



Rainfall Induced Landslide Hazards of Puli-Wushe Highway, Taiwan after Chi-Chi Earthquake

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During the Chi-Chi earthquake, severe landslide hazard occurred in the area along Puli-Wushe highway. Landslide failures triggered by several significant rainfall events repeatedly occurred in the same area along the Puli-Wushe highway within 5 months immediately after the Chi-Chi earthquake. Further incidents of landslide and debris flow were caused by heavy rainfall in 2000, 2001, 2004, and 2008, by typhoon Toraji, Mindulle, and Sinlaku, respectively. Analysis of the landslide and debris flow data revealed that many of the events were repeatedly activated at the same locations involving enlarged areas. The locations of the rain-induced events were quite consistent with the events caused by the Chi-Chi earthquake, however, with different characteristics. The precipitation records of each typhoon were obtained for the study area, and the maximum rainfall intensity and effective accumulated rainfall were determined. The trend analysis was performed and it was found that the critical threshold rainfall conditions for triggering the landslide gradually increased with time after the Chi-Chi earthquake. It is suggested that the Chi-Chi earthquake has a prolong effect on triggering of landslide and debris flow, however, as the time proceeds, the effect gradually diminished.

Keywords: Chi-Chi earthquake; landslide; typhoon; threshold rainfall