

Research Articles

- 4970** *Ville Kasurinen, Knut Alfredsen, Anne Ojala, Jukka Pumpanen, Gesa A. Weyhenmeyer, Martyn N. Futter, Hjalmar Laudon, and Frank Berninger*
Modeling nonlinear responses of DOC transport in boreal catchments in Sweden* (doi 10.1002/2015WR018343)
*This article is part of a Special Section—Emergent aquatic carbon-nutrient dynamics as products of hydrological, biogeochemical, and ecological interactions
- 4990** *Patrick R. Kormos, Charles H. Luce, Seth J. Wenger, and Wouter R. Berghuijs*
Trends and sensitivities of low streamflow extremes to discharge timing and magnitude in Pacific Northwest mountain streams (doi 10.1002/2015WR018125)
- 5008** *D. Pedretti, A. Russian, X. Sanchez-Vila, and M. Dentz*
Scale dependence of the hydraulic properties of a fractured aquifer estimated using transfer functions (doi 10.1002/2016WR018660)
- 5025** *Behzad Ghanbarian, Muhammad Sahimi, and Hugh Daigle*
Modeling relative permeability of water in soil: Application of effective-medium approximation and percolation theory* (doi 10.1002/2015WR017903)
*This article is part of a Special Section—Applications of percolation theory to porous media
- 5041** *Christoph Langhans, Patrick N. J. Lane, Petter Nyman, Philip J. Noske, Jane G. Cawson, Akiko Oono, and Gary J. Sheridan*
Scale-dependency of effective hydraulic conductivity on fire-affected hillslopes (doi 10.1002/2016WR018998)
- 5056** *Yanlan Liu and Mukesh Kumar*
Role of meteorological controls on interannual variations in wet-period characteristics of wetlands (doi 10.1002/2015WR018493)
- 5075** *Jon J. Major, Daniel Bertin, Thomas C. Pierson, Álvaro Amigo, Andrés Iroumé, Héctor Ulloa, and Jonathan Castro*
Extraordinary sediment delivery and rapid geomorphic response following the 2008–2009 eruption of Chaitén Volcano, Chile* (doi 10.1002/2015WR018250)
*This article is part of a Special Section—Disturbance Hydrology
- 5095** *Shahrbanou Madadgar, Amir AghaKouchak, Shraddhanand Shukla, Andrew W. Wood, Linyin Cheng, Kou-Lin Hsu, and Mark Svoboda*
A hybrid statistical-dynamical framework for meteorological drought prediction: Application to the southwestern United States (doi 10.1002/2015WR018547)
- 5111** *E. Sebok, J. C. Refsgaard, J. J. Warmink, S. Stisen, and K. H. Jensen*
Using expert elicitation to quantify catchment water balances and their uncertainties (doi 10.1002/2015WR018461)
- 5132** *Rafael J. Bergillos, Cristóbal Rodríguez-Delgado, Agustín Millares, Miguel Ortega-Sánchez, and Miguel A. Losada*
Impact of river regulation on a Mediterranean delta: Assessment of managed versus unmanaged scenarios (doi 10.1002/2015WR018395)
- 5149** *L. Chen, S. Sela, T. Svoray, and S. Assouline*
Scale dependence of Hortonian rainfall-runoff processes in a semiarid environment (doi 10.1002/2015WR018315)
- 5167** *N. Filipovitch, K. M. Hill, A. Longjas, and V. R. Voller*
Infiltration experiments demonstrate an explicit connection between heterogeneity and anomalous diffusion behavior (doi 10.1002/2016WR018667)
- 5179** *Martin A. Briggs, Sean F. Buckley, Amvrossios C. Bagtzoglou, Dale D. Werkema, and John W. Lane Jr*
Actively heated high-resolution fiber-optic-distributed temperature sensing to quantify streambed flow dynamics in zones of strong groundwater upwelling (doi 10.1002/2015WR018219)
- 5195** *Michelle Ho, Upmanu Lall, and Edward R. Cook*
Can a paleodrought record be used to reconstruct streamflow?: A case study for the Missouri River Basin (doi 10.1002/2015WR018444)
- 5213** *Jonghyun Lee, Hongkyu Yoon, Peter K. Kitanidis, Charles J. Werth, and Albert J. Valocchi*
Scalable subsurface inverse modeling of huge data sets with an application to tracer concentration breakthrough data from magnetic resonance imaging (doi 10.1002/2015WR018483)
- 5232** *C. Tunaley, D. Tetzlaff, J. Lessels, and C. Soulsby*
Linking high-frequency DOC dynamics to the age of connected water sources (doi 10.1002/2015WR018419)
- 5248** *Spencer Malott, Denis M. O'Carroll, and Clare E. Robinson*
Dynamic groundwater flows and geochemistry in a sandy nearshore aquifer over a wave event (doi 10.1002/2015WR017537)
- 5265** *L. A. Smith, S. L. Barbour, M. J. Hendry, K. Novakowski, and G. van der Kamp*
A multiscale approach to determine hydraulic conductivity in thick claystone aquitards using field, laboratory, and numerical modeling methods (doi 10.1002/2015WR018448)

- 5285** *Paolo Porto, Des E. Walling, Vanessa Cogliandro, and Giovanni Callegari*
Validating a mass balance accounting approach to using ⁷Be measurements to estimate event-based erosion rates over an extended period at the catchment scale (doi 10.1002/2015WR018136)
- 5301** *Jonathan M. Malzone, Christopher S. Lowry, and Adam S. Ward*
Response of the hyporheic zone to transient groundwater fluctuations on the annual and storm event time scales (doi 10.1002/2015WR018056)
- 5322** *Alberto Viglione, Bruno Merz, Nguyen Viet Dung, Juraj Parajka, Thomas Nester, and Günter Blöschl*
Attribution of regional flood changes based on scaling fingerprints (doi 10.1002/2016WR019036)
- 5341** *Ehsan Ranaee, Monica Riva, Giovanni M. Porta, and Alberto Guadagnini*
Comparative assessment of three-phase oil relative permeability models (doi 10.1002/2016WR018872)
- 5357** *Camila Alvarez-Garretón, Dongryeol Ryu, Andrew W. Western, Wade T. Crow, Chun-Hsu Su, and David R. Robertson*
Dual assimilation of satellite soil moisture to improve streamflow prediction in data-scarce catchments (doi 10.1002/2015WR018429)
- 5376** *J. O. Helland and E. Jettestuen*
Mechanisms for trapping and mobilization of residual fluids during capillary-dominated three-phase flow in porous rock (doi 10.1002/2016WR018912)
- 5393** *Kieran McDonald, Kenneth C. Carroll, and Mark L. Brusseau*
Comparison of fluid-fluid interfacial areas measured with X-ray microtomography and interfacial partitioning tracer tests for the same samples (doi 10.1002/2016WR018775)
- 5400** *Harald Klammler, Kirk Hatfield, Mark A. Newman, Jaehyun Cho, Michael D. Annable, Beth L. Parker, John A. Cherry, and Irina Perminova*
A new device for characterizing fracture networks and measuring groundwater and contaminant fluxes in fractured rock aquifers* (doi 10.1002/2015WR018389)
- *This article is part of a Special Section—Modeling highly heterogeneous aquifers: Lessons learned in the last 30 years from the MADE experiments and others
- 5421** *Giuseppe A. Zampogna, Franck Pluvinage, Azeddine Kourta, and Alessandro Bottaro*
Instability of canopy flows (doi 10.1002/2016WR018915)
- 5433** *Tannaz Pak, Ian B. Butler, Sebastian Geiger, Marinus I.J. van Dijke, Zeyun Jiang, and Rodrigo Surmas*
Multiscale pore-network representation of heterogeneous carbonate rocks (doi 10.1002/2016WR018719)
- 5442** *Maria V. Klepikova, Tanguy Le Borgne, Olivier Bour, Marco Dentz, Rebecca Hochreutener, and Nicolas Lavenant*
Heat as a tracer for understanding transport processes in fractured media: Theory and field assessment from multiscale thermal push-pull tracer tests (doi 10.1002/2016WR018789)
- 5458** *Katie H. Costigan and Joseph E. Gerken*
Channel morphology and flow structure of an abandoned channel under varying stages (doi 10.1002/2015WR017601)
- 5473** *Aviv Naftaly, Ishai Dror, and Brian Berkowitz*
Measurement and modeling of engineered nanoparticle transport and aging dynamics in a reactive porous medium (doi 10.1002/2016WR018780)
- 5492** *Francesca Messina, Tiziana Tosco, and Rajandrea Sethi*
On the failure of upscaling the single-collector efficiency to the transport of colloids in an array of collectors (doi 10.1002/2016WR018592)
- 5506** *Hua Zhong, Asma El Ouni, Dan Lin, Bingguo Wang, and Mark L. Brusseau*
The two-phase flow IPTT method for measurement of nonwetting-wetting liquid interfacial areas at higher nonwetting saturations in natural porous media (doi 10.1002/2016WR018783)
- 5516** *Dong K. Woo and Praveen Kumar*
Mean age distribution of inorganic soil-nitrogen (doi 10.1002/2015WR017799)
- 5537** *Kuai Fang, Chaopeng Shen, Joshua B. Fisher, and Jie Niu*
Improving Budyko curve-based estimates of long-term water partitioning using hydrologic signatures from GRACE (doi 10.1002/2016WR018748)
- 5555** *A. de Lavenne, J. O. Skøien, C. Cudennec, F. Curie, and F. Moatar*
Transferring measured discharge time series: Large-scale comparison of Top-kriging to geomorphology-based inverse modeling (doi 10.1002/2016WR018716)
- 5577** *Katherine M. Ransom, Mark N. Grote, Amanda Deinhardt, Gary Eppich, Carol Kendall, Matthew E. Sanborn, A. Kate Souders, Joshua Wimpenny, Qing-zhu Yin, Megan Young, and Thomas Harter*
Bayesian nitrate source apportionment to individual groundwater wells in the Central Valley by use of elemental and isotopic tracers (doi 10.1002/2015WR018523)
- 5598** *N. Roy, J. Molson, J.-M. Lemieux, D. Van Stempvoort, and A. Nowamooz*
Three-dimensional numerical simulations of methane gas migration from decommissioned hydrocarbon production wells into shallow aquifers (doi 10.1002/2016WR018686)
- 5619** *William H. Farmer and Richard M. Vogel*
On the deterministic and stochastic use of hydrologic models (doi 10.1002/2016WR019129)
- 5634** *Yaniv Eder, Sebastian Geiger, and Brian Berkowitz*
Structural controls on anomalous transport in fractured porous rock (doi 10.1002/2016WR018942)
- 5644** *D. Ganora and F. Laio*
A comparison of regional flood frequency analysis approaches in a simulation framework (doi 10.1002/2016WR018604)
- 5662** *Hyun-Han Kwon and Upmanu Lall*
A copula-based nonstationary frequency analysis for the 2012–2015 drought in California (doi 10.1002/2016WR018959)

Technical Reports: Methods

- 5676** *Linwei Hu, Peter Bayer, and Ralf Brauchler*
Detection of carbon dioxide leakage during injection in deep saline formations by pressure tomography (doi 10.1002/2015WR018420)

Comments and Replies

- 5687** *X. X. Zhang, X. Y. Fan, and Z. Y. Li*
Water velocity at water-air interface is not zero: Comment on "Three-dimensional quantification of soil hydraulic properties using X-ray computed tomography and image-based modeling" by Saoirse R. Tracy et al. (doi 10.1002/2015WR018432)
- 5691** *Saoirse R. Tracy, Keith R. Daly, Craig J. Sturrock, Neil M. J. Crout, Sacha J. Mooney, and Tiina Roose*
Reply to comment by X. X. Zhang et al. on "Three-dimensional quantification of soil hydraulic properties using X-ray computed tomography and image-based modeling" (doi 10.1002/2016WR018699)
- 5694** *Keith E. Schilling*
Comment on "Climate and agricultural land use change impacts on streamflow in the upper midwestern United States" by Satish C. Gupta et al. (doi 10.1002/2015WR018482)
- 5697** *Satish C. Gupta, Andrew C. Kessler, Melinda K. Brown, and William M. Schuh*
Reply to comment by Keith E. Schilling on "Climate and agricultural land use change impacts on streamflow in the upper Midwestern United States" (doi 10.1002/2016WR018656)
- 5701** *Shlomo P. Neuman*
Comment on "Advective transport in heterogeneous aquifers: Are proxy models predictive?" by A. Fiori, A. Zarlenga, H. Gotovac, I. Jankovic, E. Volpi, V. Cvetkovic, and G. Dagan (doi 10.1002/2016WR019093)
- 5703** *Aldo Fiori, Antonio Zarlenga, Hrvoje Gotovac, Igor Jankovic, Elena Volpi, Vladimir Cvetkovic, and Gedeon Dagan*
Reply to comment by S. P. Neuman on "Advective transport in heterogeneous aquifers: Are proxy models predictive?" (doi 10.1002/2016WR019209)