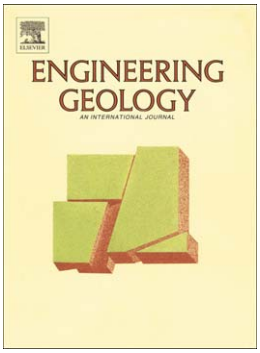

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An experimental study to characterize the initiation of the seismic-induced Tsaoling rock avalanche

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Abstract

The Tsaoling rock avalanche, which had a sliding volume of 120 million m^3 and a maximum thickness of 170 m, was triggered by the Chi-Chi earthquake in 1999. However, the initiation mechanism has not been well understood because different friction models have been proposed to describe the triggering process using the Newmark sliding model and numerical simulations. In this study, a new dynamic ring-shear test with a maximum normal stress higher than 3400 kPa is applied as an alternative approach to investigate the initiation of the seismic-induced rock avalanche along the wet sliding surface at the interface of the Cholan sandstone and consolidated remold shale. Experimental results verify that the seismic stresses at the