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集集地震引發九九峰地區之崩塌型態探討

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摘　　要　本研究主要探討南投縣九九峰地區於集集地震前後之地形變遷，以集集地震前後之航拍影像重新製作 5 公尺乘以 5 公尺之數值地形模型，估算九九峰地區之崩塌量、崩塌深度及評估崩塌案例之特性。經估算結果發現，集集地震於九九峰之乾溪集水區、田尾坑溪集水區及油車坑溪集水區引發之平均崩塌深度分別爲 0.216 公尺、0.225 公尺及 0.208 公尺，且引發之總崩塌量分別爲 646.2x10^3 立方公尺、187.62x10^3 立方公尺及 114x10^3 立方公尺，由於本研究根據此三集水區之總面積與總崩塌量推估總崩塌量推估公式，集集地震於九九峰地區共引發約 1471.95x10^3 立方公尺之崩塌量，其崩塌案例之特性則爲崩塌深度越深之崩塌位置高程越高、邊坡坡度越陡峭且主要集中於東南方及南方坡向之邊坡上。

關鍵詞：崩塌特性、崩塌深度、崩塌量。

The Landslide Types of Mt. Chiu-Chiu Caused by the Chichi Earthquake

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ABSTRACT　The paper discusses the landscape alterations on Mt. Chiu-Chiu, Nantou County caused by the Chichi earthquake. The research used the before and after aerial photo following the Chichi earthquake to remake a 5m x 5m digital terrain model and evaluate the total landslide volume, the mean landslide depth, and the landslide character on Mt. Chiu-Chiu. According to the evaluation result, the sub-watersheds on Mt. Chiu-Chiu, the Gan stream watershed, the Tian-Wei-Keng Stream watershed, and the You-Che-Keng stream watershed, have a mean landslide depth of about 0.216m, 0.225m, and 0.208m, respectively, and a total landslide volume 646.2x10^{3}m^3 of 187.62x 10^{3}m^3, and 114x10^{3}m^3, respectively. According to the relation between the areas and the total landslide volume of the three sub-watersheds, we can evaluate the total landslide volume on Mt. Chiu-Chiu caused by the Chichi earthquake as being about 1471.95x 10^{3}m^3. The landslide character of Mt. Chiu-Chiu is that as the elevation of the landslide locations gets higher and the slope of the landslide locations gets steeper, the landslide depth becomes deeper. And the deep landslide cases centralize on the landslide locations where the aspects face east, southeast, and south.

Key Words:　landslide character, landslide depth, landslide volume.

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