

## SOIL DESICCATION CRACKING (*ABSTRACT*)

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### **Abstract.**

Soil surface interchanges moisture with the atmosphere. As this process takes place, drying/wetting cycles subject the soil mass to volume changes, also known as shrinkage and swelling. The shrinkage causes surface cracking and swelling causes the cracks to closes again. This process results in physical degradation or deterioration of soils due to environmental actions.

Cracking of soils results in the reduction of the overall strength due to creates zones of weakness. Another effect of desiccation cracks is the influences over the hydraulic properties of the ground. Cracks in the soil mass increases the infiltration rate and the permeability. During a rainfall the rapid infiltration through the crack can lead to elevate the pore water pressure and reduce the shear strength.

The water loss in soils by evaporation has been studied by agronomist, soil scientist and hydrologist, however, geotechnical engineers have paid less attention to this phenomena. Desiccation cracking may affect infrastructure resulting in economical damage. A better understand of soil-environment interactions is fundamental to enhance the maintenance of infrastructure.

Soil cracking desiccation is a complex coupled thermo-hydro-mechanic process. However, the advances in computational procedures and numerical methods permits simulation of cracking formation and propagation during desiccation. It is important to know the advantages and drawback of each method.