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Matric Suction Effects on Behavior of Unsaturated Soil Slope

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Abstract : Soil slopes are usually located above the groundwater level that are largely unsaturated. It is possible that unsaturated soil of slope has expanded or collapsed as a result of wetting by rain or other factor that this type of soil behavior can cause serious problems including human and financial damage. The main factor causing this difference in behavior of saturated and unsaturated state of soil is matric suction that is created by interface of the soil and water in the soil pores. So far theoretical studies show that matric suction has important effect on the mechanical behavior of soil although the impact of this factor on slope stability has not been studied. This paper presents a numerical study of effect of matric suction on slope stability. The results of the study indicate that safety factor and stability of soil slope increase due to an increasing of matric suction and in view of matric suction leads to more accurate results and safety factor.

Keywords : slope, unsaturated soil, matric suction, stability
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