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	Using data-driven algorithms for semi-automated geomorphological mapping. Stochastic Environmental Research and Risk Assessment, 2022, 36, 2115-2131.	1.9	11
2	WlCount: Geological lamination detection and counting using an image analysis approach. Computers and Geosciences, 2022, 160, 105037.	2.0	2
3	Combining global climate models using graph cuts. Climate Dynamics, 2022, 59, 2345-2361.	1.7	2
4	Simulating Fullyâ€Integrated Hydrological Dynamics in Complex Alpine Headwaters: Potential and Challenges. Water Resources Research, 2022, 58, .	1.7	12
5	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
6	Laudatio for Prof. Philippe Renard, recipient of the IAMG John Cedric Griffiths Teaching Award. Computers and Geosciences, 2022, 162, 105087.	2.0	0
7	Ice Dynamics and Morphological Changes During Proglacial Lake Development at Exploradores Glacier, Patagonia. Frontiers in Earth Science, 2022, 10, .	0.8	0
8	From white to green: Snow cover loss and increased vegetation productivity in the European Alps. Science, 2022, 376, 1119-1122.	6.0	64
9	Semi-parametric resampling with extremes. Spatial Statistics, 2021, 42, 100445.	0.9	3
10	Determining the evolution of an alpine glacier drainage system by solving inverse problems. Journal of Glaciology, 2021, 67, 421-434.	1.1	7
11	The imaginary carrot: no correlation between raising funds and research productivity in geosciences. Scientometrics, 2021, 126, 2401-2407.	1.6	5
12	Quantifying temporal variability and spatial heterogeneity in rainfall recharge thresholds in a montane karst environment. Journal of Hydrology, 2021, 594, 125965.	2.3	9
13	The Properties of Annually Laminated Stalagmitesâ€A Global Synthesis. Reviews of Geophysics, 2021, 59, e2020RG000722.	9.0	23
14	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
15	Editorial: Machine Learning for Water Resources. Frontiers in Artificial Intelligence, 2021, 4, 699862.	2.0	4
16	A fast edge-based two-stage direct sampling method. Computers and Geosciences, 2021, 150, 104742.	2.0	6
17	A review of geostatistical simulation models applied to satellite remote sensing: Methods and applications. Remote Sensing of Environment, 2021, 259, 112381.	4.6	37
18	Quantifying year-round nocturnal bird migration with a fluid dynamics model. Journal of the Royal Society Interface, 2021, 18, 20210194.	1.5	7

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19	Sub3DNet1.0: a deep-learning model for regional-scale 3D subsurface structure mapping. Geoscientific Model Development, 2021, 14, 3421-3435.	1.3	6
20	Efficient multi-objective calibration and uncertainty analysis of distributed snow simulations in rugged alpine terrain. Journal of Hydrology, 2021, 598, 126241.	2.3	25
21	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
22	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
23	High Space-Time Resolution Observation of Extreme Orographic Rain Gradients in a Pacific Island Catchment. Frontiers in Earth Science, 2021, 8, .	0.8	2
24	Multiple Point Statistics. Encyclopedia of Earth Sciences Series, 2021, , 1-11.	0.1	0
25	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
26	Downscaling Images with Trends Using Multiple-Point Statistics Simulation: An Application to Digital Elevation Models. Mathematical Geosciences, 2020, 52, 145-187.	1.4	11
27	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
28	Investigating extreme scenarios with multiple-point geostatistics and variance maximization. Stochastic Environmental Research and Risk Assessment, 2020, 34, 67-85.	1.9	1
29	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
30	Nonstationary stochastic rain type generation: accounting for climate drivers. Hydrology and Earth System Sciences, 2020, 24, 2841-2854.	1.9	8
31	Hydrogeophysical data integration through Bayesian Sequential Simulation with log-linear pooling. Geophysical Journal International, 2020, 221, 2184-2200.	1.0	2
32	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
33	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
34	QuickSampling v1.0: a robust and simplified pixel-based multiple-point simulation approach. Geoscientific Model Development, 2020, 13, 2611-2630.	1.3	41
35	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
36	Dense point cloud acquisition with a low-cost Velodyne VLP-16. Geoscientific Instrumentation, Methods and Data Systems, 2020, 9, 385-396.	0.6	7

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37	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
38	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
39	Quantitative evaluation of multiple-point simulations using image segmentation and texture descriptors. Computational Geosciences, 2019, 23, 1349-1368.	1.2	6
40	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
41	A Geostatistical Approach to Estimate High Resolution Nocturnal Bird Migration Densities from a Weather Radar Network. Remote Sensing, 2019, 11, 2233.	1.8	16
42	Sustainable groundwater management: How long and what will it take?. Global Environmental Change, 2019, 58, 101972.	3.6	33
43	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
44	A new methodology to train fracture network simulation using multiple-point statistics. Solid Earth, 2019, 10, 537-559.	1.2	27
45	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
46	Efficient training image selection for multiple-point geostatistics via analysis of contours. Computers and Geosciences, 2019, 128, 41-50.	2.0	13
47	Fast and Interactive Editing Tools for Spatial Models. Mathematical Geosciences, 2019, 51, 109-125.	1.4	8
48	Analogue-based colorization of remote sensing images using textural information. ISPRS Journal of Photogrammetry and Remote Sensing, 2019, 147, 242-254.	4.9	15
49	Gap-filling of daily streamflow time series using Direct Sampling in various hydroclimatic settings. Journal of Hydrology, 2019, 569, 573-586.	2.3	43
50	The MPS-Based Fracture Network Simulation Method: Application to Subsurface Domain. , 2019, , .		1
51	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
52	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
53	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
54	Accelerating Sequential Gaussian Simulation with a constant path. Computers and Geosciences, 2018, 112, 121-132.	2.0	16

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55	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
56	Which Path to Choose in Sequential Gaussian Simulation. Mathematical Geosciences, 2018, 50, 97-120.	1.4	31
57	Dealing with non-stationarity in sub-daily stochastic rainfall models. Hydrology and Earth System Sciences, 2018, 22, 5919-5933.	1.9	19
58	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
59	Paleoclimate change in Ethiopia around the last interglacial derived from annually-resolved stalagmite evidence. Quaternary Science Reviews, 2018, 202, 197-210.	1.4	15
60	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
61	Stochastic Rainfall Modeling at Subâ€kilometer Scale. Water Resources Research, 2018, 54, 4108-4130.	1.7	39
62	When Should We Use Multiple-Point Geostatistics?. , 2018, , 645-653.		9
63	A 3D geological model of a structurally complex Alpine region as a basis for interdisciplinary research. Scientific Data, 2018, 5, 180238.	2.4	41
64	Generating synthetic rainfall with geostatistical simulations. Wiley Interdisciplinary Reviews: Water, 2017, 4, e1199.	2.8	24
65	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
66	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
67	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
68	A Fast Approximation for Seismic Inverse Modeling: Adaptive Spatial Resampling. Mathematical Geosciences, 2017, 49, 845-869.	1.4	23
69	A comparison of gap-filling approaches for Landsat-7 satellite data. International Journal of Remote Sensing, 2017, 38, 6653-6679.	1.3	30
70	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
71	Gap-Filling of Landsat 7 Imagery Using the Direct Sampling Method. Remote Sensing, 2017, 9, 12.	1.8	68
72	Social tipping points in global groundwater management. Nature Human Behaviour, 2017, 1, 640-649.	6.2	89

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73	Towards 3D Probabilistic Inversion with Graphcuts. , 2017, , .		1
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	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
76	Smart pilot points using reversibleâ€jump Markovâ€chain Monte Carlo. Water Resources Research, 2016, 52, 3966-3983.	1.7	26
77	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
78	Patchâ€based iterative conditional geostatistical simulation using graph cuts. Water Resources Research, 2016, 52, 6297-6320.	1.7	30
79	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
80	Utilizing spatial association analysis to determine the number of multiple grids for multiple-point statistics. Spatial Statistics, 2016, 17, 83-104.	0.9	6
81	3D fluid flow in fault zones of crystalline basement rocks (Poehlaâ€Tellerhaeuser Ore Field, Ore) Tj ETQq1 1 0.784314 rgBT /Overlock 10	0.3	17
82	Missing data simulation inside flow rate time-series using multiple-point statistics. Environmental Modelling and Software, 2016, 86, 264-276.	1.9	22
83	Merging radar and in situ rainfall measurements: An assessment of different combination algorithms. Water Resources Research, 2016, 52, 8384-8398.	1.7	27
84	Influence of Alluvial Morphology on Upscaled Hydraulic Conductivity. Ground Water, 2016, 54, 384-393.	0.7	9
85	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
86	Improving in situ data acquisition using training images and a Bayesian mixture model. Computers and Geosciences, 2016, 91, 49-63.	2.0	8
87	Conditioning multiple-point statistics simulations to block data. Spatial Statistics, 2016, 16, 53-71.	0.9	22
88	Image synthesis with graph cuts: a fast model proposal mechanism in probabilistic inversion. Geophysical Journal International, 2016, 204, 1179-1190.	1.0	38
89	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
90	Comparisons of observed and modelled lake Î´18O variability. Quaternary Science Reviews, 2016, 131, 329-340.	1.4	34

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91	High resolution multi-facies realizations of sedimentary reservoir and aquifer analogs. Scientific Data, 2015, 2, 150033.	2.4	25
92	A composite annual-resolution stalagmite record of North Atlantic climate over the last three millennia. Scientific Reports, 2015, 5, 10307.	1.6	120
93	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
94	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
95	Integrating multiple scales of hydraulic conductivity measurements in training image-based stochastic models. Water Resources Research, 2015, 51, 465-480.	1.7	14
96	Feature-preserving interpolation and filtering of environmental time series. Environmental Modelling and Software, 2015, 72, 71-76.	1.9	10
97	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
98	Constraining distance-based multipoint simulations to proportions and trends. Environmental Modelling and Software, 2015, 72, 184-197.	1.9	21
99	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
100	Multiple-point Statistics Simulations Accounting for Block Data. , 2015, , .		0
101	Stochastic Modelling of Patterns Using Graph Cuts. , 2015, , .		0
102	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
103	Simulation of Earth textures by conditional image quilting. Water Resources Research, 2014, 50, 3088-3107.	1.7	89
104	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
105	Special Issue on 20ÂYears of Multiple-Point Statistics: Part 1. Mathematical Geosciences, 2014, 46, 129-131.	1.4	8
106	Training Images from Process-Imitating Methods. Mathematical Geosciences, 2014, 46, 241-260.	1.4	23
107	Bridges between multiple-point geostatistics and texture synthesis: Review and guidelines for future research. Computers and Geosciences, 2014, 66, 66-80.	2.0	73
108	Verifying the high-order consistency of training images with data for multiple-point geostatistics. Computers and Geosciences, 2014, 70, 190-205.	2.0	45

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109	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
110	Special Issue on 20 Years of Multiple-Point Statistics: Part 2. Mathematical Geosciences, 2014, 46, 517-518.	1.4	4
111	Stochastic reconstruction of paleovalley bedrock morphology from sparse datasets. Environmental Modelling and Software, 2014, 53, 35-52.	1.9	8
112	Using bivariate multiple-point statistics and proximal soil sensor data to map fossil ice-wedge polygons. Geoderma, 2014, 213, 571-577.	2.3	11
113	Analog-based meandering channel simulation. Water Resources Research, 2014, 50, 836-854.	1.7	8
114	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
115	Evaporative cooling of speleothem drip water. Scientific Reports, 2014, 4, 5162.	1.6	29
116	Handling Soft Probabilities in Multiple Point Statistics Simulation. Lecture Notes in Earth System Sciences, 2014, , 69-72.	0.5	0
117	Hybrid Geostatistics: Object-based Simulations Using MPS-generated Meandering Channels. , 2014, , .		1
118	A New Generic Method for Fast and Interactive Geological Models Perturbation. , 2014, , .		0
119	Multiple-point geostatistical simulation using the bunch-pasting direct sampling method. Computers and Geosciences, 2013, 54, 293-308.	2.0	60
120	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
121	A practical guide to performing multiple-point statistical simulations with the Direct Sampling algorithm. Computers and Geosciences, 2013, 52, 307-324.	2.0	124
122	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
123	Conditioning Surface-Based Geological Models to Well and Thickness Data. Mathematical Geosciences, 2013, 45, 873-893.	1.4	38
124	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
125	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
126	Demonstration of a geostatistical approach to physically consistent downscaling of climate modeling simulations. Water Resources Research, 2013, 49, 245-259.	1.7	50

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127	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
128	Adaptive spatial resampling as a Markov chain Monte Carlo method for stochastic seismic reservoir characterization. , 2012, , .		1
129	Chaos and irregularity in karst percolation. Geophysical Research Letters, 2012, 39, .	1.5	14
130	Accelerating geostatistical simulations using graphics processing units (GPU). Computers and Geosciences, 2012, 46, 51-59.	2.0	58
131	Quantifying the value of laminated stalagmites for paleoclimate reconstructions. Geophysical Research Letters, 2012, 39, .	1.5	24
132	Spatiotemporal reconstruction of gaps in multivariate fields using the direct sampling approach. Water Resources Research, 2012, 48, .	1.7	51
133	Modeling complex geological structures with elementary training images and transformâ€invariant distances. Water Resources Research, 2011, 47, .	1.7	58
134	An Improved Parallel Multiple-point Algorithm Using a List Approach. Mathematical Geosciences, 2011, 43, 305-328.	1.4	180
135	Extrapolating the Fractal Characteristics of an Image Using Scale-Invariant Multiple-Point Statistics. Mathematical Geosciences, 2011, 43, 783-797.	1.4	19
136	Conditioning Facies Simulations with Connectivity Data. Mathematical Geosciences, 2011, 43, 879-903.	1.4	37
137	Recent Advances and Developments in MPS. , 2011, , .		1
138	The Direct Sampling method to perform multipleâ€point geostatistical simulations. Water Resources Research, 2010, 46, .	1.7	425
139	Reconstruction of Incomplete Data Sets orÂImages Using Direct Sampling. Mathematical Geosciences, 2010, 42, 245-268.	1.4	109
140	A general parallelization strategy for random path based geostatistical simulation methods. Computers and Geosciences, 2010, 36, 953-958.	2.0	47
141	Posterior Sampling using Particle Swarm Optimizers and Model Reduction Techniques. International Journal of Applied Evolutionary Computation, 2010, 1, 27-48.	0.7	14
142	Bayesian inverse problem and optimization with iterative spatial resampling. Water Resources Research, 2010, 46, .	1.7	100
143	MP Simulations Without Computing MP Statistics. , 2010, , .		0
144	Reducing the impact of a desalination plant using stochastic modeling and optimization techniques. Journal of Hydrology, 2009, 365, 275-288.	2.3	30

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145	Truncated Plurigaussian Simulations to Characterize Aquifer Heterogeneity. Ground Water, 2009, 47, 13-24.	0.7	80
146	Integrating collocated auxiliary parameters in geostatistical simulations using joint probability distributions and probability aggregation. Water Resources Research, 2009, 45, .	1.7	24
147	Handbook of Engineering Hydrology. , 0, , .		19
148	Posterior Sampling using Particle Swarm Optimizers and Model Reduction Techniques. , 0, , 192-214.		0
149	Stalagmite evidence for Early Holocene multidecadal hydroclimate variability in Ethiopia. Quaternary Research, 0, , 1-15.	1.0	0