

Debates

- 1767** *Günter Blöschl*
Debates—Hypothesis testing in hydrology: Introduction (doi 10.1002/2017WR020584)
- 1770** *Victor R. Baker*
Debates—Hypothesis testing in hydrology: Pursuing certainty versus pursuing uberty (doi 10.1002/2016WR020078)
- 1779** *Diane M. McKnight*
Debates—Hypothesis testing in hydrology: A view from the field: The value of hydrologic hypotheses in designing field studies and interpreting the results to advance hydrology (doi 10.1002/2016WR020050)
- 1784** *Insa Neuweiler and Rainer Helmig*
Debates—Hypothesis testing in hydrology: A subsurface perspective (doi 10.1002/2016WR020047)
- 1792** *Laurent Pfister and James W. Kirchner*
Debates—Hypothesis testing in hydrology: Theory and practice (doi 10.1002/2016WR020116)

Research Articles

- 1799** *C. Scudeler, C. Paniconi, D. Pasetto, and M. Putti*
Examination of the seepage face boundary condition in subsurface and coupled surface/subsurface hydrological models (doi 10.1002/2016WR019277)
- 1820** *Siyuan Tian, Paul Tregoning, Luigi J. Renzullo, Albert I. J. M. van Dijk, Jeffrey P. Walker, Valentijn R. N. Pauwels, and Sébastien Allgeyer*
Improved water balance component estimates through joint assimilation of GRACE water storage and SMOS soil moisture retrievals (doi 10.1002/2016WR019641)
- 1841** *Alicia Sendrowski and Paola Passalacqua*
Process connectivity in a naturally prograding river delta (doi 10.1002/2016WR019768)
- 1864** *Paolo Benettin, Chris Soulsby, Christian Birkel, Doerthe Tetzlaff, Gianluca Botter, and Andrea Rinaldo*
Using SAS functions and high-resolution isotope data to unravel travel time distributions in headwater catchments (doi 10.1002/2016WR020117)
- 1879** *Jikang Shen and Rui Ni*
Experimental investigation of clogging dynamics in homogeneous porous medium (doi 10.1002/2016WR019421)
- 1891** *W. Kallel, M. I. J. van Dijke, K. S. Sorbie, and R. Wood*
Pore-scale modeling of wettability alteration during primary drainage (doi 10.1002/2016WR018703)
- 1908** *Andrew J. Luhmann, Benjamin M. Tutolo, Brian C. Bagley, David F. R. Mildner, William E. Seyfried Jr., and Martin O. Saar*
Permeability, porosity, and mineral surface area changes in basalt cores induced by reactive transport of CO₂-rich brine (doi 10.1002/2016WR019216)
- 1928** *Natalie Kramer, Ellen Wohl, Brooke Hess-Homeier, and Stephen Leisz*
The pulse of driftwood export from a very large forested river basin over multiple time scales, Slave River, Canada (doi 10.1002/2016WR019260)
- 1948** *Jiangjiang Zhang, Weixuan Li, Guang Lin, Lingzao Zeng, and Laosheng Wu*
Efficient evaluation of small failure probability in high-dimensional groundwater contaminant transport modeling via a two-stage Monte Carlo method (doi 10.1002/2016WR019518)
- 1963** *Wei Ding, Chi Zhang, Ximing Cai, Yu Li, and Huicheng Zhou*
Multiobjective hedging rules for flood water conservation (doi 10.1002/2016WR019452)
- 1982** *E. D. Johnson and E. A. Cowen*
Estimating bed shear stress from remotely measured surface turbulent dissipation fields in open channel flows (doi 10.1002/2016WR018898)

- 1997** Q. Wang, D. A. Savić, and Z. Kapelan
GALAXY: A new hybrid MOEA for the optimal design of Water Distribution Systems
(doi 10.1002/2016WR019854)
- 2016** P. Fischer, A. Jardani, and N. Lecoq
A cellular automata-based deterministic inversion algorithm for the characterization of linear structural heterogeneities (doi 10.1002/2016WR019572)
- 2035** Mengqian Lu, Upmanu Lall, Andrew W. Robertson, and Edward Cook
Optimizing multiple reliable forward contracts for reservoir allocation using multitime scale streamflow forecasts
(doi 10.1002/2016WR019552)
- 2051** J. Stryker, B. Wemple, and A. Bombliès
Modeling sediment mobilization using a distributed hydrological model coupled with a bank stability model
(doi 10.1002/2016WR019143)
- 2074** Jannick Kolbjørn Jensen, Peter Engesgaard, Anders R. Johnsen, Vicens Marti, and Bertel Nilsson
Hydrological mediated denitrification in groundwater below a seasonal flooded restored riparian zone
(doi 10.1002/2016WR019581)
- 2095** Esmaeel Bayat, José F. Rodríguez, Patricia M. Saco, Gustavo A. M. de Almeida, Elham Vahidi, and Marcelo H. García
A tale of two riffles: Using multidimensional, multifractional, time-varying sediment transport to assess self-maintenance in pool-riffle sequences (doi 10.1002/2016WR019464)
- 2114** Eliot S. Meyer, Gregory W. Characklis, and Casey Brown
Evaluating financial risk management strategies under climate change for hydropower producers on the Great Lakes (doi 10.1002/2016WR019889)
- 2133** R. G. Smith, R. Knight, J. Chen, J. A. Reeves, H. A. Zebker, T. Farr, and Z. Liu
Estimating the permanent loss of groundwater storage in the southern San Joaquin Valley, California
(doi 10.1002/2016WR019861)
- 2149** Antonios Mamalakis, Andreas Langousis, Roberto Deidda, and Marino Marrocu
A parametric approach for simultaneous bias correction and high-resolution downscaling of climate model rainfall (doi 10.1002/2016WR019578)
- 2171** J.-C. Comte, C. Wilson, U. Ofterdinger, and A. González-Quirós
Effect of volcanic dykes on coastal groundwater flow and saltwater intrusion: A field-scale multiphysics approach and parameter evaluation (doi 10.1002/2016WR019480)
- 2199** David McInerney, Mark Thyer, Dmitri Kavetski, Julien Lerat, and George Kuczera
Improving probabilistic prediction of daily streamflow by identifying Pareto optimal approaches for modeling heteroscedastic residual errors (doi 10.1002/2016WR019168)
- 2240** Michael P. Lamb, Fanny Brun, and Brian M. Fuller
Hydrodynamics of steep streams with planar coarse-grained beds: Turbulence, flow resistance, and implications for sediment transport (doi 10.1002/2016WR019579)
- 2264** G. Lazzaro, C. Soulsby, D. Tetzlaff, and G. Botter
A probabilistic approach to quantifying hydrologic thresholds regulating migration of adult Atlantic salmon into spawning streams (doi 10.1002/2016WR019244)
- 2278** R. I. Ferguson, B. P. Sharma, R. J. Hardy, R. A. Hodge, and J. Warburton
Flow resistance and hydraulic geometry in contrasting reaches of a bedrock channel
(doi 10.1002/2016WR020233)
- 2294** Joanne E. van der Spek and Mark Bakker
The influence of the length of the calibration period and observation frequency on predictive uncertainty in time series modeling of groundwater dynamics (doi 10.1002/2016WR019704)
- 2312** Daryl Lam, Chris Thompson, Jacky Croke, Ashneel Sharma, and Mark Macklin
Reducing uncertainty with flood frequency analysis: The contribution of paleoflood and historical flood information (doi 10.1002/2016WR019959)
- 2328** Chen Bao, Li Li, Yuning Shi, and Christopher Duffy
Understanding watershed hydrogeochemistry: 1. Development of RT-Flux-PIHM* (doi 10.1002/2016WR018934)

*This article is a companion to Li et al. [2017], doi:10.1002/2016WR018935.

*This article is part of a Special Section—Concentration-discharge Relations in the Critical Zone

- 2346** *Li Li, Chen Bao, Pamela L. Sullivan, Susan Brantley, Yuning Shi, and Christopher Duffy*
Understanding watershed hydrogeochemistry: 2. Synchronized hydrological and geochemical processes drive stream chemostatic behavior* (doi 10.1002/2016WR018935)
- *This article is a companion to *Li et al.* [2017], doi:10.1002/2016WR018934.
- *This article is part of a Special Section—Concentration-discharge Relations in the Critical Zone
- 2368** *Arnulfo A. Aguirre, Louis A. Derry, Taylor J. Mills, and Suzanne P. Anderson*
Colloidal transport in the Gordon Gulch catchment of the Boulder Creek CZO and its effect on C-Q relationships for silicon* (doi 10.1002/2016WR019730)
- *This article is part of a Special Section—Concentration-discharge Relations in the Critical Zone
- 2384** *Duncan MacEwan, Mesut Cayar, Ali Taghavi, David Mitchell, Steve Hatchett, and Richard Howitt*
Hydroeconomic modeling of sustainable groundwater management (doi 10.1002/2016WR019639)
- 2404** *Bradley Udall and Jonathan Overpeck*
The twenty-first century Colorado River hot drought and implications for the future (doi 10.1002/2016WR019638)
- 2419** *Anthony J. C. Ladd and Piotr Szymczak*
Use and misuse of large-density asymptotics in the reaction-infiltration instability (doi 10.1002/2016WR019263)
- 2431** *Xi Chen, Di Long, Yang Hong, Chao Zeng, and Denghua Yan*
Improved modeling of snow and glacier melting by a progressive two-stage calibration strategy with GRACE and multisource data: How snow and glacier meltwater contributes to the runoff of the Upper Brahmaputra River basin? (doi 10.1002/2016WR019656)
- 2467** *Eric Pohl, Richard Gloaguen, Christoff Andermann, and Malte Knoche*
Glacier melt buffers river runoff in the Pamir Mountains (doi 10.1002/2016WR019431)
- 2490** *Juan Chen, Ping-An Zhong, Yu Zhang, David Navar, and William W.-G. Yeh*
A decomposition-integration risk analysis method for real-time operation of a complex flood control system (doi 10.1002/2016WR019842)
- 2507** *Matthew J. Winnick, Rosemary W. H. Carroll, Kenneth H. Williams, Reed M. Maxwell, Wenming Dong, and Kate Maher*
Snowmelt controls on concentration-discharge relationships and the balance of oxidative and acid-base weathering fluxes in an alpine catchment, East River, Colorado* (doi 10.1002/2016WR019724)
- *This article is part of a Special Section—Concentration-discharge Relations in the Critical Zone
- 2524** *Eliina Isokangas, Pekka M. Rossi, Anna-Kaisa Ronkanen, Hannu Marttila, Kazimierz Rozanski, and Bjørn Kløve*
Quantifying spatial groundwater dependence in peatlands through a distributed isotope mass balance approach (doi 10.1002/2016WR019661)

Technical Reports: Methods

- 2542** *A. R. Kacimov and Yu. V. Obnosov*
Analytical solution for tension-saturated and unsaturated flow from wicking porous pipes in subsurface irrigation: The Kornev-Philip legacies revisited (doi 10.1002/2016WR019919)
- 2553** *J. C. Zappala, K. Bailey, P. Mueller, T. P. O'Connor, and R. Purtschert*
Rapid processing of ⁸⁵Kr/Kr ratios using Atom Trap Trace Analysis (doi 10.1002/2016WR020082)
- 2559** *James F. Kelly, Diogo Bolster, Mark M. Meerschaert, Jennifer D. Drummond, and Aaron I. Packman*
FracFit: A robust parameter estimation tool for fractional calculus models (doi 10.1002/2016WR019748)

Comments and Replies

- 2568** *Lieke A. Melsen, Paul J. J. F. Torfs, Remko Uijlenhoet, and Adriaan J. Teuling*
Comment on "Most computational hydrology is not reproducible, so is it really science?" by Christopher Hutton et al.* (doi 10.1002/2016WR020208)
- *This article is a comment on *Hutton et al.* [2016], doi:10.1002/2016WR019285.
- 2570** *Christopher Hutton, Thorsten Wagener, Jim Freer, Dawei Han, Chris Duffy, and Berit Arheimer*
Reply to comment by Melsen et al. on "Most computational hydrology is not reproducible, so is it really science?*" (doi 10.1002/2017WR020476)
- *This article is a reply to a comment by *Melsen et al.* [2017], doi:10.1002/2016WR020208.

2572 *Juan A. Añel*

Comment on "Most computational hydrology is not reproducible, so is it really science?" by Christopher Hutton et al." (doi 10.1002/2016WR020190)

*This article is a comment on *Hutton et al.* [2016], doi:10.1002/2016WR019285.

2575 *Christopher Hutton, Thorsten Wagener, Jim Freer, Dawei Han, Chris Duffy, and Berit Arheimer*

Reply to comment by Añel on "Most computational hydrology is not reproducible, so is it really science?" (doi 10.1002/2017WR020480)

*This article is a reply to a comment by *Añel* [2017], doi:10.1002/2016WR020190.