect shows some correlations to landslide occurrence in each drainage basin. (6) Slope height also plays an important role in the occurrence of landslides. (7) Goodness of correlation for each landslide controlling factor shows some differences among six drainage basins.