Gregoire Mariethoz

List of Publications by Year
in descending order

149 papers	4,547 citations	117571 34 h-index	143943 57 g-index
181 all docs	181 docs citations	181 times ranked	3531 citing authors

#	Article	IF	Citations
1	The Direct Sampling method to perform multipleâ€point geostatistical simulations. Water Resources Research, 2010, 46, .	1.7	425
2	An Improved Parallel Multiple-point Algorithm Using a List Approach. Mathematical Geosciences, 2011, 43, 305-328.	1.4	180
3	A practical guide to performing multiple-point statistical simulations with the Direct Sampling algorithm. Computers and Geosciences, 2013, 52, 307-324.	2.0	124
4	A composite annual-resolution stalagmite record of North Atlantic climate over the last three millennia. Scientific Reports, 2015, 5, 10307.	1.6	120
5	Reconstruction of Incomplete Data Sets orÂImages Using Direct Sampling. Mathematical Geosciences, 2010, 42, 245-268.	1.4	109
6	Bayesian inverse problem and optimization with iterative spatial resampling. Water Resources Research, 2010, 46, .	1.7	100
7	Improving the Predictive Skill of a Distributed Hydrological Model by Calibration on Spatial Patterns With Multiple Satellite Data Sets. Water Resources Research, 2020, 56, e2019WR026085.	1.7	93
8	Simulation of Earth textures by conditional image quilting. Water Resources Research, 2014, 50, 3088-3107.	1.7	89
9	Social tipping points in global groundwater management. Nature Human Behaviour, 2017, 1, 640-649.	6.2	89
10	Truncated Plurigaussian Simulations to Characterize Aquifer Heterogeneity. Ground Water, 2009, 47, 13-24.	0.7	80
11	Bridges between multiple-point geostatistics and texture synthesis: Review and guidelines for future research. Computers and Geosciences, 2014, 66, 66-80.	2.0	73
12	Gap-Filling of Landsat 7 Imagery Using the Direct Sampling Method. Remote Sensing, 2017, 9, 12.	1.8	68
13	An agent-based platform for simulating complex humanâ€“aquifer interactions in managed groundwater systems. Environmental Modelling and Software, 2015, 73, 305-323.	1.9	66
14	A new global database to improve predictions of permeability distribution in crystalline rocks at site scale. Journal of Geophysical Research: Solid Earth, 2017, 122, 3513-3539.	1.4	66
15	From white to green: Snow cover loss and increased vegetation productivity in the European Alps. Science, 2022, 376, 1119-1122.	6.0	64
16	Potential of satellite and reanalysis evaporation datasets for hydrological modelling under various model calibration strategies. Advances in Water Resources, 2020, 143, 103667.	1.7	62
17	Dripwater organic matter and trace element geochemistry in a semi-arid karst environment: Implications for speleothem paleoclimatology. Geochimica Et Cosmochimica Acta, 2014, 135, 217-230.	1.6	61
18	Multiple-point geostatistical simulation using the bunch-pasting direct sampling method. Computers and Geosciences, 2013, 54, 293-308.	2.0	60

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19	Modeling complex geological structures with elementary training images and transformâ€invariant distances. Water Resources Research, 2011, 47, .	1.7	58
20	Accelerating geostatistical simulations using graphics processing units (GPU). Computers and Geosciences, 2012, 46, 51-59.	2.0	58
21	Locality-based 3-D multiple-point statistics reconstruction using 2-D geological cross sections. Hydrology and Earth System Sciences, 2018, 22, 6547-6566.	1.9	57
22	Spatiotemporal reconstruction of gaps in multivariate fields using the direct sampling approach. Water Resources Research, 2012, 48, .	1.7	51
23	Demonstration of a geostatistical approach to physically consistent downscaling of climate modeling simulations. Water Resources Research, 2013, 49, 245-259.	1.7	50
24	Suitability of 17 gridded rainfall and temperature datasets for large-scale hydrological modelling in West Africa. Hydrology and Earth System Sciences, 2020, 24, 5379-5406.	1.9	48
25	A general parallelization strategy for random path based geostatistical simulation methods. Computers and Geosciences, 2010, 36, 953-958.	2.0	47
26	Verifying the high-order consistency of training images with data for multiple-point geostatistics. Computers and Geosciences, 2014, 70, 190-205.	2.0	45
27	Simulation of rainfall time series from different climatic regions using the direct sampling technique. Hydrology and Earth System Sciences, 2014, 18, 3015-3031.	1.9	44
28	Gap-filling of daily streamflow time series using Direct Sampling in various hydroclimatic settings. Journal of Hydrology, 2019, 569, 573-586.	2.3	43
29	A 3D geological model of a structurally complex Alpine region as a basis for interdisciplinary research. Scientific Data, 2018, 5, 180238.	2.4	41
30	QuickSampling v1.0: a robust and simplified pixel-based multiple-point simulation approach. Geoscientific Model Development, 2020, 13, 2611-2630.	1.3	41
31	Semi-arid zone caves: Evaporation and hydrological controls on Î´18O drip water composition and implications for speleothem paleoclimate reconstructions. Quaternary Science Reviews, 2016, 131, 285-301.	1.4	40
32	Stochastic Rainfall Modeling at Subâ€kilometer Scale. Water Resources Research, 2018, 54, 4108-4130.	1.7	39
33	Influence of microclimate and geomorphological factors on alpine vegetation in the Western Swiss Alps. Earth Surface Processes and Landforms, 2019, 44, 3093-3107.	1.2	39
34	Conditioning Surface-Based Geological Models to Well and Thickness Data. Mathematical Geosciences, 2013, 45, 873-893.	1.4	38
35	Image synthesis with graph cuts: a fast model proposal mechanism in probabilistic inversion. Geophysical Journal International, 2016, 204, 1179-1190.	1.0	38
36	Conditioning Facies Simulations with Connectivity Data. Mathematical Geosciences, 2011, 43, 879-903.	1.4	37

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37	A review of geostatistical simulation models applied to satellite remote sensing: Methods and applications. Remote Sensing of Environment, 2021, 259, 112381.	4.6	37
38	Improving radar rainfall estimation by merging point rainfall measurements within a model combination framework. Advances in Water Resources, 2016, 97, 205-218.	1.7	36
39	Comparisons of observed and modelled lake Î´18O variability. Quaternary Science Reviews, 2016, 131, 329-340.	1.4	34
40	Spatially dense drip hydrological monitoring and infiltration behaviour at the Wellington Caves, South East Australia. International Journal of Speleology, 2012, 41, 283-296.	0.4	33
41	Sustainable groundwater management: How long and what will it take?. Global Environmental Change, 2019, 58, 101972.	3.6	33
42	A space and time scaleâ€dependent nonlinear geostatistical approach for downscaling daily precipitation and temperature. Water Resources Research, 2015, 51, 6244-6261.	1.7	32
43	A high-resolution image time series of the Gorner Glacier â€“ Swiss Alps â€“ derived from repeated unmanned aerial vehicle surveys. Earth System Science Data, 2019, 11, 579-588.	3.7	32
44	Which Path to Choose in Sequential Gaussian Simulation. Mathematical Geosciences, 2018, 50, 97-120.	1.4	31
45	Reducing the impact of a desalination plant using stochastic modeling and optimization techniques. Journal of Hydrology, 2009, 365, 275-288.	2.3	30
46	Patchâ€based iterative conditional geostatistical simulation using graph cuts. Water Resources Research, 2016, 52, 6297-6320.	1.7	30
47	A comparison of gap-filling approaches for Landsat-7 satellite data. International Journal of Remote Sensing, 2017, 38, 6653-6679.	1.3	30
48	High-resolution paleovalley classification from airborne electromagnetic imaging and deep neural network training using digital elevation model data. Hydrology and Earth System Sciences, 2019, 23, 2561-2580.	1.9	30
49	Evaporative cooling of speleothem drip water. Scientific Reports, 2014, 4, 5162.	1.6	29
50	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.	1.7	28
51	Correcting bias in radar Z â€“ R relationships due to uncertainty in point rain gauge networks. Journal of Hydrology, 2014, 519, 1668-1676.	2.3	27
52	Merging radar and in situ rainfall measurements: An assessment of different combination algorithms. Water Resources Research, 2016, 52, 8384-8398.	1.7	27
53	A new methodology to train fracture network simulation using multiple-point statistics. Solid Earth, 2019, 10, 537-559.	1.2	27
54	Bathymetry fusion using multiple-point geostatistics: Novelty and challenges in representing non-stationary bedforms. Environmental Modelling and Software, 2013, 50, 66-76.	1.9	26

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55	Smart pilot points using reversibleâ€jump Markovâ€chain Monte Carlo. Water Resources Research, 2016, 52, 3966-3983.	1.7	26
56	Local curvature entropy-based 3D terrain representation using a comprehensive Quadtree. ISPRS Journal of Photogrammetry and Remote Sensing, 2018, 139, 30-45.	4.9	26
57	High resolution multi-facies realizations of sedimentary reservoir and aquifer analogs. Scientific Data, 2015, 2, 150033.	2.4	25
58	A Novel Image Reconstruction Strategy for ECT: Combining Two Algorithms With a Graph Cut Method. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 804-814.	2.4	25
59	Efficient multi-objective calibration and uncertainty analysis of distributed snow simulations in rugged alpine terrain. Journal of Hydrology, 2021, 598, 126241.	2.3	25
60	Integrating collocated auxiliary parameters in geostatistical simulations using joint probability distributions and probability aggregation. Water Resources Research, 2009, 45, .	1.7	24
61	Quantifying the value of laminated stalagmites for paleoclimate reconstructions. Geophysical Research Letters, 2012, 39, .	1.5	24
62	Generating synthetic rainfall with geostatistical simulations. Wiley Interdisciplinary Reviews: Water, 2017, 4, e1199.	2.8	24
63	Training Images from Process-Imitating Methods. Mathematical Geosciences, 2014, 46, 241-260.	1.4	23
64	A Fast Approximation for Seismic Inverse Modeling: Adaptive Spatial Resampling. Mathematical Geosciences, 2017, 49, 845-869.	1.4	23
65	The Properties of Annually Laminated Stalagmitesâ€A Global Synthesis. Reviews of Geophysics, 2021, 59, e2020RG000722.	9.0	23
66	Missing data simulation inside flow rate time-series using multiple-point statistics. Environmental Modelling and Software, 2016, 86, 264-276.	1.9	22
67	Conditioning multiple-point statistics simulations to block data. Spatial Statistics, 2016, 16, 53-71.	0.9	22
68	Constraining distance-based multipoint simulations to proportions and trends. Environmental Modelling and Software, 2015, 72, 184-197.	1.9	21
69	Spatial Sensitivity Analysis of Simulated Land Surface Patterns in a Catchment Model Using a Set of Innovative Spatial Performance Metrics. Journal of Hydrometeorology, 2017, 18, 1121-1142.	0.7	20
70	Extrapolating the Fractal Characteristics of an Image Using Scale-Invariant Multiple-Point Statistics. Mathematical Geosciences, 2011, 43, 783-797.	1.4	19
71	Dealing with non-stationarity in sub-daily stochastic rainfall models. Hydrology and Earth System Sciences, 2018, 22, 5919-5933.	1.9	19
72	Handbook of Engineering Hydrology. , 0, , .		19

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73	Terrestrial LiDAR Survey and Morphological Analysis to Identify Infiltration Properties in the Tamala Limestone, Western Australia. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2015, 8, 4871-4881.	2.3	18
74	Estimation of deep infiltration in unsaturated limestone environments using cave lidar and drip count data. Hydrology and Earth System Sciences, 2016, 20, 359-373.	1.9	18
75	Hydrological characterization of cave drip waters in a porous limestone: Golgotha Cave, Western Australia. Hydrology and Earth System Sciences, 2018, 22, 977-988.	1.9	18
76	Hybrid parallel framework for multiple-point geostatistics on Tianhe-2: A robust solution for large-scale simulation. Computers and Geosciences, 2021, 157, 104923.	2.0	18
77	3D fluid flow in fault zones of crystalline basement rocks (Poehlaâ€Tellerhaeuser Ore Field, Ore) Tj ETQq1 1 0.784314 rgBT /Overlock 1C	0.3	17
78	A Bayesian analysis of sensible heat flux estimation: Quantifying uncertainty in meteorological forcing to improve model prediction. Water Resources Research, 2013, 49, 2343-2358.	1.7	16
79	Accelerating Sequential Gaussian Simulation with a constant path. Computers and Geosciences, 2018, 112, 121-132.	2.0	16
80	A Geostatistical Approach to Estimate High Resolution Nocturnal Bird Migration Densities from a Weather Radar Network. Remote Sensing, 2019, 11, 2233.	1.8	16
81	Probabilistic inversion with graph cuts: Application to the <scp>B</scp>oise <scp>H</scp>ydrogeophysical <scp>R</scp>esearch <scp>S</scp>ite. Water Resources Research, 2017, 53, 1231-1250.	1.7	15
82	Paleoclimate change in Ethiopia around the last interglacial derived from annually-resolved stalagmite evidence. Quaternary Science Reviews, 2018, 202, 197-210.	1.4	15
83	Analogue-based colorization of remote sensing images using textural information. ISPRS Journal of Photogrammetry and Remote Sensing, 2019, 147, 242-254.	4.9	15
84	Posterior Sampling using Particle Swarm Optimizers and Model Reduction Techniques. International Journal of Applied Evolutionary Computation, 2010, 1, 27-48.	0.7	14
85	Chaos and irregularity in karst percolation. Geophysical Research Letters, 2012, 39, .	1.5	14
86	Parameterization of training images for aquifer 3â€Ð facies modeling integrating geological interpretations and statistical inference. Water Resources Research, 2014, 50, 7731-7749.	1.7	14
87	Integrating multiple scales of hydraulic conductivity measurements in training image-based stochastic models. Water Resources Research, 2015, 51, 465-480.	1.7	14
88	Simulating Smallâ€Scale Rainfall Fields Conditioned by Weather State and Elevation: A Dataâ€Driven Approach Based on Rainfall Radar Images. Water Resources Research, 2017, 53, 8512-8532.	1.7	14
89	Reconstructing theÂclimatic niche breadth of land use for animal production during the African Holocene. Global Ecology and Biogeography, 2020, 29, 127-147.	2.7	14
90	MPS-APO: a rapid and automatic parameter optimizer for multiple-point geostatistics. Stochastic Environmental Research and Risk Assessment, 2019, 33, 1969-1989.	1.9	13

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91	Efficient training image selection for multiple-point geostatistics via analysis of contours. Computers and Geosciences, 2019, 128, 41-50.	2.0	13
92	Determination of vertical hydraulic conductivity of aquitards in a multilayered leaky system using water-level signals in adjacent aquifers. Journal of Hydrology, 2013, 500, 170-182.	2.3	12
93	Numerical investigation on the implications of spring temperature and discharge rate with respect to the geothermal background in a fault zone. Hydrogeology Journal, 2018, 26, 2121-2132.	0.9	12
94	Simulating Fullyâ€Integrated Hydrological Dynamics in Complex Alpine Headwaters: Potential and Challenges. Water Resources Research, 2022, 58, .	1.7	12
95	Contrasting changes in hydrological processes of the Volta River basin under global warming. Hydrology and Earth System Sciences, 2022, 26, 1481-1506.	1.9	12
96	Using bivariate multiple-point statistics and proximal soil sensor data to map fossil ice-wedge polygons. Geoderma, 2014, 213, 571-577.	2.3	11
97	Downscaling Images with Trends Using Multiple-Point Statistics Simulation: An Application to Digital Elevation Models. Mathematical Geosciences, 2020, 52, 145-187.	1.4	11
98	Using data-driven algorithms for semi-automated geomorphological mapping. Stochastic Environmental Research and Risk Assessment, 2022, 36, 2115-2131.	1.9	11
99	Feature-preserving interpolation and filtering of environmental time series. Environmental Modelling and Software, 2015, 72, 71-76.	1.9	10
100	Simulating rainfall time-series: how to account for statistical variability at multiple scales?. Stochastic Environmental Research and Risk Assessment, 2018, 32, 321-340.	1.9	10
101	Missing Data Imputation for Multisite Rainfall Networks: A Comparison between Geostatistical Interpolation and Pattern-Based Estimation on Different Terrain Types. Journal of Hydrometeorology, 2020, 21, 2325-2341.	0.7	10
102	Influence of Alluvial Morphology on Upscaled Hydraulic Conductivity. Ground Water, 2016, 54, 384-393.	0.7	9
103	Simulation of fine-scale electrical conductivity fields using resolution-limited tomograms and area-to-point kriging. Geophysical Journal International, 2019, 218, 1322-1335.	1.0	9
104	Quantifying temporal variability and spatial heterogeneity in rainfall recharge thresholds in a montane karst environment. Journal of Hydrology, 2021, 594, 125965.	2.3	9
105	Downscaling Multispectral Satellite Images Without Colocated High-Resolution Data: A Stochastic Approach Based on Training Images. IEEE Transactions on Geoscience and Remote Sensing, 2021, 59, 3209-3225.	2.7	9
106	When Should We Use Multiple-Point Geostatistics?. , 2018, , 645-653.		9
107	Special Issue on 20ÂYears of Multiple-Point Statistics: Part 1. Mathematical Geosciences, 2014, 46, 129-131.	1.4	8
108	Stochastic reconstruction of paleovalley bedrock morphology from sparse datasets. Environmental Modelling and Software, 2014, 53, 35-52.	1.9	8

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109	Analog-based meandering channel simulation. Water Resources Research, 2014, 50, 836-854.	1.7	8
110	Improving in situ data acquisition using training images and a Bayesian mixture model. Computers and Geosciences, 2016, 91, 49-63.	2.0	8
111	Fast and Interactive Editing Tools for Spatial Models. Mathematical Geosciences, 2019, 51, 109-125.	1.4	8
112	Nonstationary stochastic rain type generation: accounting for climate drivers. Hydrology and Earth System Sciences, 2020, 24, 2841-2854.	1.9	8
113	Determining the evolution of an alpine glacier drainage system by solving inverse problems. Journal of Glaciology, 2021, 67, 421-434.	1.1	7
114	Quantifying year-round nocturnal bird migration with a fluid dynamics model. Journal of the Royal Society Interface, 2021, 18, 20210194.	1.5	7
115	Dense point cloud acquisition with a low-cost Velodyne VLP-16. Geoscientific Instrumentation, Methods and Data Systems, 2020, 9, 385-396.	0.6	7
116	Permeability estimation conditioned to geophysical downhole log data in sandstones of the northern Galilee Basin, Queensland: Methods and application. Journal of Applied Geophysics, 2013, 93, 43-51.	0.9	6
117	Utilizing spatial association analysis to determine the number of multiple grids for multiple-point statistics. Spatial Statistics, 2016, 17, 83-104.	0.9	6
118	Quantitative evaluation of multiple-point simulations using image segmentation and texture descriptors. Computational Geosciences, 2019, 23, 1349-1368.	1.2	6
119	Bayesian Inference of Subglacial Channel Structures From Water Pressure and Tracerâ€Transit Time Data: A Numerical Study Based on a 2â€D Geostatistical Modeling Approach. Journal of Geophysical Research F: Earth Surface, 2019, 124, 1625-1644.	1.0	6
120	A fast edge-based two-stage direct sampling method. Computers and Geosciences, 2021, 150, 104742.	2.0	6
121	Sub3DNet1.0: a deep-learning model for regional-scale 3D subsurface structure mapping. Geoscientific Model Development, 2021, 14, 3421-3435.	1.3	6
122	The imaginary carrot: no correlation between raising funds and research productivity in geosciences. Scientometrics, 2021, 126, 2401-2407.	1.6	5
123	Special Issue on 20 Years of Multiple-Point Statistics: Part 2. Mathematical Geosciences, 2014, 46, 517-518.	1.4	4
124	Editorial: Machine Learning for Water Resources. Frontiers in Artificial Intelligence, 2021, 4, 699862.	2.0	4
125	Characterization of alluvial formation by stochastic modelling of paleo-fluvial processes: The concept and method. Journal of Hydrology, 2015, 524, 367-377.	2.3	3
126	Application of 1D paleoâ€fluvial process modelling at a basin scale to augment sparse borehole data: example of a Permian formation in the Galilee Basin, Australia. Hydrological Processes, 2016, 30, 1624-1636.	1.1	3

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127	Semi-parametric resampling with extremes. Spatial Statistics, 2021, 42, 100445.	0.9	3
128	Hydrogeophysical data integration through Bayesian Sequential Simulation with log-linear pooling. Geophysical Journal International, 2020, 221, 2184-2200.	1.0	2
129	High Space-Time Resolution Observation of Extreme Orographic Rain Gradients in a Pacific Island Catchment. Frontiers in Earth Science, 2021, 8, .	0.8	2
130	WlCount: Geological lamination detection and counting using an image analysis approach. Computers and Geosciences, 2022, 160, 105037.	2.0	2
131	Combining global climate models using graph cuts. Climate Dynamics, 2022, 59, 2345-2361.	1.7	2
132	Adaptive spatial resampling as a Markov chain Monte Carlo method for stochastic seismic reservoir characterization. , 2012, , .		1
133	Mapping the hydraulic connection between a coalbed and adjacent aquifer: example of the coal-seam gas resource area, north Galilee Basin, Australia. Hydrogeology Journal, 2016, 24, 2143-2155.	0.9	1
134	Investigating extreme scenarios with multiple-point geostatistics and variance maximization. Stochastic Environmental Research and Risk Assessment, 2020, 34, 67-85.	1.9	1
135	The MPS-Based Fracture Network Simulation Method: Application to Subsurface Domain. , 2019, , .		1
136	Recent Advances and Developments in MPS. , 2011, , .		1
137	Hybrid Geostatistics: Object-based Simulations Using MPS-generated Meandering Channels. , 2014, , .		1
138	Towards 3D Probabilistic Inversion with Graphcuts. , 2017, , .		1
139	Reply to the comment by Heyard et al. titled â€œImaginary carrot or effective fertiliser? A rejoinder on funding and productivityâ€• Scientometrics, 2021, 126, 9339-9342.	1.6	0
140	Multiple Point Statistics. Encyclopedia of Earth Sciences Series, 2021, , 1-11.	0.1	0
141	MP Simulations Without Computing MP Statistics. , 2010, , .		0
142	Handling Soft Probabilities in Multiple Point Statistics Simulation. Lecture Notes in Earth System Sciences, 2014, , 69-72.	0.5	0
143	A New Generic Method for Fast and Interactive Geological Models Perturbation. , 2014, , .		0
144	Multiple-point Statistics Simulations Accounting for Block Data. , 2015, , .		0

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145	Stochastic Modelling of Patterns Using Graph Cuts. , 2015, , .		0
146	Posterior Sampling using Particle Swarm Optimizers and Model Reduction Techniques. , 0, , 192-214.		0
147	Laudatio for Prof. Philippe Renard, recipient of the IAMG John Cedric Griffiths Teaching Award. Computers and Geosciences, 2022, 162, 105087.	2.0	0
148	Ice Dynamics and Morphological Changes During Proglacial Lake Development at Exploradores Glacier, Patagonia. Frontiers in Earth Science, 2022, 10, .	0.8	0
149	Stalagmite evidence for Early Holocene multidecadal hydroclimate variability in Ethiopia. Quaternary Research, 0, , 1-15.	1.0	0