



Relaxation of water infiltration pulses observed with GPR

Lisa Hantschel (1,2,3), Benedikt Hemmer (1), and Kurt Roth (1)

(1) Institute of Environmental Physics, Heidelberg University, Heidelberg, Germany, (2) Heidelberg Graduate School of Fundamental Physics, Heidelberg University, Heidelberg, Germany, (3) Lisa.Hantschel@iup.uni-heidelberg.de

We observe the relaxation of infiltration pulses in sandy soil with ground-penetrating radar (GPR). The spatial distribution of water in the infiltration area and its temporal evolution is represented by ordinary reflections at layer boundaries as well as multiple reflections at the wetting front and the pulse boundaries. The structure of these highly resolved signals are reproduced by numerical simulations of electromagnetic wave propagation. The temporally highly resolved electrical fields reveal the origin also of complex reflection signals. The usage of these more complex signals might allow a more detailed representation of the infiltration process by direct analysis as well as in combination with inversion techniques.