Diederick Jacques

List of Publications by Year
in descending order

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120 papers	5,048 citations	81900 39 h-index	98798 67 g-index
126 all docs	126 docs citations	126 times ranked	4855 citing authors

#	Article	IF	Citations
1	Reactive transport codes for subsurface environmental simulation. Computational Geosciences, 2015, 19, 445-478.	2.4	566
2	Modeling Soil Processes: Review, Key Challenges, and New Perspectives. Vadose Zone Journal, 2016, 15, 1-57.	2.2	445
3	Trainingâ€image Based Geostatistical Inversion Using a Spatial Generative Adversarial Neural Network. Water Resources Research, 2018, 54, 381-406.	4.2	232
4	Efficient posterior exploration of a highâ€dimensional groundwater model from twoâ€stage Markov chain Monte Carlo simulation and polynomial chaos expansion. Water Resources Research, 2013, 49, 2664-2682.	4.2	201
5	Inversion using a new low-dimensional representation of complex binary geological media based on a deep neural network. Advances in Water Resources, 2017, 110, 387-405.	3.8	155
6	SPATIAL VARIABILITY OF HYDRAULIC PROPERTIES IN A MULTI-LAYERED SOIL PROFILE. Soil Science, 1996, 161, 167-181.	0.9	142
7	Diffusivity of saturated ordinary Portland cement-based materials: A critical review of experimental and analytical modelling approaches. Cement and Concrete Research, 2016, 90, 52-72.	11.0	123
8	Effect of limestone fillers on microstructure and permeability due to carbonation of cement pastes under controlled CO 2 pressure conditions. Construction and Building Materials, 2015, 82, 376-390.	7.2	105
9	TEMPORAL PERSISTENCE IN VERTICAL DISTRIBUTIONS OF SOIL MOISTURE CONTENTS. Soil Science Society of America Journal, 2005, 69, 347-352.	2.2	99
10	Investigation of the changes in microstructure and transport properties of leached cement pastes accounting for mix composition. Cement and Concrete Research, 2016, 79, 217-234.	11.0	96
11	Modelling coupled water flow, solute transport and geochemical reactions affecting heavy metal migration in a podzol soil. Geoderma, 2008, 145, 449-461.	5.1	95
12	Sensitivity of soil parameters in unsaturated zone modelling and the relation between effective, laboratory andin situ estimates. Hydrological Processes, 2005, 19, 1611-1633.	2.6	94
13	Modelling Water Flow and Solute Transport in Heterogeneous Soils: A Review of Recent Approaches. Biosystems Engineering, 1998, 70, 231-256.	0.4	93
14	Indirect estimation of near-saturated hydraulic conductivity from readily available soil information. Geoderma, 2002, 108, 1-17.	5.1	91
15	Calibration of Richards' and convectionâ€“dispersion equations to field-scale water flow and solute transport under rainfall conditions. Journal of Hydrology, 2002, 259, 15-31.	5.4	91
16	Development and analysis of the Soil Water Infiltration Global database. Earth System Science Data, 2018, 10, 1237-1263.	9.9	85
17	Including prior information in the estimation of effective soil parameters in unsaturated zone modelling. Journal of Hydrology, 2004, 294, 251-269.	5.4	79
18	Modelling the carbonation of cement pastes under a CO2 pressure gradient considering both diffusive and convective transport. Construction and Building Materials, 2016, 114, 333-351.	7.2	79

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19	Modelling chemical degradation of concrete during leaching with rain and soil water types. Cement and Concrete Research, 2010, 40, 1306-1313.	11.0	76
20	Fieldâ€Scale Water Flow Simulations Using Ensembles of Pedotransfer Functions for Soil Water Retention. Vadose Zone Journal, 2006, 5, 234-247.	2.2	71
21	MULTICOMPONENT GEOCHEMICAL TRANSPORT MODELING USING HYDRUSâ€1D AND HP1¹. Journal of the American Water Resources Association, 2006, 42, 1537-1547.	2.4	70
22	Determination of water permeability of cementitious materials using a controlled constant flow method. Construction and Building Materials, 2013, 47, 1488-1496.	7.2	69
23	Overview of inert tracer experiments in key belgian soil types: Relation between transport and soil morphological and hydraulic properties. Water Resources Research, 2001, 37, 2873-2888.	4.2	65
24	Multimodel Simulation of Water Flow in a Field Soil Using Pedotransfer Functions. Vadose Zone Journal, 2009, 8, 1-10.	2.2	65
25	Implementation and evaluation of permeability-porosity and tortuosity-porosity relationships linked to mineral dissolution-precipitation. Computational Geosciences, 2015, 19, 655-671.	2.4	60
26	Operator-splitting errors in coupled reactive transport codes for transient variably saturated flow and contaminant transport in layered soil profiles. Journal of Contaminant Hydrology, 2006, 88, 197-218.	3.3	57
27	Modeling Coupled Hydrologic and Chemical Processes: Longâ€Term Uranium Transport following Phosphorus Fertilization. Vadose Zone Journal, 2008, 7, 698-711.	2.2	57
28	Modelling the evolution of microstructure and transport properties of cement pastes under conditions of accelerated leaching. Construction and Building Materials, 2016, 115, 179-192.	7.2	57
29	A stochastic approach to simulate water flow in a macroporous soil. Geoderma, 1996, 70, 299-324.	5.1	50
30	Information content and complexity of simulated soil water fluxes. Geoderma, 2006, 134, 253-266.	5.1	49
31	Sensitivity of groundwater recharge using climatic analogues and HYDRUS-1D. Hydrology and Earth System Sciences, 2012, 16, 2485-2497.	4.9	47
32	Verification and intercomparison of reactive transport codes to describe root-uptake. Plant and Soil, 2006, 285, 305-321.	3.7	45
33	Effective diffusivity of cement pastes from virtual microstructures: Role of gel porosity and capillary pore percolation. Construction and Building Materials, 2018, 165, 833-845.	7.2	44
34	Characterisation of the field-saturated hydraulic conductivity on a hillslope: in situ single ring pressure infiltrometer measurements. Journal of Hydrology, 2002, 263, 217-229.	5.4	43
35	Benchmarks for multicomponent reactive transport across a cement/clay interface. Computational Geosciences, 2015, 19, 635-653.	2.4	43
36	Sensitivity analysis of physical and chemical properties affecting field-scale cadmium transport in a heterogeneous soil profile. Journal of Hydrology, 2002, 264, 185-200.	5.4	41

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37	Gradient-based deterministic inversion of geophysical data with generative adversarial networks: Is it feasible?. Computers and Geosciences, 2019, 133, 104333.	4.2	41
38	Analysis of steady state chloride transport through two heterogeneous field soils. Water Resources Research, 1998, 34, 2539-2550.	4.2	40
39	Comparison of three hydraulic property measurement methods. Journal of Hydrology, 1997, 199, 295-318.	5.4	39
40	Probabilistic inference of multiâ€‹scp›G‹/scp›aussian fields from indirect hydrological data using circulant embedding and dimensionality reduction. Water Resources Research, 2015, 51, 4224-4243.	4.2	39
41	Retention of Cs in Boom Clay: Comparison of data from batch sorption tests and diffusion experiments on intact clay cores. Physics and Chemistry of the Earth, 2008, 33, S149-S155.	2.9	38
42	A versatile pore-scale multicomponent reactive transport approach based on lattice Boltzmann method: Application to portlandite dissolution. Physics and Chemistry of the Earth, 2014, 70-71, 127-137.	2.9	33
43	Spatial variability of atrazine sorption parameters and other soil properties in a podzoluvisol. Journal of Contaminant Hydrology, 1999, 36, 31-52.	3.3	32
44	A reactive transport model for mercury fate in soilâ€”application to different anthropogenic pollution sources. Environmental Science and Pollution Research, 2014, 21, 12279-12293.	5.3	32
45	A three-dimensional lattice Boltzmann method based reactive transport model to simulate changes in cement paste microstructure due to calcium leaching. Construction and Building Materials, 2018, 166, 158-170.	7.2	32
46	Experimental and Numerical Investigations of Silver Nanoparticle Transport under Variable Flow and Ionic Strength in Soil. Environmental Science & Technology, 2017, 51, 2096-2104.	10.0	31
47	Impact of manure-related DOM on sulfonamide transport in arable soils. Journal of Contaminant Hydrology, 2016, 192, 118-128.	3.3	28
48	Merging parallel tempering with sequential geostatistical resampling for improved posterior exploration of high-dimensional subsurface categorical fields. Advances in Water Resources, 2016, 90, 57-69.	3.8	28
49	Comparison of alternative methods for deriving hydraulic properties and scaling factors from single-disc tension infiltrometer measurements. Water Resources Research, 2002, 38, 25-1-25-14.	4.2	27
50	INVERSE ESTIMATION OF SOIL HYDRAULIC AND SOLUTE TRANSPORT PARAMETERS FROM TRANSIENT FIELD EXPERIMENTS: HETEROGENEOUS SOIL. Transactions of the American Society of Agricultural Engineers, 2003, 46, 1097.	0.9	26
51	Benchmark problems for reactive transport modeling of the generation and attenuation of acid rock drainage. Computational Geosciences, 2015, 19, 599-611.	2.4	26
52	Data Assimilation with Soil Water Content Sensors and Pedotransfer Functions in Soil Water Flow Modeling. Soil Science Society of America Journal, 2012, 76, 829-844.	2.2	25
53	Nested multiresolution hierarchical simulated annealing algorithm for porous media reconstruction. Physical Review E, 2019, 100, 053316.	2.1	25
54	Geochemical modeling of leaching of Ca, Mg, Al, and Pb from cementitious waste forms. Cement and Concrete Research, 2010, 40, 1298-1305.	11.0	24

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55	Emulation of CPU-demanding reactive transport models: a comparison of Gaussian processes, polynomial chaos expansion, and deep neural networks. Computational Geosciences, 2019, 23, 1193-1215.	2.4	24
56	Simulations of freshwater lens recharge and salt/freshwater interfaces using the HYDRUS and SWI2 packages for MODFLOW. Journal of Hydrology and Hydromechanics, 2018, 66, 246-256.	2.0	23
57	Choice of Pedotransfer Functions Matters when Simulating Soil Water Balance Fluxes. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002404.	3.8	22
58	The HPx software for multicomponent reactive transport during variably-saturated flow: Recent developments and applications. Journal of Hydrology and Hydromechanics, 2018, 66, 211-226.	2.0	22
59	Insights and issues on the correlation between diffusion and microstructure of saturated cement pastes. Cement and Concrete Composites, 2019, 96, 106-117.	10.7	21
60	Determining hydraulic properties of concrete and mortar by inverse modelling. Materials Research Society Symposia Proceedings, 2012, 1475, 367.	0.1	20
61	Inverse optimization of hydraulic, solute transport, and cation exchange parameters using HP1 and UCODE to simulate cation exchange. Journal of Contaminant Hydrology, 2012, 142-143, 109-125.	3.3	20
62	A reactive transport model for mercury fate in contaminated soilâ€"sensitivity analysis. Environmental Science and Pollution Research, 2015, 22, 16830-16842.	5.3	19
63	Deriving Transport Parameters from Transient Flow Leaching Experiments by Approximate Steadyâ€State Flow Convectionâ€"Dispersion Models. Soil Science Society of America Journal, 2000, 64, 1317-1327.	2.2	17
64	Reactive transport modelling to infer changes in soil hydraulic properties induced by non-conventional water irrigation. Journal of Hydrology, 2017, 549, 114-124.	5.4	17
65	A new concept for pore-scale precipitation-dissolution modelling in a lattice Boltzmann framework â€" Application to portlandite carbonation. Applied Geochemistry, 2020, 123, 104786.	3.0	17
66	Study of time dependency of factors affecting the spatial distribution of soil water content in a field-plot. Physics and Chemistry of the Earth, 2001, 26, 629-634.	0.3	16
67	Inverse modelling with a genetic algorithm to derive hydraulic properties of a multi-layered forest soil. Soil Research, 2013, 51, 372.	1.1	16
68	Coupling Flow, Heat, and Reactive Transport Modeling to Reproduce In Situ Redox Potential Evolution: Application to an Infiltration Pond. Environmental Science & Technology, 2020, 54, 12092-12101.	10.0	15
69	Selected HYDRUS modules for modeling subsurface flow and contaminant transport as influenced by biological processes at various scales. Biologia (Poland), 2009, 64, 465-469.	1.5	14
70	Conceptual model analysis of interaction at a concreteâ€"Boom Clay interface. Physics and Chemistry of the Earth, 2014, 70-71, 150-159.	2.9	14
71	Simulating the Fate and Transport of Coal Seam Gas Chemicals in Variably-Saturated Soils Using HYDRUS. Water (Switzerland), 2017, 9, 385.	2.7	14
72	Determination of 137Cs contamination depth distribution in building structures using geostatistical modeling of ISOCS measurements. Applied Radiation and Isotopes, 2013, 79, 25-36.	1.5	13

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73	Decalcification of cracked cement structures. Computational Geosciences, 2015, 19, 673-693.	2.4	13
74	Inorganic carbon fluxes across the vadose zone of planted and unplanted soil mesocosms. Biogeosciences, 2014, 11, 7179-7192.	3.3	12
75	A cement degradation model for evaluating the evolution of retardation factors in radionuclide leaching models. Applied Geochemistry, 2014, 49, 143-158.	3.0	12
76	Coupled reactive transport model study of pore size effects on solubility during cement-bicarbonate water interaction. Chemical Geology, 2017, 466, 588-599.	3.3	12
77	Numerical and Experimental Investigations of Cesium and Strontium Sorption and Transport in Agricultural Soils. Vadose Zone Journal, 2018, 17, 1-14.	2.2	11
78	Shale weathering: A lysimeter and modelling study for flow, transport, gas diffusion and reactivity assessment in the critical zone. Journal of Hydrology, 2020, 587, 124925.	5.4	11
79	Effects of Lime and Concrete Waste on Vadose Zone Carbon Cycling. Vadose Zone Journal, 2014, 13, 1-11.	2.2	10
80	Transport of dissolved organic matter in Boom Clay: Size effects. Journal of Contaminant Hydrology, 2018, 208, 27-34.	3.3	10
81	Comparison of three stream tube models predicting field-scale solute transport. Hydrology and Earth System Sciences, 1997, 1, 873-893.	4.9	9
82	Leaching of Contaminants to Groundwater. , 2011, , 787-850.		9
83	Influence of fracture networks on radionuclide transport from solidified waste forms. Nuclear Engineering and Design, 2014, 270, 162-175.	1.7	9
84	Quantification of leaching kinetics in OPC mortars via a mesoscale model. Construction and Building Materials, 2018, 180, 614-628.	7.2	9
85	Comparison between field measurements and numerical simulation of steady-state solute transport in a heterogeneous soil profile. Hydrology and Earth System Sciences, 1997, 1, 853-871.	4.9	8
86	Effect of spatial variation of textural layers on regional field water balance. Water Resources Research, 2001, 37, 1209-1219.	4.2	8
87	High-resolution moisture profiles from full-waveform probabilistic inversion of TDR signals. Journal of Hydrology, 2014, 519, 2121-2135.	5.4	8
88	A benchmark for multi-rate surface complexation and 1D dual-domain multi-component reactive transport of U(VI). Computational Geosciences, 2015, 19, 585-597.	2.4	8
89	Development of a Fully Coupled Biogeochemical Reactive Transport Model to Simulate Microbial Oxidation of Organic Carbon and Pyrite Under Nitrateâ€Reducing Conditions. Water Resources Research, 2018, 54, 9264-9286.	4.2	8
90	Approaching geoscientific inverse problems with vector-to-image domain transfer networks. Advances in Water Resources, 2021, 152, 103917.	3.8	8

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91	Towards a scientific-based assessment of long-term durability and performance of cementitious materials for radioactive waste conditioning and disposal. Journal of Nuclear Materials, 2021, 557, 153201.	2.7	8
92	6.6 Solute Transport During Variably Saturated Flow-Inverse Methods. Soil Science Society of America Book Series, 0, , 1435-1449.	0.3	7
93	A benchmark for soil organic matter degradation under variably saturated flow conditions. Computational Geosciences, 2021, 25, 1359-1377.	2.4	7
94	Scale-dependent parameterization of groundwaterâ€“surface water interactions in a regional hydrogeological model. Journal of Hydrology, 2019, 576, 494-507.	5.4	6
95	Speeding Up Reactive Transport Simulations in Cement Systems by Surrogate Geochemical Modeling: Deep Neural Networks and k-Nearest Neighbors. Transport in Porous Media, 2022, 143, 433-462.	2.6	6
96	Synergistic Effects between Carbonation and Cracks in the Hardened Cement Paste. Sustainability, 2022, 14, 8572.	3.2	6
97	Modelling uranium leaching from agricultural soils to groundwater as a criterion for comparison with complementary safety indicators. Materials Research Society Symposia Proceedings, 2006, 932, 1.	0.1	5
98	Modelling of cation concentrations in the outflow of NaNO3 percolation experiments through Boom Clay cores. Physics and Chemistry of the Earth, 2011, 36, 1693-1699.	2.9	5
99	Numerically accelerated pore-scale equilibrium dissolution. Journal of Contaminant Hydrology, 2019, 220, 119-127.	3.3	5
100	PHREEQC Modelling of Leaching of Major Elements and Heavy Metals From Cementitious Waste Forms. Materials Research Society Symposia Proceedings, 2008, 1107, 1.	0.1	4
101	Concrete in Engineered Barriers for Radioactive Waste Disposal Facilities: Phenomenological Study and Assessment of Long Term Performance. , 2013, , .		4
102	Effect of Limestone Fillers on Ca-Leaching and Carbonation of Cement Pastes. Key Engineering Materials, 0, 711, 269-276.	0.4	4
103	A New Radionuclide Sorption Database for Benchmark Cement Accounting for Geochemical Evolution of Cement. , 2013, , 103-112.		4
104	Multicomponent transport model for variably-saturated porous media: application to the transport of heavy metals in soils. Developments in Water Science, 2002, 47, 555-562.	0.1	3
105	Coupling Time-Dependent Sorption Values of Degrading Concrete With a Radionuclide Migration Model. , 2009, , .		3
106	Suction cup systemâ€dependent variable boundary condition: Transient water flow and multicomponent solute transport. Vadose Zone Journal, 2020, 19, e20030.	2.2	3
107	Analysis of Solute Redistribution in Heterogeneous Soil. Quantitative Geology and Geostatistics, 1997, , 271-282.	0.1	3
108	Modelling Multi-Phase Flow Phenomena in Concrete Barriers Used for Geological Disposal of Radioactive Waste. , 2007, , .		3

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109	Alteration in molecular structure of alkali activated slag with various water to binder ratios under accelerated carbonation. Scientific Reports, 2022, 12, 5524.	3.3	3
110	Evolution of Sorption Properties in Large-Scale Concrete Structures Accounting for Long-Term Physical-Chemical Concrete Degradation. , 2011, , .		2
111	The Use of Multicomponent Solute Transport Models in Environmental Analyses. , 2014, , 377-402.		2
112	Modelling 226Ra, 222Rn, and 210Pb Migration in a Proposed Surface Repository of Very Low-Level Long-Lived Radioactive Waste. , 2003, , 823.		1
113	Quantifying Conservatism of Performance Assessment Calculations by Sorption Model Reduction: Case Study on Near Field Cs Migration in Callovo-Oxfordian Clay. Materials Research Society Symposia Proceedings, 2009, 1193, 22.	0.1	1
114	Current Concerns on Durability of Concrete Used in Nuclear Power Plants and Radioactive Waste Repositories. Lecture Notes in Civil Engineering, 2018, , 1107-1121.	0.4	1
115	Diffusion models for the early-stage SON68 glass dissolution in a hyper-alkaline solution. Applied Geochemistry, 2019, 111, 104439.	3.0	1
116	A Consistent Approach for the Development of a Comprehensive Data Base of Time-Dependent Parameters for Concrete Engineered Barriers. , 2013, , .		1
117	Influence of Cracks in Cementitious Engineered Barriers in a Near-Surface Disposal System: Assessment Analysis of the Belgian Case. , 2013, , .		0
118	Geostatistical Mapping of Cs-137 Contamination Depth in Building Structures by Integrating ISOCS Measurements of Different Spatial Supports. , 2013, , .		0
119	Evolution of Microstructure and Transport Properties of Cement Pastes Due to Carbonation under a CO 2 Pressure Gradientâ€"A Modeling Approach. , 2015, , .		0
120	Fate and transport in environmental quality. Journal of Environmental Quality, 2021, 50, 1282-1289.	2.0	0