

Shallow landslides triggered by bedrock-flow - a large flume experiment and field monitoring

Minseok Kim[1]; Yuichi Onda[2]; Erika Seki[3]; Sho Iwagami[4]; Taro Uchida[5]; Naoki Sakai[6]

[1] School of Life and Environmental Sciences, Univ. of Tsukuba; [2] School of Life&Envirom. Sci., Univ. of Tsukuba; [3] Graduate School of Life and Environmental Sciences, Univ. of Tsukuba; [4] Geoenvironmental Sci., Tsukuba Univ; [5] None; [6] NIED

To know the aspect of soil collapse occurred by only soil pipe flow on well weathered granite area in Icheon Kyung-gi prefecture of South Korea, a large flume experiment whose slope was 20 degree and rainfall was 50mm/h was used at NIED(National Research Institute for Earth Science and Disaster Prevention) in Japan.

Results of this experiment showed that according to changes of hydraulic gradients, (1) values of groundwater level, total head and air pressure, which measured in a large flume, were suddenly increased at the same time and (2) runoff, which have double peak by changing hydraulic gradients, was increased during an experiment, and then (3) soil collapse was occurred and expended at near the pipe flow outlet.

In these results, it was known that first, because the pipe flow made hydraulic gradients different, soil collapse was accelerated and expended after the pipe flow was occurred. Second, result of comparison with the shape of real collapse site and the shape of soil collapse at this experiment. It seems that gives an affect to soil collapse on hillslope underlined well weathered granite area as a main factor.