Stefan Finsterle

List of Publications by Year
in descending order

116 papers	3,293 citations	147801 31 h-index	189892 50 g-index
123 all docs	123 docs citations	123 times ranked	2812 citing authors

#	Article	IF	Citations
1	Electrokinetic coupling in unsaturated porous media. Journal of Colloid and Interface Science, 2007, 313, 315-327.	9.4	205
2	Estimation of field-scale soil hydraulic and dielectric parameters through joint inversion of GPR and hydrological data. Water Resources Research, 2005, 41, .	4.2	202
3	Making sense of global sensitivity analyses. Computers and Geosciences, 2014, 65, 84-94.	4.2	149
4	Estimating flow parameter distributions using ground-penetrating radar and hydrological measurements during transient flow in the vadose zone. Advances in Water Resources, 2004, 27, 583-599.	3.8	131
5	Ground surface temperature reconstructions: Using in situ estimates for thermal conductivity acquired with a fiberâ€optic distributed thermal perturbation sensor. Geophysical Research Letters, 2008, 35, .	4.0	102
6	Multiphase Inverse Modeling: Review and iTOUGH2 Applications. Vadose Zone Journal, 2004, 3, 747-762.	2.2	76
7	Approximation errors and truncation of computational domains with application to geophysical tomography. Inverse Problems and Imaging, 2007, 1, 371-389.	1.1	69
8	Modeling the performance of large-scale CO2 storage systems: A comparison of different sensitivity analysis methods. International Journal of Greenhouse Gas Control, 2013, 17, 189-205.	4.6	65
9	Inversion of tracer test data using tomographic constraints. Water Resources Research, 2006, 42, .	4.2	64
10	Solving the Estimation-Identification Problem in Two-Phase Flow Modeling. Water Resources Research, 1995, 31, 913-924.	4.2	60
11	Using the continuum approach to model unsaturated flow in fractured rock. Water Resources Research, 2000, 36, 2055-2066.	4.2	60
12	TOUGH3: A new efficient version of the TOUGH suite of multiphase flow and transport simulators. Computers and Geosciences, 2017, 108, 2-7.	4.2	60
13	Solving iTOUGH2 simulation and optimization problems using the PEST protocol. Environmental Modelling and Software, 2011, 26, 959-968.	4.5	59
14	Field tests and model analyses of seepage into drift. Journal of Contaminant Hydrology, 1999, 38, 323-347.	3.3	56
15	Determining permeability of tight rock samples using inverse modeling. Water Resources Research, 1997, 33, 1803-1811.	4.2	55
16	Single-well experimental design for studying residual trapping of supercritical carbon dioxide. International Journal of Greenhouse Gas Control, 2011, 5, 88-98.	4.6	48
17	Corrosion-induced gas generation in a nuclear waste repository: Reactive geochemistry and multiphase flow effects. Applied Geochemistry, 2008, 23, 3423-3433.	3.0	47
18	Characterization and prediction of subsurface pneumatic response at Yucca Mountain, Nevada. Journal of Contaminant Hydrology, 1999, 38, 47-68.	3.3	45

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19	Dynamic inversion for hydrological process monitoring with electrical resistance tomography under model uncertainties. Water Resources Research, 2010, 46, .	4.2	45
20	Joint Hydrologicalâ€“Geophysical Inversion for Soil Structure Identification. Vadose Zone Journal, 2008, 7, 287-293.	2.2	43
21	Water Saturation Relations and Their Diffusionâ€Limited Equilibration in Gas Shale: Implications for Gas Flow in Unconventional Reservoirs. Water Resources Research, 2017, 53, 9757-9770.	4.2	41
22	Inverse and predictive modeling of seepage into underground openings. Journal of Contaminant Hydrology, 2003, 62-63, 89-109.	3.3	40
23	Information entropy to measure temporal and spatial complexity of unsaturated flow in heterogeneous media. Water Resources Research, 2002, 38, 49-1-49-11.	4.2	39
24	Robust estimation of hydrogeologic model parameters. Water Resources Research, 1998, 34, 2939-2947.	4.2	38
25	A time-convolution approach for modeling heat exchange between a wellbore and surrounding formation. Geothermics, 2011, 40, 261-266.	3.4	38
26	Dynamical inversion of geophysical ERT data: state estimation in the vadose zone. Inverse Problems in Science and Engineering, 2009, 17, 715-736.	1.2	37
27	Factors Governing Sustainable Groundwater Pumping near a River. Ground Water, 2011, 49, 432-444.	1.3	36
28	Coupled modeling of hydrogeochemical and electrical resistivity data for exploring the impact of recharge on subsurface contamination. Water Resources Research, 2011, 47, .	4.2	35
29	Advances in subsurface modeling using the TOUGH suite of simulators. Computers and Geosciences, 2014, 65, 2-12.	4.2	35
30	Practical notes on local dataâ€worth analysis. Water Resources Research, 2015, 51, 9904-9924.	4.2	35
31	Advanced Vadose Zone Simulations Using TOUGH. Vadose Zone Journal, 2008, 7, 601-609.	2.2	34
32	Inverse modeling of ground surface uplift and pressure with iTOUGH-PEST and TOUGH-FLAC: The case of CO2 injection at In Salah, Algeria. Computers and Geosciences, 2017, 108, 98-109.	4.2	33
33	Constraining CO2 simulations by coupled modeling and inversion of electrical resistance and gas composition data. International Journal of Greenhouse Gas Control, 2013, 18, 510-522.	4.6	32
34	Numerical trajectory calculations for the efficient inversion of transient flow and tracer observations. Water Resources Research, 2004, 40, .	4.2	31
35	A truncated Levenbergâ€“Marquardt algorithm for the calibration of highly parameterized nonlinear models. Computers and Geosciences, 2011, 37, 731-738.	4.2	31
36	A Sensitivity Study on Regional Pressure Buildup from Large-Scale CO2 Storage Projects. Energy Procedia, 2011, 4, 4371-4378.	1.8	30

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37	Experimental examination of the relationships among chemicoâ€osmotic, hydraulic, and diffusion parameters of Wakkanai mudstones. Journal of Geophysical Research: Solid Earth, 2014, 119, 4178-4201.	3.4	29
38	Thermal-hydraulic experiments with bentonite/crushed rock mixtures and estimation of effective parameters by inverse modeling. Applied Clay Science, 2003, 23, 111-120.	5.2	28
39	iTOUGH2: A multiphysics simulation-optimization framework for analyzing subsurface systems. Computers and Geosciences, 2017, 108, 8-20.	4.2	28
40	Inverse modeling of a radial multistep outflow experiment for determining unsaturated hydraulic properties. Advances in Water Resources, 1999, 22, 431-444.	3.8	27
41	System-level modeling for economic evaluation of geological CO2 storage in gas reservoirs. Energy Conversion and Management, 2007, 48, 1827-1833.	9.2	27
42	Microhole arrays for improved heat mining from enhanced geothermal systems. Geothermics, 2013, 47, 104-115.	3.4	27
43	Physical and Numerical Model of Colloidal Silica Injection for Passive Site Stabilization. Vadose Zone Journal, 2004, 3, 917-925.	2.2	26
44	Investigation of two-phase flow phenomena associated with corrosion in an SF/HLW repository in Opalinus Clay, Switzerland. Physics and Chemistry of the Earth, 2008, 33, S317-S326.	2.9	26
45	Site characterization of the Yucca Mountain disposal system for spent nuclear fuel and high-level radioactive waste. Reliability Engineering and System Safety, 2014, 122, 32-52.	8.9	26
46	Hydrologic and Water Quality Models: Sensitivity. Transactions of the ASABE, 2015, 58, 1721-1744.	1.1	25
47	Ion Diffusion Within Water Films in Unsaturated Porous Media. Environmental Science & Technology, 2017, 51, 4338-4346.	10.0	24
48	Thermal Evolution near Heat-Generating Nuclear Waste Canisters Disposed in Horizontal Drillholes. Energies, 2019, 12, 596.	3.1	24
49	Evaluation of alternative designs for an injectable subsurface barrier at the Brookhaven National Laboratory Site, Long Island, New York. Water Resources Research, 1999, 35, 2937-2953.	4.2	22
50	Demonstration of optimization techniques for groundwater plume remediation using iTOUGH2. Environmental Modelling and Software, 2006, 21, 665-680.	4.5	22
51	Numerical simulations of the Macondo well blowout reveal strong control of oil flow by reservoir permeability and exsolution of gas. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 20254-20259.	7.1	22
52	Integrating structural geological data into the inverse modelling framework of iTOUGH2. Computers and Geosciences, 2014, 65, 95-109.	4.2	22
53	MPiTOUGH2: A parallel parameter estimation framework for hydrological and hydrogeophysical applications. Computers and Geosciences, 2014, 65, 127-135.	4.2	22
54	Percolation-theory and fuzzy rule-based probability estimation of fault leakage at geologic carbon sequestration sites. Environmental Earth Sciences, 2010, 59, 1447-1459.	2.7	21

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55	Reduced order models for many-query subsurface flow applications. Computational Geosciences, 2013, 17, 705-721.	2.4	21
56	Migration of a water pulse through fractured porous media. Journal of Contaminant Hydrology, 2002, 54, 37-57.	3.3	20
57	Inverse modeling and forecasting for the exploitation of the Pauzhetsky geothermal field, Kamchatka, Russia. Geothermics, 2008, 37, 540-562.	3.4	20
58	Model evaluation of denitrification under rapid infiltration basin systems. Journal of Contaminant Hydrology, 2013, 152, 18-34.	3.3	20
59	Comparing Nonlinear Regression and Markov Chain Monte Carlo Methods for Assessment of Prediction Uncertainty in Vadose Zone Modeling. Vadose Zone Journal, 2012, 11, vzj2011.0147.	2.2	18
60	On parameterization of the inverse problem for estimating aquifer properties using tracer data. Water Resources Research, 2012, 48, .	4.2	18
61	Analyzing the impact of reaction models on the production of hydrocarbons from thermally upgraded oil shales. Journal of Petroleum Science and Engineering, 2018, 168, 448-464.	4.2	18
62	Probability estimation of CO2 leakage through faults at geologic carbon sequestration sites. Energy Procedia, 2009, 1, 41-46.	1.8	17
63	Simulations of CO2 injection into fractures and faults for improving their geophysical characterization at EGS sites. Geothermics, 2017, 69, 189-201.	3.4	17
64	Estimating the reaction parameters of oil shale pyrolysis and oil shale grade using temperature transient analysis and inverse modeling. Journal of Petroleum Science and Engineering, 2018, 165, 765-776.	4.2	17
65	Using distributed temperature sensing to detect CO2 leakage along the injection well casing. International Journal of Greenhouse Gas Control, 2018, 74, 9-18.	4.6	16
66	Disposal of High-Level Nuclear Waste in Deep Horizontal Drillholes. Energies, 2019, 12, 2052.	3.1	16
67	Transport of radon gas into a tunnel at Yucca Mountainâ€"estimating large-scale fractured tuff hydraulic properties and implications for the operation of the ventilation system. Journal of Contaminant Hydrology, 2004, 70, 153-171.	3.3	15
68	Effects of diffusive property heterogeneity on effective matrix diffusion coefficient for fractured rock. Water Resources Research, 2006, 42, .	4.2	15
69	Estimation of Landfill Gas Generation Rate and Gas Permeability Field of Refuse Using Inverse Modeling. Transport in Porous Media, 2011, 90, 41-58.	2.6	15
70	Modeling of coupled wellbore-reservoir flow in steam-like supercritical geothermal systems. Geothermics, 2020, 86, 101793.	3.4	15
71	Development of a mechanistic model for the movement of chemical signatures from buried land mines/UXO. , 1999, , .		14
72	Multiphase Inverse Modeling: Review and iTOUGH2 Applications. Vadose Zone Journal, 2004, 3, 747-762.	2.2	14

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73	Error handling strategies in multiphase inverse modeling. Computers and Geosciences, 2011, 37, 724-730.	4.2	14
74	A high-performance workflow system for subsurface simulation. Environmental Modelling and Software, 2014, 55, 176-189.	4.5	14
75	Evaluation of multiple reduced-order models to enhance confidence in global sensitivity analyses. International Journal of Greenhouse Gas Control, 2016, 49, 217-226.	4.6	14
76	Iterative Importance Sampling Algorithms for Parameter Estimation. SIAM Journal of Scientific Computing, 2018, 40, B329-B352.	2.8	13
77	Commemorating Dr. Gudmundur â€œBoâ€•Bodvarsson (1951â€“2006), a Leader of the Deep Unsaturated Flow and Transport Investigations. Water (Switzerland), 2018, 10, 18.	2.7	13
78	Flow and transport in the drift shadow in a dual-continuum model. Journal of Contaminant Hydrology, 2003, 62-63, 133-156.	3.3	12
79	An iTOUGH2 equation-of-state module for modeling supercritical conditions in geothermal reservoirs. Geothermics, 2015, 57, 8-17.	3.4	12
80	Coupled geomechanics and flow modeling of thermally induced compaction in heavy oil diatomite reservoirs under cyclic steaming. Journal of Petroleum Science and Engineering, 2016, 147, 474-484.	4.2	12
81	Experimental and Numerical Investigation of Flow Phenomena in Nonisothermal, Variably Saturated Bentoniteâ€“Crushed Rock Mixtures. Vadose Zone Journal, 2003, 2, 239-246.	2.2	11
82	Physical and Numerical Model of Colloidal Silica Injection for Passive Site Stabilization. Vadose Zone Journal, 2004, 3, 917-925.	2.2	11
83	TOUGH: Model Use, Calibration, and Validation. Transactions of the ASABE, 2012, 55, 1275-1290.	1.1	11
84	Reduced order modeling in iTOUGH2. Computers and Geosciences, 2014, 65, 118-126.	4.2	11
85	Corrosion Performance of Engineered Barrier System in Deep Horizontal Drillholes. Energies, 2019, 12, 1491.	3.1	11
86	Imaging of a fluid injection process using geophysical data â€” A didactic example. Geophysics, 2020, 85, W1-W16.	2.6	10
87	Two-dimensional liquid water flow through snow at the plot scale in continental snowpacks: simulations and field data comparisons. Cryosphere, 2021, 15, 1423-1434.	3.9	10
88	Modeling Coupled Evaporation and Seepage in Ventilated Cavities. Vadose Zone Journal, 2004, 3, 806-818.	2.2	10
89	An axisymmetric diffusion experiment for the determination of diffusion and sorption coefficients of rock samples. Journal of Contaminant Hydrology, 2011, 123, 114-129.	3.3	9
90	Comparison of Radionuclide Releases from a Conceptual Geological Repository for RBMK-1500 and BWR Spent Nuclear Fuel. Nuclear Technology, 2014, 185, 322-335.	1.2	8

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91	The Effect of Anisotropy on Multi-dimensional Pressure-Pulse-Decay Experiments. Transport in Porous Media, 2018, 123, 545-562.	2.6	8
92	Simulating unsaturated flow fields based on saturation measurements. Journal of Hydraulic Research/De Recherches Hydrauliques, 2004, 42, 121-129.	1.7	7
93	Implicit sampling combined with reduced order modeling for the inversion of vadose zone hydrological data. Computers and Geosciences, 2017, 108, 21-32.	4.2	7
94	Conceptual uncertainties in modelling the interaction between engineered and natural barriers of nuclear waste repositories in crystalline rocks. Geological Society Special Publication, 2019, 482, 261-283.	1.3	7
95	Sensitivity Analysis for Joint Inversion of Ground-Penetrating Radar and Thermal-Hydrological Data from a Large-Scale Underground Heater Test. Nuclear Technology, 2008, 164, 169-179.	1.2	6
96	ADVANCED SIMULATION CAPABILITY FOR ENVIRONMENTAL MANAGEMENT (ASCEM): AN OVERVIEW OF INITIAL RESULTS. Technology and Innovation, 2011, 13, 175-199.	0.2	6
97	Application of a Coupled Overland Flowâ€“Vadose Zone Model to Rapid Infiltration Basin Systems. Vadose Zone Journal, 2012, 11, vzj2011.0140.	2.2	6
98	Tensiometry in fractured rocks. , 2000, , .		6
99	Sealing of a Deep Horizontal Borehole Repository for Nuclear Waste. Energies, 2021, 14, 91.	3.1	6
100	Bentonite Alteration Due to Thermal-Hydro-Chemical Processes During the Early Thermal Period in a Nuclear Waste Repository. Nuclear Technology, 2011, 174, 438-451.	1.2	5
101	Estimating CO2 residual trapping from a single-well test: Experimental design calculations. Energy Procedia, 2011, 4, 5044-5049.	1.8	5
102	Advances in Multiphase Flow and Transport in the Subsurface Environment. Geofluids, 2018, 2018, 1-2.	0.7	5
103	Three-dimensional fracture continuum characterization aided by surface time-domain electromagnetics and hydrogeophysical joint inversionâ€”proof-of-concept. Computational Geosciences, 2020, 24, 1895-1909.	2.4	4
104	Post-Closure Safety Analysis of Nuclear Waste Disposal in Deep Vertical Boreholes. Energies, 2021, 14, 6356.	3.1	4
105	Pragmatic Validation of Numerical Models Used for the Assessment of Radioactive Waste Repositories: A Perspective. Energies, 2022, 15, 3585.	3.1	4
106	Evaluation of geothermal well behavior using inverse modeling. Geophysical Monograph Series, 2000, , 377-387.	0.1	3
107	A qualitative assessment of microclimatic perturbations in a tunnel. International Journal of Climatology, 2008, 28, 2081-2087.	3.5	3
108	Parameter estimation from flowing fluid temperature logging data in unsaturated fractured rock using multiphase inverse modeling. Water Resources Research, 2009, 45, .	4.2	3

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109	Multi-Level CO2 Injection Testing and Monitoring at the South West Hub In-Situ Laboratory. Energy Procedia, 2018, 154, 151-156.	1.8	3
110	Post-Closure Safety Calculations for the Disposal of Spent Nuclear Fuel in a Generic Horizontal Drillhole Repository. Energies, 2020, 13, 2599.	3.1	3
111	Experimental and Numerical Investigation of Flow Phenomena in Nonisothermal, Variably Saturated Bentonite-Crushed Rock Mixtures. Vadose Zone Journal, 2003, 2, 239-246.	2.2	3
112	Fast high-resolution prediction of multi-phase flow in fractured formations. Advances in Water Resources, 2016, 88, 80-85.	3.8	2
113	THE USE OF NUMERICAL MODELS IN SUPPORT OF SITE CHARACTERIZATION AND PERFORMANCE ASSESSMENT STUDIES FOR GEOLOGICAL REPOSITORIES. Nuclear Engineering and Technology, 2010, 42, 145-150.	2.3	2
114	Comment on â€œSeepage into drifts and tunnels in unsaturated fractured rockâ€•by Dani Or, Markus Tuller, and Randall Fedors. Water Resources Research, 2006, 42, .	4.2	1
115	Research Advances in Vadose Zone Hydrology through Simulations with the TOUGH Codes: Preface from the Guest Editors. Vadose Zone Journal, 2004, 3, 737-737.	2.2	0
116	Hydrogeophysical joint inversion capabilities and impact of petrophysical assumptions. , 2013, , .		0