



Landslides triggered by April 2016 Kumamoto Earthquake, Japan

Hiroshi Fukuoka (1), Dabycharun Bhoopendra (1), Naoki Sakai (2), Kyoji Sassa (3), and Khang Dang (3)

(1) Niigata University, Research Institute for Natural Hazards and Disaster Recovery, Niigata, Japan

(fukuoka@cc.niigata-u.ac.jp), (2) National Institute for Earth Science and Disaster Resilience, Tsukuba, Japan, (3) International Consortium on Landslides, Kyoto, Japan

Kumamoto prefecture, Japan was rattled by consecutive earthquakes of M6.5 on April 14 and M7.3 on April 16, 2016. These unusual fore-shock and main-shock claimed fifty casualties, of which ten persons were killed by landslides. The second quake recorded maximum PGA of 1,362 gal, and triggered a number of landslides around Mt. Aso, an active volcano with one of the largest scale caldera. Geospatial Information Authority of Japan interpreted airphotos of the affected area and found at least 750 landslides. Based on the reconnaissance and joint field investigation of ICL and the Japan Landslide Society, those landslides are classified into following 3 types; (1) shallow and deep disrupted landslides on steep slopes mostly on the caldera rim or cliffs, (2) deep-seated and fluidized landslides on gentler slopes showing long run-out distance; (3) debris flows without antecedent precipitation. Soil sampled from landslide sites showed higher maximum moisture content values which 100 - 200 %. It is contributed by heavily weathered "kuroboku" soils containing halloysites. Constant volume direct shear tests and undrained cyclic loading ring shear tests were conducted to reveal their long run-out mechanism.