



## Location and magnitude to earthquake and rainfall triggered landslide in Ai-Liao catchment, South Taiwan

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There are frequent earthquakes and heavy rainfall in Taiwan. The Chi-Chi earthquake with a moment magnitude of 7.6 caused extensive slope failures in Sep. 1999. Typhoon Morakot which induced the accumulation precipitation up to 3000mm and 100 mm/hr in intensity was severely damaged south Taiwan in Aug. 2010. The paper, analysis by GIS base, draws the location and magnitude on landslide triggered by both events, 921 earthquakes and Typhoon Morakot, in Ai-Liao catchment, south Taiwan.

As result shown, the total amount of induced landslides after Chi-Chi earthquake were 335, and 2327 landslides induced by Typhoon Morakot. The distribution of landslides after Chi-Chi Earthquake was on the backslope for most (38.21%), followed by shoulder (37.019%), footslope (23.88%), and overall slope (0.9%). Alternatively, the location of landslides induced by Typhoon Morakot distributes over footslope for most (47.31%), followed by backslope (33.69%), shoulder (14.53%), and overall slope (3.57%). On landslide magnitude view, this study, the landslide area was divided into four groups: greater than 30 ha, 30 ~ 10ha, 10ha ~ 1ha, and less than 1ha. The group of landslide area of less than 1ha showed the quantity of the earthquake landslide (67.76%) is similar to landslides by Typhoon Morakot (64.9%). However, from the analysis on landslide area of great than 1ha showed 37.89% of earthquake landslide location on shoulder and only 21.15% of them on the footslope; oppositely, only 12.61% of rainfall landslide located on shoulder and up to 54.71 % of them located on the footslope.

Summarizing from above, in the Ai-Liao catchment, magnitude and quantity of landslides triggered by Chi-Chi earthquake is small than them triggered by Typhoon Morakot; Most of earthquake landslide located on shoulder of slope, on the other hand, rainfall landslide is most distributes on the footslope in the Ai-Liao catchment.