

# Vadose Zone Journal

## Special Section: Preferential Flow

- Horst H. Gerke, Peter Germann, John Nieber  
Preferential and Unstable Flow: From the Pore to the Catchment Scale 207
- Radka Kodešová, Jiří Šimůnek, Antonín Nikodem, Veronika Jirků  
Estimation of the Dual-Permeability Model Parameters using Tension Disk Infiltrometer and Guelph Permeameter 213
- S. Bachmair\*, M. Weiler, G. Nützmann  
Benchmarking of Two Dual-Permeability Models under Different Land Use and Land Cover 226
- Antonín Nikodem\*, Radka Kodešová, Ondřej Drábek, Libuše Bubeníčková, Luboš Borůvka, Lenka Pavlů, Václav Tejnecký  
A Numerical Study of the Impact of Precipitation Redistribution in a Beech Forest Canopy on Water and Aluminum Transport in a Podzol 238
- Tomas Vogel\*, Martin Sanda, Jaromir Dusek, Michal Dohnal, Jana Votrubova  
Using Oxygen-18 to Study the Role of Preferential Flow in the Formation of Hillslope Runoff 252
- Tomas Vogel\*, Jan Brezina, Michal Dohnal, Jaromir Dusek  
Physical and Numerical Coupling in Dual-Continuum Modeling of Preferential Flow 260
- David A. DiCarlo\*  
Can Continuum Extensions to Multiphase Flow Models Describe Preferential Flow? 268
- Ingrid Hincapié, Peter Germann\*  
Water Content Wave Approach Applied to Neutron Radiographs of Finger Flow 278
- C.D. Tsakiroglou\*, V. Sygouni, C.A. Aggelopoulos  
A Dynamic Network-Type Simulator to Investigate the Multiphase Flow Properties of Heterogeneous Soils 285
- John R. Nimmo\*  
Theory for Source-Responsive and Free-Surface Film Modeling of Unsaturated Flow 295
- E. Michel\*, S. Majdalani, L. Di-Pietro  
How Differential Capillary Stresses Promote Particle Mobilization in Macroporous Soils: A Novel Conceptual Model 307
- Martin Leue, Ruth H. Ellerbrock\*, Horst H. Gerke  
DRIFT Mapping of Organic Matter Composition at Intact Soil Aggregate Surfaces 317
- J. Paz Ferreira\*, J.G.V. Miranda, E. Vidal Vázquez  
Multifractal Analysis of Soil Porosity Based on Mercury Injection and Nitrogen Adsorption 325
- S. Garré\*, J. Koestel, T. Günther, M. Javaux, J. Vanderborght, H. Vereecken  
Comparison of Heterogeneous Transport Processes Observed with Electrical Resistivity Tomography in Two Soils 336
- C. Oberdörster\*, J. Vanderborght, A. Kemna, H. Vereecken  
Investigating Preferential Flow Processes in a Forest Soil Using Time Domain Reflectometry and Electrical Resistivity Tomography 350
- Annika Badorreck\*, Horst H. Gerke, P. Vontobel  
Noninvasive Observations of Flow Patterns in Locally Heterogeneous Mine Soils using Neutron Radiation 362
- Michal Sněhota\*, Milena Císlerová, M.H. Gao Amin, Lawrence D. Hall  
Tracing the Entrapped Air in Heterogeneous Soil by Means of Magnetic Resonance Imaging 373
- M.F. Dyck\*, R.G. Kachanoski  
Spatial Scale-Dependence of Preferred Flow Domains during Infiltration in a Layered Field Soil 385
- Adrian A. Harpold\*, Steve W. Lyon, Peter A. Troch, Tammo S. Steenhuis  
The Hydrological Effects of Lateral Preferential Flow Paths in a Glaciated Watershed in the Northeastern USA 397
- ## Original Research
- Christopher E. Strickland\*, Andy L. Ward, William P. Clement, Kathryn E. Draper  
Engineered Surface Barrier Monitoring Using Ground-Penetrating Radar, Time-Domain Reflectometry, and Neutron-Scattering Techniques 415
- Toshihiro Sakaki\*, Denis M. O'Carroll, Tissa H. Illangasekare  
Direct Quantification of Dynamic Effects in Capillary Pressure for Drainage–Wetting Cycles 424
- Or Sperling, Naftali Lazarovitch\*  
Characterization of Water Infiltration and Redistribution for Two-Dimensional Soil Profiles by Moment Analyses 438
- A. Lamparter\*, J. Bachmann, M. Deurer, S.K. Woche  
Applicability of Ethanol for Measuring Intrinsic Hydraulic Properties of Sand with Various Water Repellency Levels 445

<a href="#">T.K. Birkham*</a> , <a href="#">M.J. Hendry</a> , <a href="#">S.L. Barbour</a> Advective and Diffusive Gas Transport through Fractured Sulfur Blocks	451
<a href="#">K. Verbist*</a> , <a href="#">S. Torfs</a> , <a href="#">W.M. Cornelis</a> , <a href="#">R. Oyarzún</a> , <a href="#">G. Soto</a> , <a href="#">D. Gabriels</a> Comparison of Single- and Double-Ring Infiltrometer Methods on Stony Soils	462
<a href="#">Leslie L. Baker*</a> , <a href="#">Daniel G. Strawn</a> , <a href="#">Robert W. Smith</a> Cation Exchange on Vadose Zone Research Park Subsurface Sediment, Idaho National Laboratory	476
<a href="#">A.A. Siyal*</a> , <a href="#">T.H. Skaggs</a> , <a href="#">M.Th. van Genuchten</a> Reclamation of Saline Soils by Partial Ponding: Simulations for Different Soils	486
<b>Technical Notes</b>	
<a href="#">D.A. Barry</a> , <a href="#">J.-Y. Parlange</a> , <a href="#">C.L. Prevedello</a> , <a href="#">J.M.T. Loyola</a> , <a href="#">K. Reichardt</a> , <a href="#">D.R. Nielsen</a> Extension of a Recent Method for Obtaining Exact Solutions of the Bruce and Klute Equation	496
<b>Comments</b>	
<a href="#">Nicholas Jarvis*</a> Comment on “Macroscopic Root Water Uptake Distribution Using a Matric Flux Potential Approach”	499
<a href="#">Quirijn de Jong van Lier</a> , <a href="#">Jos C. van Dam</a> , <a href="#">Klaas Metselaar</a> Reply to “Comment on ‘Macroscopic Root Water Uptake Distribution Using a Matric Flux Potential Approach’ ”	503
<a href="#">Carol Harden</a> , <a href="#">Edmund Perfect</a> , <a href="#">Daniel Hillel</a> , <a href="#">Nasser Khalili</a> , <a href="#">Stephen Kaffka</a>	
<b>Book Reviews</b>	
<a href="#">Carol Harden</a> Amazonian Dark Earths: Wim Sombroek’s Vision	504
<a href="#">Edmund Perfect</a> The Soils of Tomorrow—Soils Changing in a Changing World	506
<a href="#">Daniel Hillel</a> Dirt: The Erosion of Civilization	507
<a href="#">Nasser Khalili</a> Theoretical and Numerical Unsaturated Soil Mechanics	509
<a href="#">Stephen Kaffka</a> Water War in the Klamath Basin: Macho Law, Combat Biology, and Dirty Politics	510