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# Critical displacement for unlimited displacement of earthquake-induced landslides

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The 30 September 2009 Padang Earthquake not only affected the buildings and infrastructure of the city, but also induced numerous landslides in the remote hill slopes. (1) A lot of shallow landslides took place along the southern crater rim of the lake Singkarak. Some of them were fluidized and ran as debris flows. (2) In a small town, located south of the lake, several large scale and long run-out landslides took place on hill slopes of pumiceous materials and claimed as many casualties. Those sands were sampled in a landslide deposits and tested by undrained ring shear apparatus by applying cyclic loading with corresponding static normal stress and shear stress. We found that about 5 cm could be the critical shear displacement when the shear resistance get smaller than shear stress due to excess pore pressure generation and thereafter unlimited displacement would appear. The critical displacement may depends on the saturation degree, static stresses acting on the slope, material, density, etc.