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

[H-DS11]Geohazards in humid, tectonically active countries and their precursors

convener:Masahiro Chigira(Disaster Prevention Research Institute, Kyoto University), Satoru Kojima(Department of Civil Engineering, Gifu University), Hiroshi YAGI(山形大学地域教育文化学部, 共同), Taro Uchida(National Institute for Land and Infrastructure Management)
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
This session covers mass movements of landslide, slope failure, debris flow, and gravitational slope deformation in tectonically active, humid countries, and aims to discuss on their mechanisms, characteristics of occurrence sites, the significance in geological time scale, and the methodology to mitigate their affects by researchers with various related research fields.

[HDS11-P07]Predicting location, magnitude, and timing of rain-induced shallow landslides: a test of accuracy and precision for the case of northern Kyushu disaster in 2017

*Yuki Matsushi[1] (1.Disaster Prevention Research Institute, Kyoto University)
Keywords:shallow landslide, soil, shear strength, rainwater infiltration, hillslope stability

This study examined a methodology for predicting location, magnitude, and timing of rain-induced shallow landslides for the case of disaster caused by a rainstorm in northern Kyushu on 5th July 2017. In our approach, simulation of soil production and transport on a digital terrain model provides the thickness of sliding material on hillslopes, which is validated by a ground-based survey in the actual terrain in a selected watershed. The shear strength of the bulk soil was evaluated by direct shear tests using undisturbed specimens, and quantification of soil reinforcement by tree roots through an in-situ survey at soil pits. Hydrological monitoring was carried out at a representative hillslope for modeling the fluctuation in subsurface pore-water pressure by rainwater infiltration. By coupling all of those data and modeling, we analyzed the hillslope stability on geographic information systems, and then compared the output with a landslide inventory map to confirm the accuracy and precision of the prediction.