

## Abstract

Gravity has a non stabilizing effect on the moisture front. So, when the flow is solely due to the capillary forces, the front is said to be stable. The infiltration characteristic time  $t_{inf}$  is the time when forces of gravity begin to act after a period of infiltration  $t$ . It is usually determined experimentally or analytically. The purpose of this work is to provide time  $t_{mf}$  by a numerical resolution of the two equations of water movement in unsaturated soils. The first equation is the diffusion equation where only the capillary forces characterize the flow. The second is the convection-diffusion equation, called Richards's equation (1931), in terms of volumetric water content, and both kind of forces; capillarity and gravity; are taken into account. Different types of soils are studied in this work to study the influence of soil texture on  $t_{inf}$ . The time  $t_{inf}$  is then compared to  $t_{grav}$  which is the gravitational characteristic time. It is calculated from the Sorptivity as defined by Philip (1969), to verify the conditions defined by Talsma