



## **A zonation technique for landslide susceptibility in southern Taiwan**

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In recent years, global climate changes violently, extreme rainfall events occur frequently and also cause massive sediment related disasters in Taiwan. The disaster seriously hit the regional economic development and national infrastructures. For example, in August, 2009, the typhoon Morakot brought massive rainfall especially in the mountains in Chiayi County and Kaohsiung County in which the cumulative maximum rainfall was up to 2900 mm; meanwhile, the cumulative maximum rainfall was over 1500m.m. in Nantou County, Tainan County and Pingtung County. The typhoon caused severe damage in southern Taiwan. The study will search for the influence on the sediment hazards caused by the extreme rainfall and hydrological environmental changes focusing on southern Taiwan (including Chiayi, Tainan, Kaohsiung and Pingtung). The instability index and kriging theories are applied to analyze the factors of landslide to determine the susceptibility in southern Taiwan.

We collected the landslide records during the period year, 2007~2013 and analyzed the instability factors including elevation, slope, aspect, soil, and geology. Among these factors, slope got the highest weight. The steeper the slope is, the more the landslides occur. As for the factor of aspect, the highest probability falls on the Southwest. However, this factor has the lowest weight among all the factors. Likewise, Darkish colluvial soil holds the highest probability of collapses among all the soils. Miocene middle Ruifang group and its equivalents have the highest probability of collapses among all the geologies. In this study, Kriging was used to establish the susceptibility map in southern Taiwan.

The instability index above 4.21 can correspond to those landslide records. The potential landslide area in southern Taiwan, where collapses more likely occur, belongs to high level and medium-high level; the area is 5.12% and 17.81% respectively.