APPLICATION OF GPR FOR MONITORING THE SAND BOX TEST WITH A CAPILLARY BARRIER

SEIICHIRO KURODA
Kouki Takeuchi, Niigata University; Nobuyuki Ishii; Toshihiro Morii, Niigata University

Recently capillary barriers have been known as the method to protect subsurface regions against infiltration from soil surface. It has essentially non-uniform structure of permeability or soil physical property. To identify the function of the capillary barrier, the site-characterization technique for non-uniform soil moisture distribution and infiltration process is needed. We build a sand box with thin high-permeable gravel layer and conducted a infiltration test, including non-uniform flow of soil water induced by capillary barrier effect. We monitored this process using various types of GPR, including not only the reflection types but also transmission types like cross-borehole radar. We will discuss the applicability of GPR for sounding the structure of the sand box with a capillary barrier, and for monitoring the infiltration process in it.