

Electromagnetic estimation of a water condition with a pumping test experiment

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Landslide is one of the severe natural disasters in the world and it is controlled by the condition of the underground water. So far to prevent the disaster, efforts of geotechnological approaches such as debris dams have been conducted. And there are few studies on precursory phenomena of landslides such as an anomalous underground water flows, etc. But they are good indicators to monitor landslide process.

Recently, some laboratory experiments under rain control suggest significant features of landslide precursors:

- (1) Creation and development of saturated areas
- (2) Change of water flow pattern from vertical direction to lateral to the slope.
- (3) The notable change of the soil a few tens minutes before the collapse.

Now we try to detect and understand these changes with using the electromagnetic approach. At firsts, a simple tank is prepared and filled with a uniform sand/soil. A pump can control the water level and motion can be controlled by a pump. The relationship between underground water motion and self potential change is studied with a pore-pressure gauge and an electrode. This time, the preliminary result will be presented in the talk.