

HDS027-P06

Room:Convention Hall

Time:May 24 16:15-18:45

## A sandbox experiment for hydrology and electromagnetics coupling

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Landslides are one of the most severe natural disasters in the world and there are two types; rainfall induced landslides and landslides triggered by an earthquake. In this study, basic study on early warning system for landslides will be investigated to understand landslide process through hydrological and electromagnetic changes. The final goal of the study is to develop a simple methodology for landslide monitoring/forecasting using self potential method. Conventional methods to monitor landslides are based on geotechnical and hydrological approaches to measure pore pressures and displacement on the surface. In these methods, boreholes are required in general and may disturb the subsurface water system. Making boreholes causes a higher cost for monitoring and it is not so practical for field applications. On the other hand, self potential measurement to measure the surface potential difference using two electrodes is easy to set up and measure continuously.

In this study, the sandbox experiment has been conducted. For the sandbox system, it is possible to control the water table under the soil and it provides us the relationship between hydrological and electromagnetic changes in quantity. We examine various water levels and hydraulic gradients for the investigation. The results show the self potential value seems to be control by the electro-kinetic effect and the water table.