

Water Retention Function of No-fines Concrete: Experimental Determination and Problems Related to Its Modelling

Valentina Marzulli
Technical University of Bari, Bari, Italy



The hydraulic characterization of no-fines concrete (NFC) plays an important role for the design of geotechnical works. The experimental determination of the retention curve of concrete mixture, carried out on specimens in the laboratory by performing measurements of both water content and suction, is discussed. The material shows a behaviour typical for coarse-grained soils, since it reaches very low suction values during wetting at saturation degrees lower than unity. This behaviour involves some problems when the retention function is modelled using the van Genuchten equation. The impact of some hypotheses concerning the NFC hydraulic functions on the seepage simulation through an ideal unsaturated soil mass under rainfall, in which a drainage trench is located, is pointed out, in terms of time evolution of the pore pressure.