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The spatial characteristics of mass movements in Chishan catchment after Typhoon Morakot

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In this study, the areas of mass movements in Chishan catchment have been delineated both before and after Typhoon Morakot in 2009. There are 197 sites of mass movements being identified from the 1982 map, and 1305 from the 2009 ortho-rectified aerial photos and Formosat II satellite image being taken after Typhoon Morakot. In 1982 map, mostly identfied mass movements are gully erosion. In contrast, the types of mass movements are diverse and complicated after Typhoon Morakot, including gully erosion, translational landslide, landslide caused by the road construction. Shallow landslide is often found in the upper catchment, gully erosion in the middle catchment, and channel erosion and gully erosion in the lower catchment. The landscape sensitivity acquired from elevation, gradient, and the roughness of land suface that is defined by the spatial variation of DEM can indicate the vulnerability of landscape. The results show that the high and middle vulnerability areas are the valley slopes and slopes in upper catchment and around the boundary of the catchment. A logisitc model is proposed, based upon the parameters in defining the landscape sensitivity.

Keywords: mass movements, landscape sensitivity, logistic model.