[EE] Evening Poster | H (Human Geosciences) | H-DS Disaster geosciences

[H-DS07]Landslides and related phenomena

convener:Masahiro Chigira(Disaster Prevention Research Institute, Kyoto University), Gonghui Wang(Disaster Prevention Research Institute, Kyoto University), Fumitoshi Imaizumi(静岡大学農学部)

Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Mass movements, such as landslides, rockfalls, and debris flows, have been occurring extensively in a large number of countries, causing heavy damage. In order to understand them and mitigate induced disasters, we would like to discuss on various issues. We invite contributions that report and discuss on mass movements and related phenomena, focussing on improved understanding of their characteristics; new insights into landslide mechanisms; the development of new approaches to monitoring; novel approaches to behaviour forecasting and prediction; studies of successful landslide management; and the development of methods for hazard and risk evaluation.

[HDS07-P06]A Study on the Relationship between Arias Intensity and Earthquake-induced Slope Displacement

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Keywords:Arias Intensity, Earthquake-induced landslides, Finite element analysis

Earthquake-induced landslides are damaging hazards. A way to mitigate landslide damage, having a better understanding of slope movements induced by earthquakes is pivotal. Various procedures have been developed to evaluate earthquake-induced slope stability. Lin et al. (2017) devised an enhanced FS method to evaluate stability of slopes based on Newmark displacement, assuming a rigid block model. Hung et al. (2017) analyzed an earthquake-induced landslide using finite element analysis. Notice that an energy-based analysis (Arias Intensity) has been recognized as a useful measure in earthquake-induced slope stability, the study utilized a series of seismic records and performed numerical experiments to study the relationship between Arias Intensity and earthquake-induced slope displacement. The displacements in the dynamic process were examined and the correlations of Arias Intensity and displacements of slopes, considering different angles of slopes (20°, 30°, and 45°), are presented.

REFERENCE

1. Lin GW, Hung C, and Syu HS (2017) Evaluation of an enhanced FS method for finding the initiation time of earthquake-induced landslides. Bulletin of Engineering Geology and the Environment. doi: 10.1007/s10064-017-1083-7.

2. Hung C, Lin GW, Syu HS, Chen CW, and Yen HY (2017) Analysis of the Aso-bridge landslide during the 2016 Kumamoto earthquakes in Japan. Bulletin of Engineering Geology and the Environment. doi: 10.1007/s10064-017-1103-7.