

An Improved Method for Classifying Debris Flow Disaster Potential

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This study aims to clarifying torrents with debris flow disaster potential. A special debris flow occurred at Hualien County during typhoon Saola in 2012. A turning curve occurred and community which was not supposed to be under disaster potential damaged by debris flow. The previous study shows the main reasons of this event are continuous rainfall event, specific geological material and topographic conditions. The disaster represents the insufficiency of the current method to classify the debris flow potential. Therefore, this study follows the findings and intends to confirm if the similar torrents exist or not. The study cases were selected from the torrents with debris flow potential defined by the authority and 5 torrents were determined by their geological condition with metamorphic rock material. The debris flow simulations were carried out by Flo-2D numerical model with three continuous designed rainfall events. The simulation results show that turning curve occurred at some of the cases, but some did not. Authors analyzed their topographic conditions to check the differences of the simulation result. From the gradient of the flowing part and the topographic conditions of alluvial fan, the criteria of the debris flow resulting in turning curve could therefore be summarized, which could be the indexes to clarify the probable torrents with debris flow potential.

Keywords: Flo-2D, debris flow disaster potential, turing curve, topographic criteria, second debris flow disaster