

On the fluidized landsliding phenomena on gentle slopes triggered by the 2016 Kumamoto Earthquake

*Gonghui Wang¹, Issei Doi¹, Toshitaka Kamai¹, Satoshi Goto², Masahiro Chigira¹

1. Disaster Prevention Research Institute, Kyoto University, 2. Integrated Graduate School of Medicine, Engineering, and Agricultural Sciences, University of Yamanashi

During the 2016 Kumamoto earthquake, numerous landslides had been triggered in Minamiaso Village. Most of the landslides originated on steep slopes, whereas some of them occurring on gentle slopes were fluidized and the displaced debris travelled long travel distance, resulting in casualties and severe damage to many houses on the downslope. In this study, we examined the geological features of these fluidized landslides occurring on gentle slopes, and performed both in-situ direct shear tests and dynamic ring shear tests on the soils taken from the sliding surface. During the tests, the samples were prepared at different initial water contents, and dynamic tests were performed by applying cyclic loadings with regular frequency and amplitude of shear stress, and also by coseismic loading referred from seismic motion recorded in a seismic station nearby. Based on these results, we finally analyzed the possible initiation and movement mechanisms of these fluidized landslides.

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