[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)
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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-P07]Earthquake-induced deformation, Instability and Failure Patterns of Rock Slope revealed by Shaking Table Test

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The initial deformation characteristics, further instability, and final failure patterns of rock slope subjected to seismic load are related to the geomaterials, geological structure, geometry of slope and seismic condition. The classifications of rock slope failure patterns related to earthquake magnitude can be divided into rock fall, rock block slide, rock slide, rock slump and rock topple (Keefer, 1984). To explore the seismic behaviors of rock slope, a series of shaking table tests of scaled rock slope physical models on an inclined base plane and with two joint sets being mutually perpendicular to each other were conducted. In addition, the acceleration responses on the top, bottom and half height of the slope model were recorded, and the images of the model were captured simultaneously during the shaking table tests. All of the captured images were analyzed by PIV (Particle Image Velocimetry) method to acquire the velocity, acceleration and initial deformation characteristics of the slope model.
The experimental results show that (1) the peak acceleration responses on the top of slope model are greater than those on the other positions; (2) the captured images and PIV analysis demonstrate that the deformation characteristics are dependent on the angle of the inclined base plane and the peak ground acceleration (PGA); (3) the failure patterns including toppling, rock fall and rock block sliding are observed. Furthermore, a PIV verification procedure is proposed to ensure the accuracy of the velocity and acceleration acquired from PIV analysis.