# An investigation on self-potential variation and seismic signals caused by sliding of laboratory scale model slopes

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This study monitored the self-potential variation and seismic signals during sliding experiments for laboratory scale model slopes when the slopes subject to rainfall and groundwater level increasing. The sensors installed including non-polarized electrodes, accelerometers, pore water pressure gauges, and water content gauges for data collection. The results show that the self-potential variation can be used qualitatively to indicate groundwater condition and movement of the sliding body of the model slopes. The seismic signals caused by the three types of sliding processes of the model slopes, including single sliding, multiple sliding and successive sliding, can be easily identified. In addition, the frequency content and time-frequency spectra of the three sliding processes were calculated and compared. We also found that the amplitude and high frequency portion of the seismic signals were attenuated for the case of a model dip slope with a weak clay layer.

Keywords: landslide, slope, seismic signal, self-potential, model test

 