A Fast Method for Modeling Water Infiltration in Porous Media

Craig Douglas

School of Energy Resources and Mathematics,
University of Wyoming,
United States
craig.c.douglas@gmail.com
joint work with Mookwon Se, Derrick Cerwinsky, and Han Yu

Water infilitration from the surface to the groundwater level is usually simulated using a model based on either Richards equation or a reservoir model. In this talk we present a model derived from Darcy's law known as the Talbot-Ogden (T-O) model. Instead of one of the usual 3D models, we have a depth versus water content based on a water content domain. We investigate three ways of implementing the T-O model and evaluate each in terms of computational complexity, parallelism potential, and accuracy based on lab and field experiments and data.