Wolfgang Nowak

List of Publications by Year in descending order

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#	Article	IF	CITATIONS
1	Diagnosis of Model Errors With a Sliding Timeâ€Window Bayesian Analysis. Water Resources Research, 2022, 58, .	1.7	7
2	Lumped geohydrological modelling for long-term predictions of groundwater storage and depletion. Journal of Hydrology, 2022, 606, 127347.	2.3	5
3	Optimal design of experiments to improve the characterisation of atrazine degradation pathways in soil. European Journal of Soil Science, 2022, 73, .	1.8	1
4	Combining Crop Modeling with Remote Sensing Data Using a Particle Filtering Technique to Produce Real-Time Forecasts of Winter Wheat Yields under Uncertain Boundary Conditions. Remote Sensing, 2022, 14, 1360.	1.8	7
5	Optimization-based clustering of random fields for computationally efficient and goal-oriented uncertainty quantification: Concept and demonstration for delineation of wellhead protection areas in transient aquifers. Advances in Water Resources, 2022, 162, 104146.	1.7	1
6	Sequential Design of Computer Experiments for the Computation of Bayesian Model Evidence. SIAM-ASA Journal on Uncertainty Quantification, 2021, 9, 260-279.	1.1	1
7	Global sensitivity analysis of a CaO/Ca(OH)2 thermochemical energy storage model for parametric effect analysis. Applied Energy, 2021, 285, 116456.	5.1	9
8	The Role of Fast Frequency Response of Energy Storage Systems and Renewables for Ensuring Frequency Stability in Future Low-Inertia Power Systems. Sustainability, 2021, 13, 5656.	1.6	11
9	Characterization of Export Regimes in Concentration–Discharge Plots via an Advanced Time-Series Model and Event-Based Sampling Strategies. Water (Switzerland), 2021, 13, 1723.	1.2	3
10	Overcoming the Modelâ€Dataâ€Fit Problem in Porous Media: A Quantitative Method to Compare Invasionâ€Percolation Models to Highâ€Resolution Data. Water Resources Research, 2021, 57, e2021WR029986.	1.7	2
11	Resampling method for reliability-based design optimization based on thermodynamic integration and parallel tempering. Mechanical Systems and Signal Processing, 2021, 156, 107630.	4.4	3
12	How Do Fractures Influence Hyporheic Exchange in Sedimentary Rock Riverbeds?. Water Resources Research, 2021, 57, e2020WR028476.	1.7	3
13	Surrogate-based Bayesian comparison of computationally expensive models: application to microbially induced calcite precipitation. Computational Geosciences, 2021, 25, 1899-1917.	1.2	7
14	Efficient Discretizationâ€Independent Bayesian Inversion of Highâ€Dimensional Multiâ€Gaussian Priors Using a Hybrid MCMC. Water Resources Research, 2021, 57, e2021WR030051.	1.7	8
15	Toward Sustainable Urban Drainage Infrastructure Planning: A Combined Multiobjective Optimization and Multicriteria Decision-Making Platform. Journal of Water Resources Planning and Management - ASCE, 2021, 147, .	1.3	22
16	Bayesian Inversion of Multiâ€Gaussian Logâ€Conductivity Fields With Uncertain Hyperparameters: An Extension of Preconditioned Crankâ€Nicolson Markov Chain Monte Carlo With Parallel Tempering. Water Resources Research, 2021, 57, e2021WR030313.	1.7	9
17	Investigating the pilot point ensemble Kalman filter for geostatistical inversion and data assimilation. Advances in Water Resources, 2021, 155, 104010.	1.7	9
18	Integration of seawater pumped storage and desalination in multi-energy systems planning: The case of copper as a key material for the energy transition. Applied Energy, 2021, 299, 117298.	5.1	8

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19	Integrating Structural Resilience in the Design of Urban Drainage Networks in Flat Areas Using a Simplified Multi-Objective Optimization Framework. Water (Switzerland), 2021, 13, 269.	1.2	10
20	The Four Ways to Consider Measurement Noise in Bayesian Model Selection ―And Which One to Choose. Water Resources Research, 2021, 57, e2021WR030391.	1.7	3
21	Evaluating Subsurface Parameterization to Simulate Hyporheic Exchange: The Steinlach River Test Site. Ground Water, 2020, 58, 93-109.	0.7	5
22	Renewable energy in copper production: A review on systems design and methodological approaches. Journal of Cleaner Production, 2020, 246, 118978.	4.6	33
23	Should environmental constraints be considered in linear programming based water value calculators?. International Journal of Electrical Power and Energy Systems, 2020, 117, 105662.	3.3	6
24	Joint Optimization of Measurement and Modeling Strategies With Application to Radial Flow in Stratified Aquifers. Water Resources Research, 2020, 56, e2019WR026872.	1.7	2
25	Exploratory-Phase-Free Estimation of GP Hyperparameters in Sequential Design Methods—At the Example of Bayesian Inverse Problems. Frontiers in Artificial Intelligence, 2020, 3, 52.	2.0	2
26	Preconditioned Crankâ€Nicolson Markov Chain Monte Carlo Coupled With Parallel Tempering: An Efficient Method for Bayesian Inversion of Multiâ€Gaussian Logâ€Hydraulic Conductivity Fields. Water Resources Research, 2020, 56, e2020WR027110.	1.7	7
27	Sampling behavioral model parameters for ensemble-based sensitivity analysis using Gaussian process emulation and active subspaces. Stochastic Environmental Research and Risk Assessment, 2020, 34, 1813-1830.	1.9	7
28	Bayesian3 Active Learning for the Gaussian Process Emulator Using Information Theory. Entropy, 2020, 22, 890.	1.1	15
29	Improving Thermochemical Energy Storage Dynamics Forecast with Physics-Inspired Neural Network Architecture. Energies, 2020, 13, 3873.	1.6	5
30	Strategies for Simplifying Reactive Transport Models: A Bayesian Model Comparison. Water Resources Research, 2020, 56, e2020WR028100.	1.7	3
31	Bayesian Model Weighting: The Many Faces of Model Averaging. Water (Switzerland), 2020, 12, 309.	1.2	5
32	Bayesian Calibration and Validation of a Large‧cale and Timeâ€Demanding Sediment Transport Model. Water Resources Research, 2020, 56, e2019WR026966.	1.7	18
33	Copper mining: 100% solar electricity by 2030?. Applied Energy, 2020, 262, 114506.	5.1	27
34	Reliability analysis with stratified importance sampling based on adaptive Kriging. Reliability Engineering and System Safety, 2020, 197, 106852.	5.1	82
35	Floating photovoltaic plants: Ecological impacts versus hydropower operation flexibility. Energy Conversion and Management, 2020, 206, 112414.	4.4	71
36	Forward-reverse switch between density-based and regional sensitivity analysis. Applied Mathematical Modelling, 2020, 84, 377-392.	2.2	6

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37	Bayesian inversion of hierarchical geostatistical models using a parallel-tempering sequential Gibbs MCMC. Advances in Water Resources, 2020, 141, 103614.	1.7	11
38	Sensitivity of Simulated Hyporheic Exchange to River Bathymetry: The Steinlach River Test Site. Ground Water, 2019, 57, 378-391.	0.7	14
39	Hybrid green-blue-gray decentralized urban drainage systems design, a simulation-optimization framework. Journal of Environmental Management, 2019, 249, 109364.	3.8	46
40	Estimation of small failure probabilities based on thermodynamic integration and parallel tempering. Mechanical Systems and Signal Processing, 2019, 133, 106248.	4.4	18
41	Hanging Gardens Algorithm to Generate Decentralized Layouts for the Optimization of Urban Drainage Systems. Journal of Water Resources Planning and Management - ASCE, 2019, 145, .	1.3	23
42	The hydrologist's guide to Bayesian model selection, averaging and combination. Journal of Hydrology, 2019, 572, 96-107.	2.3	49
43	Energy storage and transmission systems to save the fish? Minimizing hydropeaking for little extra cost. Sustainable Energy Technologies and Assessments, 2019, 35, 41-47.	1.7	5
44	Trajectories as Training Images to Simulate Advectiveâ€Ðiffusive, Nonâ€Fickian Transport. Water Resources Research, 2019, 55, 3465-3480.	1.7	5
45	Dynamic re-distribution of pumping rates in well fields to counter transient problems in groundwater production. Groundwater for Sustainable Development, 2019, 8, 606-616.	2.3	4
46	Studying the integration of solar energy into the operation of a semi-autogenous grinding mill. Part II: Effect of ore hardness variability, geometallurgical modeling and demand side management. Minerals Engineering, 2019, 137, 53-67.	1.8	15
47	The comprehensive differential split-sample test: A stress-test for hydrological model robustness under climate variability. Journal of Hydrology, 2019, 573, 501-515.	2.3	40
48	Studying the integration of solar energy into the operation of a semi-autogenous grinding mill. Part I: Framework, model development and effect of solar irradiance forecasting. Minerals Engineering, 2019, 137, 68-77.	1.8	12
49	Search Space Representation and Reduction Methods to Enhance Multiobjective Water Supply Monitoring Design. Water Resources Research, 2019, 55, 2257-2278.	1.7	8
50	The Connection between Bayesian Inference and Information Theory for Model Selection, Information Gain and Experimental Design. Entropy, 2019, 21, 1081.	1.1	14
51	Reliability sensitivity analysis with subset simulation: application to a carbon dioxide storage problem. IOP Conference Series: Materials Science and Engineering, 2019, 615, 012051.	0.3	4
52	A Graph-Theory Based Algorithm to Generate Decentralized Urban Drainage Layouts. Green Energy and Technology, 2019, , 633-637.	0.4	2
53	Comparison of data-driven uncertainty quantification methods for a carbon dioxide storage benchmark scenario. Computational Geosciences, 2019, 23, 339-354.	1.2	21
54	A new solution to mitigate hydropeaking? Batteries versus re-regulation reservoirs. Journal of Cleaner Production, 2019, 210, 477-489.	4.6	21

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55	Multi-objective planning of energy storage technologies for a fully renewable system: Implications for the main stakeholders in Chile. Energy Policy, 2019, 126, 494-506.	4.2	26
56	A Primer for Model Selection: The Decisive Role of Model Complexity. Water Resources Research, 2018, 54, 1688-1715.	1.7	71
57	Reconnecting Stochastic Methods With Hydrogeological Applications: A Utilitarian Uncertainty Analysis and Risk Assessment Approach for the Design of Optimal Monitoring Networks. Water Resources Research, 2018, 54, 2270-2287.	1.7	9
58	How much electrical energy storage do we need? A synthesis for the U.S., Europe, and Germany. Journal of Cleaner Production, 2018, 181, 449-459.	4.6	130
59	Explicit treatment for Dirichlet, Neumann and Cauchy boundary conditions in POD-based reduction of groundwater models. Advances in Water Resources, 2018, 115, 160-171.	1.7	18
60	Incomplete statistical information limits the utility of high-order polynomial chaos expansions. Reliability Engineering and System Safety, 2018, 169, 137-148.	5.1	22
61	A multi-service approach for planning the optimal mix of energy storage technologies in a fully-renewable power supply. Energy Conversion and Management, 2018, 178, 355-368.	4.4	58
62	Predicting the battery core temperature: Explanatory power of measurement quantities under different uncertainty scenarios. Journal of Energy Storage, 2018, 18, 476-484.	3.9	2
63	Integrating transient behavior as a new dimension to WHPA delineation. Advances in Water Resources, 2018, 119, 178-187.	1.7	5
64	Bayesian selection of hydro-morphodynamic models under computational time constraints. Advances in Water Resources, 2018, 117, 53-64.	1.7	14
65	Improving temperature predictions for Li-ion batteries: data assimilation with a stochastic extension of a physically-based, thermo-electrochemical model. Journal of Energy Storage, 2017, 12, 288-296.	3.9	9
66	Challenges and trends of energy storage expansion planning for flexibility provision in low-carbon power systems – a review. Renewable and Sustainable Energy Reviews, 2017, 80, 603-619.	8.2	109
67	The rocky road to extended simulation frameworks covering uncertainty, inversion, optimization and control. Environmental Modelling and Software, 2017, 93, 180-192.	1.9	7
68	Sequential Design of Computer Experiments for the Solution of Bayesian Inverse Problems. SIAM-ASA Journal on Uncertainty Quantification, 2017, 5, 640-664.	1.1	11
69	Entropy-Based Experimental Design for Optimal Model Discrimination in the Geosciences. Entropy, 2016, 18, 409.	1.1	27
70	Optimal Design of Multitype Groundwater Monitoring Networks Using Easily Accessible Tools. Ground Water, 2016, 54, 861-870.	0.7	21
71	Delineating baseflow contribution areas for streams – A model and methods comparison. Journal of Contaminant Hydrology, 2016, 195, 11-22.	1.6	26
72	Modeling Soil Processes: Review, Key Challenges, and New Perspectives. Vadose Zone Journal, 2016, 15, 1-57.	1.3	445

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73	Identification of contaminant source architectures—A statistical inversion that emulates multiphase physics in a computationally practicable manner. Water Resources Research, 2016, 52, 1009-1025.	1.7	25
74	Bayesian Model Selection Helps To Choose Objectively between Thermodynamic Models: A Demonstration of Selecting a Viscosity Model Based on Entropy Scaling. Industrial & Engineering Chemistry Research, 2016, 55, 10191-10207.	1.8	14
75	Evolution and persistence of cross-directional statistical dependence during finite-Péclet transport through a real porous medium. Water Resources Research, 2016, 52, 8920-8937.	1.7	8
76	Optimization for Early-Warning Monitoring Networks in Well Catchments Should Be Multi-objective, Risk-Prioritized and Robust Against Uncertainty. Transport in Porous Media, 2016, 114, 261-281.	1.2	13
77	Interactive design of experiments: A priori global versus sequential optimization, revised under changing states of knowledge. Water Resources Research, 2015, 51, 7915-7936.	1.7	15
78	A statistical concept to assess the uncertainty in Bayesian model weights and its impact on model ranking. Water Resources Research, 2015, 51, 7524-7546.	1.7	30
79	Bayesian model averaging to explore the worth of data for soilâ€plant model selection and prediction. Water Resources Research, 2015, 51, 2825-2846.	1.7	43
80	AN OPTIMAL SAMPLING RULE FOR NONINTRUSIVE POLYNOMIAL CHAOS EXPANSIONS OF EXPENSIVE MODELS. , 2015, 5, 275-295.		17
81	Anthropogenic Trace Compounds (ATCs) in aquatic habitats — Research needs on sources, fate, detection and toxicity to ensure timely elimination strategies and risk management. Environment International, 2015, 79, 85-105.	4.8	86
82	STakeholder-Objective Risk Model (STORM): Determining the aggregated risk of multiple contaminant hazards in groundwater well catchments. Advances in Water Resources, 2015, 83, 160-175.	1.7	12
83	Finding the right balance between groundwater model complexity and experimental effort via Bayesian model selection. Journal of Hydrology, 2015, 531, 96-110.	2.3	41
84	Predicting DNAPL mass discharge and contaminated site longevity probabilities: Conceptual model and highâ€resolution stochastic simulation. Water Resources Research, 2015, 51, 806-831.	1.7	33
85	A stochastically and spatially adaptive parallel scheme for uncertain and nonlinear two-phase flow problems. Computational Geosciences, 2015, 19, 269-284.	1.2	12
86	A Multi-objective Optimization Concept for Risk-based Early-warning Monitoring Networks in Well Catchments. Procedia Environmental Sciences, 2015, 25, 191-198.	1.3	7
87	A method for implementing Dirichlet and third-type boundary conditions in PTRW simulations. Water Resources Research, 2014, 50, 1374-1395.	1.7	14
88	Model selection on solid ground: Rigorous comparison of nine ways to evaluate <scp>B</scp> ayesian model evidence. Water Resources Research, 2014, 50, 9484-9513.	1.7	107
89	Nine Steps to Riskâ€Informed Wellhead Protection and Management: A Case Study. Ground Water, 2014, 52, 161-174.	0.7	16
90	Kriging and Spatial Design Accelerated by Orders of Magnitude: Combining Low-Rank Covariance Approximations with FFT-Techniques. Mathematical Geosciences, 2013, 45, 411-435.	1.4	20

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91	Catchments as reactors: a comprehensive approach for water fluxes and solute turnover. Environmental Earth Sciences, 2013, 69, 317-333.	1.3	71
92	Bayesian updating via bootstrap filtering combined with data-driven polynomial chaos expansions: methodology and application to history matching for carbon dioxide storage in geological formations. Computational Geosciences, 2013, 17, 671-687.	1.2	36
93	Chaos Expansion based Bootstrap Filter to Calibrate CO2 Injection Models. Energy Procedia, 2013, 40, 398-407.	1.8	20
94	Towards Optimizing Experiments for Maximum-confidence Model Selection between Different Soil-plant Models. Procedia Environmental Sciences, 2013, 19, 514-523.	1.3	8
95	Towards optimal allocation of computer resources: Trade-offs between uncertainty quantification, discretization and model reduction. Environmental Modelling and Software, 2013, 50, 97-107.	1.9	19
96	Geological storage of CO2: Application, feasibility and efficiency of global sensitivity analysis and risk assessment using the arbitrary polynomial chaos. International Journal of Greenhouse Gas Control, 2013, 19, 704-719.	2.3	38
97	Data-driven uncertainty quantification using the arbitrary polynomial chaos expansion. Reliability Engineering and System Safety, 2012, 106, 179-190.	5.1	324
98	Probabilistic exposure risk assessment with advective–dispersive well vulnerability criteria. Advances in Water Resources, 2012, 36, 121-132.	1.7	33
99	Global sensitivity analysis: A flexible and efficient framework with an example from stochastic hydrogeology. Advances in Water Resources, 2012, 37, 10-22.	1.7	60
100	Introduction to the special issue on uncertainty quantification and risk assessment. Advances in Water Resources, 2012, 36, 1-2.	1.7	9
101	Bayesian assessment of the expected data impact on prediction confidence in optimal sampling design. Water Resources Research, 2012, 48, .	1.7	64
102	Parameter estimation by ensemble Kalman filters with transformed data: Approach and application to hydraulic tomography. Water Resources Research, 2012, 48, .	1.7	136
103	A hypothesisâ€driven approach to optimize field campaigns. Water Resources Research, 2012, 48, .	1.7	44
104	Application of Bayesian geostatistics for evaluation of mass discharge uncertainty at contaminated sites. Water Resources Research, 2012, 48, .	1.7	18
105	Flow topology and scalar mixing in spatially heterogeneous flow fields. Geophysical Research Letters, 2012, 39, .	1.5	100
106	Temporal moments revisited: Why there is no better way for physically based model reduction in time. Water Resources Research, 2012, 48, .	1.7	34
107	Stochastic evaluation of mixing-controlled steady-state plume lengths in two-dimensional heterogeneous domains. Journal of Contaminant Hydrology, 2012, 138-139, 22-39.	1.6	45
108	A divide and conquer approach to cope with uncertainty, human health risk, and decision making in contaminant hydrology. Water Resources Research, 2011, 47, .	1.7	29

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109	Stochastic fluxâ€related analysis of transverse mixing in twoâ€dimensional heterogeneous porous media. Water Resources Research, 2011, 47, .	1.7	66
110	Probability density function of steady state concentration in twoâ€dimensional heterogeneous porous media. Water Resources Research, 2011, 47, .	1.7	19
111	A concept for data-driven uncertainty quantification and its application to carbon dioxide storage in geological formations. Advances in Water Resources, 2011, 34, 1508-1518.	1.7	92
112	Flow Radar Glyphs—Static Visualization of Unsteady Flow with Uncertainty. IEEE Transactions on Visualization and Computer Graphics, 2011, 17, 1949-1958.	2.9	51
113	An integrative approach to robust design and probabilistic risk assessment for CO2 storage in geological formations. Computational Geosciences, 2011, 15, 565-577.	1.2	68
114	Measures of Parameter Uncertainty in Geostatistical Estimation and Geostatistical Optimal Design. Mathematical Geosciences, 2010, 42, 199-221.	1.4	24
115	On the link between contaminant source release conditions and plume prediction uncertainty. Journal of Contaminant Hydrology, 2010, 116, 24-34.	1.6	38
116	Bayesian geostatistical design: Taskâ€driven optimal site investigation when the geostatistical model is uncertain. Water Resources Research, 2010, 46, .	1.7	103
117	Uncertainty evaluation of mass discharge estimates from a contaminated site using a fully Bayesian framework. Water Resources Research, 2010, 46, .	1.7	62
118	Application of FFT-based Algorithms for Large-Scale Universal Kriging Problems. Mathematical Geosciences, 2009, 41, 509-533.	1.4	43
119	Best unbiased ensemble linearization and the quasiâ€linear Kalman ensemble generator. Water Resources Research, 2009, 45, .	1.7	84
120	Drainage in heterogeneous sand columns with different geometric structures. Advances in Water Resources, 2008, 31, 1205-1220.	1.7	32
121	Probability density functions of hydraulic head and velocity in threeâ€dimensional heterogeneous porous media. Water Resources Research, 2008, 44, .	1.7	44
122	Impact of sampling volume on the probability density function of steady state concentration. Water Resources Research, 2008, 44, .	1.7	49
123	Geostatistical inference of hydraulic conductivity and dispersivities from hydraulic heads and tracer data. Water Resources Research, 2006, 42, .	1.7	62
124	Experiments on vertical transverse mixing in a large-scale heterogeneous model aquifer. Journal of Contaminant Hydrology, 2005, 80, 130-148.	1.6	64
125	Geostatistical inverse modeling of transient pumping tests using temporal moments of drawdown. Water Resources Research, 2005, 41, .	1.7	73
126	A modified Levenberg–Marquardt algorithm for quasi-linear geostatistical inversing. Advances in Water Resources, 2004, 27, 737-750.	1.7	66

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127	First-order variance of travel time in nonstationary formations. Water Resources Research, 2004, 40, .	1.7	20
128	Uncertainty and data worth analysis for the hydraulic design of funnel-and-gate systems in heterogeneous aquifers. Water Resources Research, 2004, 40, .	1.7	34
129	Title is missing!. Mathematical Geosciences, 2003, 35, 53-66.	0.9	72
130	Dispersion on kriged hydraulic conductivity fields. Water Resources Research, 2003, 39, .	1.7	10
131	A Stochastic Framework to Optimize Monitoring Strategies for Delineating Groundwater Divides. Frontiers in Earth Science, 0, 8, .	0.8	2
132	Optimal Exposure Time in Gamma-Ray Attenuation Experiments for Monitoring Time-Dependent Densities. Transport in Porous Media, 0, , 1.	1.2	0
133	Diagnosing similarities in probabilistic multi-model ensembles: an application to soil–plant-growth-modeling. Modeling Earth Systems and Environment, 0, , .	1.9	2