

Prediction of Unsaturated Permeability Functions for Clayey Soil

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Abstract : Desiccation cracks following drainage-humidification cycles. With water loss, mainly due to evaporation, suction in the soil increases, producing volumetric shrinkage and tensile stress. When the tensile stress reaches tensile strength, the soil cracks. Desiccation cracks networks can directly control soil hydraulic properties. The aim of this study was for quantifying the hydraulic properties for examples the water retention curve, the saturated hydraulic conductivity, the unsaturated hydraulic conductivity function, the shrinkage dynamics in Tibar soil- clay soil in the Northern of Tunisia. Then a numerical simulation of unsaturated hydraulic properties for a crack network has been attempted. The finite elements code 'CODE_BRIGHT' can be used to follow the hydraulic distribution in cracked porous media.

Keywords : desiccation, cracks, permeability, unsaturated hydraulic flow, simulation

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