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Influence of Rainfall Intensity on Infiltration and Deformation of Unsaturated Soil Slopes

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Abstract : In order to improve the understanding of the influence of rainfall intensity on infiltration and deformation behaviour of unsaturated soil slopes, numerical 2D analyses are carried out by a three phase elasto-viscoplastic seepage-deformation coupled method. From the numerical results, it is shown that regardless of the saturated permeability of the soil slope, the increase in the pore water pressure (reduction in suction) during rainfall infiltration is localized close to the slope surface. In addition, the generation of the pore water pressure and the lateral displacement are mainly controlled by the ratio of the rainfall intensity to the saturated permeability of the soil.

Keywords : unsaturated soil, slope stability, rainfall infiltration, numerical analysis
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