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Evolution of landslides in a dynamic environment – a case study of Central Taiwan

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Abstract

It is well-established that landslides are extensively triggered as a result of large seismic events in upland areas. What has almost never been addressed is the continued evolution of the landslides themselves after the seismic event, and their continued role in releasing slope materials.. In this paper, we examine the Tachia River drainage area in western Taiwan, which was extensively affected by landslides during the 1999 Chi-Chi earthquake. Using a set of aerial photographs and satellite images, we demonstrate that the area affected by landslides increased substantially in high intensity rainfall events after the main earthquake. As the reducing stream power caused by Techi dam, sediments can not be transported to downstream which made sediments deposition. The deposition can as high as 30 m in five years. Sediment data from downstream of the area show that sediment concentrations have steadily increased with time in the period since the event as the landslides have released the material from the hillslope.