

Vertical changes of soil properties and infiltration process for occurrence of shallow landslides in hillslopes with different bedrocks

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We examined the vertical change of physical, mechanical, and hydrological properties of soil-slip scars which is formed by rainfall-induced shallow landslides in hillslopes with granite and hornfels. On Granitic hillslopes, there are highly-permeable sand with a large shear resistance angle and a small cohesive strength. Hornfels hillslopes has are covered by sticky and low permeable soil with a small shear resistance angle and a large cohesive strength. Percolation rate from tensiometric data in unsaturated zone of the granite hillslope are higher than that of the hornfels hillslope. Slope stability analysis suggests that many landslides occurred in granite hillslopes does not require a rise of subsurface pore water pressure although in hillslopes of hornfels occurrence of shallow landslides needs a subsurface pore water pressure, respectively. These results suggest that factors for landslide occurrence are different in each hillslope.

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