JSTAGE		My J-STAGE Sign in
Hydrological Research Letters Japan Society of Hydrology and Water Resources		ZR
Available Volumes Japanese	>> <u>P</u>	ublisher Site
Author: <u>ADVANCED</u> Volume Page		
Keyword: Search		Go
Add to Favorite / Citation Favorite Favorite Articles Alerts Alerts	Register Alerts	? My J-STAGE HELP

<u>TOP</u> > <u>Available Volumes</u> > <u>Table of Contents</u> > Abstract

ONLINE ISSN : 1882-3416

Hydrological Research Letters Vol. 2 (2008) pp.52-55

[PDF (316K)] [References] [Supplementary Materials]

Developing a three-dimensional coupled model of pipe-matrix subsurface flow

Hyunuk An¹⁾, Yutaka Ichikawa¹⁾, Yasuto Tachikawa¹⁾ and Michiharu Shiiba¹⁾

1) Graduate School of Engineering, Kyoto University

(Received: March 21, 2008) (Accepted for publication: August 11, 2008)

Abstract:

Over the past two decades, many studies have reported the presence of soil pipes in hillslopes and their significant influence on rainfall-runoff processes. To analyze pipe flow mechanisms which have complex flow dynamics and interaction with water in the surrounding soil, this study proposed a numerical simulation model which combined a slot model with a three-dimensional saturated-unsaturated subsurface flow model. Soil matrix flow and pipe flow were regarded as separate flow systems and calculated using the individual governing equations, which are Richards equation and the dynamic flow equation. To validate the model, the simulations were conducted for three different conditions (no pipe, open pipe and closed pipe) and showed good agreement with experimental observation data.

[PDF (316K)] [References] [Supplementary Materials]

Download Meta of Article[Help] <u>RIS</u> BibTeX

To cite this article:

Hyunuk An, Yutaka Ichikawa, Yasuto Tachikawa and Michiharu Shiiba: "Developing a threedimensional coupled model of pipe-matrix subsurface flow", Hydrological Research Letters, Vol. 2, pp.52-55, (2008).

doi:10.3178/hrl.2.52

JOI JST.JSTAGE/hrl/2.52

Copyright (c) 2008 Japan Society of Hydrology and Water Resources



Japan Science and Technology Information Aggregator, Electronic