[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-P09]Seismic signals analysis of the June 2017 Maoxian Landslide

*Juan Zhao[1,2] (1.China University of Geosciences (Wuhan), 2.State Key Laboratory of Geodesy and Earth's Dynamics, Chinese Academy of Sciences)
Keywords:Maoxian Landslide, Force history, Waveform inversion

At about 5:39 (LT) on 24 June, 2017, a catastrophic landslide occurred on Fugui mountains at Xinmo village, Sichuan province, China. The landslide has a volume of about 8 million cubic meters, destroyed more than 64 buildings, blocked the Songpinggou River for about 2 kilometers and damaged about 1 kilometer national road. Villagers lived at the foot of the mountain were buried by the rock-soils, 10 people were killed and 73 were reported missing. Seismic waves generated before and during the landslide had been received by stations of China Seismic Network (CSN) and of a temporary seismic network set up by the State Key Laboratory of Geodesy and Earth’s Dynamics (SKLGED). We intend to study the physics of the landslide nucleation process and restore landslide motions based on the analysis of these seismic signals.
We apply a matched filtering technique to the precursory signals, and find repetitive signals which is probably related to a nucleation process of the landslide.We also pick up eight sub-events in the course of the Maoxian landslide, invert for force history of each sub-event, and calculate their sliding paths. The terrains before and after the landslide both exert an impact on the motion of the sliding mass, this helps to relate the sub-events to the corresponding landforms, and to locate the starting point of each calculated sliding path.
We finally reveal a full view of the Maoxian landslide, which includes microseismic events before the landslide, collapse of giant rock at the beginning of the landslide, centripetal acceleration of the sliding body, deceleration and acceleration once again after overcoming the obstacles along the path.