Geologic model and geomorphic features of a large paleo rockslide at Jiasian in Southern Taiwan

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Heavy rainfalls or strong earthquakes may induce catastrophic landslides and affect the topographic evolution in a mountainous region. The major parts of Taiwan are high relief terrains exposed to frequent typhoons and earthquakes. Recently, thousands of large-scale potential landslides have been delineated via remote sensing analysis and field survey. However, not much attention has been paid to the slope-failure recurrence of the colluvium resulted from paleo landslides. This study aims to investigate a large-scale paleo landslide site in detail. The studied slope locates near Jiasian in southern Taiwan. The slope is a dip slope consist of Miocene sedimentary rocks. Site investigation includes topographic interpretation, field geology, geophysics tests and borehole exploration. A geologic model was established according to the compiled information; outcrops, paleo displaced rock masses and colluviums covered on bedrock were delineated in the proposed model. Detail geomorphic features including scarps, displaced rock masses, residual slip surfaces and colluviums were identified using the data of 1m- resolution airborne LiDAR. The geologic model together with the identified geomorphic features can be used for the evaluation of slope stability.