Malcolm Sambridge

List of Publications by Year
in descending order

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146 papers	13,722 citations	29994 54 h-index	21474 114 g-index
149 all docs	149 docs citations	149 times ranked	10478 citing authors

#	Article	IF	Citations
1	Sea level and global ice volumes from the Last Glacial Maximum to the Holocene. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 15296-15303.	3.3	1,590
2	Geophysical inversion with a neighbourhood algorithm-I. Searching a parameter space. Geophysical Journal International, 1999, 138, 479-494.	1.0	1,219
3	Geophysical inversion with a neighbourhood algorithm-II. Appraising the ensemble. Geophysical Journal International, 1999, 138, 727-746.	1.0	676
4	Monte Carlo methods in geophysical inverse problems. Reviews of Geophysics, 2002, 40, 3-1.	9.0	662
5	Mixture modeling of multi-component data sets with application to ion-probe zircon ages. Earth and Planetary Science Letters, 1994, 128, 373-390.	1.8	477
6	A regionalized upper mantle (RUM) seismic model. Journal of Geophysical Research, 1998, 103, 7121-7136.	3.3	384
7	Modelling landscape evolution on geological time scales: a new method based on irregular spatial discretization. Basin Research, 1997, 9, 27-52.	1.3	349
8	Seismic tomography with the reversible jump algorithm. Geophysical Journal International, 2009, 178, 1411-1436.	1.0	341
9	Wave front evolution in strongly heterogeneous layered media using the fast marching method. Geophysical Journal International, 2004, 156, 631-647.	1.0	334
10	Geophysical parametrization and interpolation of irregular data using natural neighbours. Geophysical Journal International, 1995, 122, 837-857.	1.0	318
11	Transdimensional inversion of receiver functions and surface wave dispersion. Journal of Geophysical Research, 2012, 117, .	3.3	293
12	Monte Carlo analysis of inverse problems. Inverse Problems, 2002, 18, R29-R54.	1.0	261
13	Genetic algorithms in seismic waveform inversion. Geophysical Journal International, 1992, 109, 323-342.	1.0	259
14	Trans-dimensional inverse problems, model comparison and the evidence. Geophysical Journal International, 2006, 167, 528-542.	1.0	254
15	A numerical method for solving partial differential equations on highly irregular evolving grids. Nature, 1995, 376, 655-660.	13.7	245
16	Subspace methods for large inverse problems with multiple parameter classes. Geophysical Journal International, 1988, 94, 237-247.	1.0	239
17	Markov chain Monte Carlo (MCMC) sampling methods to determine optimal models, model resolution and model choice for Earth Science problems. Marine and Petroleum Geology, 2009, 26, 525-535.	1.5	218
18	The Fast Marching Method: An Effective Tool for Tomographic Imaging and Tracking Multiple Phases in Complex Layered Media. Exploration Geophysics, 2005, 36, 341-350.	0.5	217

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19	A Parallel Tempering algorithm for probabilistic sampling and multimodal optimization. Geophysical Journal International, 2014, 196, 357-374.	1.0	189
20	Genetic algorithm inversion for receiver functions with application to crust and uppermost mantle structure beneath eastern Australia. Geophysical Research Letters, 1996, 23, 1829-1832.	1.5	182
21	Transdimensional tomography with unknown data noise. Geophysical Journal International, 2012, 189, 1536-1556.	1.0	173
22	SEISMIC TRAVELTIME TOMOGRAPHY OF THE CRUST AND LITHOSPHERE. Advances in Geophysics, 2003, 46, 81-198.	1.1	156
23	Multiple reflection and transmission phases in complex layered media using a multistage fast marching method. Geophysics, 2004, 69, 1338-1350.	1.4	156
24	Genetic algorithms: A powerful tool for large-scale nonlinear optimization problems. Computers and Geosciences, 1994, 20, 1229-1236.	2.0	152
25	Quantitative absorbance spectroscopy with unpolarized light: Part II. Experimental evaluation and development of a protocol for quantitative analysis of mineral IR spectra. American Mineralogist, 2008, 93, 765-778.	0.9	150
26	A practical grid-based method for tracking multiple refraction and reflection phases in three-dimensional heterogeneous media. Geophysical Journal International, 2006, 167, 253-270.	1.0	132
27	A novel method of hypocentre location. Geophysical Journal International, 1986, 87, 679-697.	1.0	125
28	Transdimensional inference in the geosciences. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2013, 371, 20110547.	1.6	121
29	Numerical ages of volcanic rocks and the earliest fauna1 zone within the Late Precambrian of east Poland. Journal of the Geological Society, 1995, 152, 599-611.	0.9	116
30	Seismic Tomography and the Assessment of Uncertainty. Advances in Geophysics, 2014, , 1-76.	1.1	111
31	Non-linear arrival time inversion: constraining velocity anomalies by seeking smooth models in 3-D. Geophysical Journal International, 1990, 102, 653-677.	1.0	100
32	Benford's law in the natural sciences. Geophysical Research Letters, 2010, 37, .	1.5	95
33	Laser ablation U-series analysis of fossil bones and teeth. Palaeogeography, Palaeoclimatology, Palaeoecology, 2014, 416, 150-167.	1.0	93
34	Seismic ray tracing and wavefront tracking in laterally heterogeneous media. Advances in Geophysics, 2008, 49, 203-273.	1.1	90
35	A holistic approach to inversion of frequency-domain airborne EM data. Geophysics, 2006, 71, G301-G312.	1.4	87
36	Inversion of massive surface wave data sets: Model construction and resolution assessment. Journal of Geophysical Research, 2004, 109, .	3.3	85

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37	Quantitative absorbance spectroscopy with unpolarized light: Part I. Physical and mathematical development. American Mineralogist, 2008, 93, 751-764.	0.9	85
38	Seismic Event Location: Nonlinear Inversion Using a Neighbourhood Algorithm. , 2001, 158, 241-257.		83
39	Parallel tempering for strongly nonlinear geoacoustic inversion. Journal of the Acoustical Society of America, 2012, 132, 3030-3040.	0.5	83
40	Hypocentre location: genetic algorithms incorporating problem-specific information. Geophysical Journal International, 1994, 118, 693-706.	1.0	82
41	Tomographic systems of equations with irregular cells. Journal of Geophysical Research, 1998, 103, 773-781.	3.3	82
42	Ray perturbation theory for traveltimes and ray paths in 3-D heterogeneous media. Geophysical Journal International, 1992, 109, 294-322.	1.0	81
43	Silicon isotopic fractionation in marine sponges: A new model for understanding silicon isotopic variations in sponges. Earth and Planetary Science Letters, 2010, 292, 281-289.	1.8	79
44	Inference of abrupt changes in noisy geochemical records using transdimensional changepoint models. Earth and Planetary Science Letters, 2011, 311, 182-194.	1.8	79
45	Finding acceptable models in nonlinear inverse problems using a neighbourhood algorithm. Inverse Problems, 2001, 17, 387-403.	1.0	78
46	Exploring multidimensional landscapes without a map. Inverse Problems, 1998, 14, 427-440.	1.0	77
47	Trans-dimensional finite-fault inversion. Geophysical Journal International, 2014, 199, 735-751.	1.0	77
48	Earthquake location â€" genetic algorithms for teleseisms. Physics of the Earth and Planetary Interiors, 1992, 75, 103-110.	0.7	73
49	On the relationship between volcanic hotspot locations, the reconstructed eruption sites of large igneous provinces and deep mantle seismic structure. Earth and Planetary Science Letters, 2015, 411, 121-130.	1.8	71
50	Genetic algorithms: An evolution from Monte Carlo Methods for strongly nonâ€linear geophysical optimization problems. Geophysical Research Letters, 1991, 18, 2177-2180.	1.5	70
51	Adaptive whole Earth tomography. Geochemistry, Geophysics, Geosystems, 2003, 4, .	1.0	69
52	The shuffling rotation of the Earthâ€™s inner core revealed by earthquake doublets. Nature Geoscience, 2013, 6, 497-502.	5.4	68
53	Boundary value ray tracing in a heterogeneous medium: a simple and versatile algorithm. Geophysical Journal International, 1990, 101, 157-168.	1.0	59
54	Geophysical imaging using trans-dimensional trees. Geophysical Journal International, 2015, 203, 972-1000.	1.0	59

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55	Prediction under uncertainty in reservoir modeling. Journal of Petroleum Science and Engineering, 2004, 44, 143-153.	2.1	57
56	Improved inversion for seismic structure using transformed,S-wavevector receiver functions: Removing the effect of the free surface. Geophysical Research Letters, 2003, 30, .	1.5	56
57	A self-parametrizing partition model approach to tomographic inverse problems. Inverse Problems, 2009, 25, 055009.	1.0	56
58	Probabilistic surface reconstruction from multiple data sets: An example for the Australian Moho. Journal of Geophysical Research, 2012, 117, .	3.3	53
59	Dynamical Lagrangian Remeshing (DLR): A new algorithm for solving large strain deformation problems and its application to fault-propagation folding. Earth and Planetary Science Letters, 1994, 124, 211-220.	1.8	50
60	U-series dating of bone in an open system: The diffusion-adsorption-decay model. Quaternary Geochronology, 2012, 9, 42-53.	0.6	49
61	New insight into Cainozoic sedimentary basins and Palaeozoic suture zones in southeast Australia from ambient noise surface wave tomography. Geophysical Research Letters, 2010, 37, .	1.5	48
62	Earth's Correlation Wavefield: Late Coda Correlation. Geophysical Research Letters, 2018, 45, 3035-3042.	1.5	48
63	Propagating errors in decay equations: Examples from the Reî—¸Os isotopic system. Geochimica Et Cosmochimica Acta, 1997, 61, 3019-3024.	1.6	46
64	Reconstructing plate-motion changes in the presence of finite-rotations noise. Nature Communications, 2012, 3, 1048.	5.8	46
65	Seismic Source characterization using a neighbourhood algorithm. Geophysical Research Letters, 2000, 27, 3401-3404.	1.5	45
66	AN ALTERNATIVE STRATEGY FOR NON-LINEAR INVERSION OF SEISMIC WAVEFORMS1. Geophysical Prospecting, 1991, 39, 723-736.	1.0	41
67	On entropy and clustering in earthquake hypocentre distributions. Geophysical Journal International, 2000, 142, 37-51.	1.0	40
68	Seismic moment tensor inversion using a 3-D structural model: applications for the Australian region. Geophysical Journal International, 2011, 184, 949-964.	1.0	37
69	Tsunami source uncertainty estimation: The 2011 Japan tsunami. Journal of Geophysical Research: Solid Earth, 2016, 121, 4483-4505.	1.4	37
70	Seismic wavefront tracking in 3D heterogeneous media: applications with multiple data classes. Exploration Geophysics, 2006, 37, 322-330.	0.5	35
71	TransâEDimensional Surface Reconstruction With Different Classes of Parameterization. Geochemistry, Geophysics, Geosystems, 2019, 20, 505-529.	1.0	35
72	Constraints on theSwave velocity structure in a continental shield from surface wave data: Comparing linearized least squares inversion and the direct search Neighbourhood Algorithm. Journal of Geophysical Research, 2002, 107, ESE 4-1.	3.3	33

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73	Automatic differentiation in geophysical inverse problems. Geophysical Journal International, 2007, 170, 1-8.	1.0	30
74	Global P wave tomography of Earth's lowermost mantle from partition modeling. Journal of Geophysical Research: Solid Earth, 2013, 118, 5467-5486.	1.4	30
75	REDBACK: Open-source software for efficient noise-reduction in plate kinematic reconstructions. Geochemistry, Geophysics, Geosystems, 2014, 15, 1663-1670.	1.0	29
76	Transdimensional Monte Carlo Inversion of AEM Data. ASEG Extended Abstracts, 2012, 2012, 1-4.	0.1	28
77	Slow-downs and speed-ups of Indiaâ€“Eurasia convergence since <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si0012.gif" overflow="scroll"><mml:mo>â^¼</mml:mo><mml:mn>20</mml:mn><mml:mspace width="0.25em" /><mml:mi>Ma</mml:mi></mml:math>: Data-noise, uncertainties and dynamic implications. Earth and Planetary Science Letters, 2013, 367, 146-156.	1.8	28
78	Frequency-dependent effects on global S-wave traveltimes: wavefront-healing, scattering and attenuation. Geophysical Journal International, 2010, 182, 1025-1042.	1.0	27
79	National COVID numbers â€” Benfordâ€™s law looks for errors. Nature, 2020, 581, 384-384.	13.7	27
80	Bayesian noise-reduction in Arabia/Somalia and Nubia/Arabia finite rotations since â^¼20 Ma: Implications for Nubia/Somalia relative motion. Geochemistry, Geophysics, Geosystems, 2014, 15, 845-854.	1.0	26
81	Gaussian process modelsâ€”I. A framework for probabilistic continuous inverse theory. Geophysical Journal International, 2020, 220, 1632-1647.	1.0	26
82	The resolution of past heat flow in sedimentary basins from non-linear inversion of geochemical data: the smoothest model approach, with synthetic examples. Geophysical Journal International, 1992, 109, 78-95.	1.0	25
83	Trans-dimensional Bayesian inversion of airborne electromagnetic data for 2D conductivity profiles. Exploration Geophysics, 2018, 49, 134-147.	0.5	25
84	The ambiguity in ray perturbation theory. Journal of Geophysical Research, 1993, 98, 22021-22034.	3.3	24
85	Irregular interface parametrization in 3-D wide-angle seismic traveltime tomography. Geophysical Journal International, 2003, 155, 79-92.	1.0	24
86	Holistic inversion of frequency-domain airborne electromagnetic data with minimal prior information. Exploration Geophysics, 2009, 40, 8-16.	0.5	24
87	A dynamic objective function technique for generating multiple solution models in seismic tomography. Geophysical Journal International, 2008, 174, 295-308.	1.0	23
88	Source Depth and Mechanism Inversion at Teleseismic Distances Using a Neighborhood Algorithm. Bulletin of the Seismological Society of America, 2000, 90, 1369-1383.	1.1	21
89	Is there a link between geomagnetic reversal frequency and paleointensity? A Bayesian approach. Journal of Geophysical Research: Solid Earth, 2014, 119, 5290-5304.	1.4	21
90	The Australian Seismometers in Schools Network: Education, Outreach, Research, and Monitoring. Seismological Research Letters, 2014, 85, 1063-1068.	0.8	20

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91	Attenuation tomography of the upper inner core. Journal of Geophysical Research: Solid Earth, 2017, 122, 3008-3032.	1.4	20
92	Seismic tomography with irregular meshes. Geophysical Monograph Series, 2005, , 49-65.	0.1	18
93	Multiarrival wavefront tracking and its applications. Geochemistry, Geophysics, Geosystems, 2008, 9, .	1.0	18
94	A probabilistic approach for estimating the separation between a pair of earthquakes directly from their coda waves. Journal of Geophysical Research, 2011, 116, .	3.3	18
95	Using Benfordâ€™s law to investigate Natural Hazard dataset homogeneity. Scientific Reports, 2015, 5, 12046.	1.6	18
96	Optimal regularization for a class of linear inverse problem. Geophysical Journal International, 2018, 215, 1003-1021.	1.0	18
97	Evidence for the Innermost Inner Core: Robust Parameter Search for Radially Varying Anisotropy Using the Neighborhood Algorithm. Journal of Geophysical Research: Solid Earth, 2021, 126, .	1.4	18
98	An objective rationale for the choice of regularisation parameter with application to global multiple-frequency <i>S</i>-wave tomography. Solid Earth, 2013, 4, 357-371.	1.2	17
99	Efficient parallel inversion using the Neighbourhood Algorithm. Geochemistry, Geophysics, Geosystems, 2006, 7, n/a-n/a.	1.0	15
100	How do we understand and visualize uncertainty?. The Leading Edge, 2006, 25, 542-546.	0.4	15
101	Relocating a Cluster of Earthquakes Using a Single Seismic Station. Bulletin of the Seismological Society of America, 2013, 103, 3057-3072.	1.1	14
102	Geophysical inversion and optimal transport. Geophysical Journal International, 2022, 231, 172-198.	1.0	14
103	A COMPARATIVE STUDY OF EXPLICIT DIFFERENTIAL OPERATORS ON ARBITRARY GRIDS. Journal of Computational Acoustics, 2001, 09, 1111-1125.	1.0	13
104	Inversion for multiple parameter classes. Geophysical Journal International, 1998, 135, 304-306.	1.0	12
105	Efficient Bayesian uncertainty estimation in linear finite fault inversion with positivity constraints by employing a log-normal prior. Geophysical Journal International, 2019, 217, 469-484.	1.0	12
106	Signal Parameter Estimation for Sparse Arrays. Bulletin of the Seismological Society of America, 2003, 93, 1765-1772.	1.1	11
107	Three-dimensional empirical traveltimes: construction and applications. Geophysical Journal International, 2004, 156, 307-328.	1.0	11
108	Quantifying Uncertainty in Flow Functions Derived from SCAL Data. Transport in Porous Media, 2006, 65, 265-286.	1.2	11

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109	Using coda wave interferometry for estimating the variation in source mechanism between double couple events. Journal of Geophysical Research, 2007, 112, .	3.3	11
110	A statistical fracture model for Antarctic ice shelves and glaciers. Cryosphere, 2018, 12, 3187-3213.	1.5	9
111	Hydrogeological Bayesian Hypothesis Testing through Trans-Dimensional Sampling of a Stochastic Water Balance Model. Water (Switzerland), 2019, 11, 1463.	1.2	9
112	Transdimensional Bayesian Attenuation Tomography of the Upper Inner Core. Journal of Geophysical Research: Solid Earth, 2019, 124, 1929-1943.	1.4	9
113	Hypocenter location by pattern recognition. Journal of Geophysical Research, 2002, 107, ESE 5-1.	3.3	8
114	Constraints on coda wave interferometry estimates of source separation: the acoustic case. Exploration Geophysics, 2007, 38, 189-199.	0.5	8
115	The applicability of ray perturbation theory to mantle tomography. Geophysical Research Letters, 1993, 20, 73-76.	1.5	7
116	GEOPHYSICS: An Ensemble View of Earth's Inner Core. Science, 2003, 299, 529-530.	6.0	7
117	Constraints on earthquake epicentres independent of seismic velocity models. Geophysical Journal International, 2004, 156, 648-654.	1.0	7
118	The Impact of Uncertain Centrifuge Capillary Pressure on Reservoir Simulation. SIAM Journal of Scientific Computing, 2004, 26, 537-557.	1.3	7
119	Tectonic interpretation of aftershock relocations in eastern Papua New Guinea using teleseismic data and the arrival pattern method. Geophysical Journal International, 2005, 160, 1103-1111.	1.0	7
120	Australian mean land-surface temperature. Geothermics, 2018, 72, 156-162.	1.5	7
121	Gaussian process modelsâ€”II. Lessons for discrete inversion. Geophysical Journal International, 0, , .	1.0	7
122	Multipathing, reciprocal traveltime fields and raylets. Geophysical Journal International, 2010, , .	1.0	6
123	Noise Estimation of Remote Sensing Reflectance Using a Segmentation Approach Suitable for Optically Shallow Waters. IEEE Transactions on Geoscience and Remote Sensing, 2014, 52, 7504-7512.	2.7	6
124	Multitechnique Assessment of the Interannual to Multidecadal Variability in Steric Sea Levels: A Comparative Analysis of Climate Mode Fingerprints. Journal of Climate, 2018, 31, 7583-7597.	1.2	6
125	An Adjoint Technique for Estimation of Interstation Phase and Group Dispersion from Ambient Noise Cross Correlations. Bulletin of the Seismological Society of America, 2019, 109, 1716-1728.	1.1	6
126	Reconstructing time series and their uncertainty from observations with universal noise. Journal of Geophysical Research: Solid Earth, 2016, 121, 4990-5012.	1.4	5

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127	Lowermost Mantle Shearâ€Velocity Structure From Hierarchical Transâ€Dimensional Bayesian Tomography. Journal of Geophysical Research: Solid Earth, 2021, 126, e2020JB021557.	1.4	5
128	85.15 Nonlinear inversion by direct search using the neighbourhood algorithm. International Geophysics, 2003, 81, 1635-1637.	0.6	4
129	A holistic approach to inversion of time-domain airborne EM. ASEG Extended Abstracts, 2006, 2006, 1-4.	0.1	4
130	On the nature of the P-wave velocity gradient in the inner core beneath Central America. Journal of Earth Science (Wuhan, China), 2013, 24, 699-705.	1.1	4
131	The inverse problem of unpolarized infrared spectroscopy of geological materials: Estimation from noisy random sampling of a quadratic form. American Mineralogist, 2018, 103, 1176-1184.	0.9	4
132	Small-scale heterogeneity in the lowermost mantle beneath Alaska and northern Pacific revealed from shear-wave triplications. Earth and Planetary Science Letters, 2021, 559, 116768.	1.8	4
133	Phase space methods for multi-arrival wavefronts. Exploration Geophysics, 2006, 37, 331-339.	0.5	3
134	Assessing uncertainty in geophysical problems â€" Introduction. Geophysics, 2013, 78, WB1-WB2.	1.4	3
135	Inverse Theory, Monte Carlo Method. Encyclopedia of Earth Sciences Series, 2011, , 639-644.	0.1	3
136	Tomoeye: A Matlab package for visualization of three-dimensional tomographic models. Geochemistry, Geophysics, Geosystems, 2004, 5, n/a-n/a.	1.0	2
137	Innovative data inference. Preview, 2011, 2011, 24-29.	0.0	2
138	Upscaling and downscaling Monte Carlo ensembles with generative models. Geophysical Journal International, 2022, 230, 916-931.	1.0	2
139	Softening a hard quadratic bound to a prior pdf â€" an example from geomagnetism. AIP Conference Proceedings, 2005, , .	0.3	1
140	Down the borehole but outside the box: innovative approaches to wireline log data interpretation. ASEG Extended Abstracts, 2010, 2010, 1-4.	0.1	1
141	Reply [to â€œComment on â€˜The ambiguity in ray perturbation theoryâ€™ by Roel Snieder and Malcolm Sambridgeâ€]. Journal of Geophysical Research, 1994, 99, 21969-21970.	3.3	0
142	AusArray: Toward updatable, high-resolution seismic velocity models of the Australian lithosphere. ASEG Extended Abstracts, 2019, 2019, 1-4.	0.1	0
143	Inverse Theory, Monte Carlo Method. Encyclopedia of Earth Sciences Series, 2021, , 821-827.	0.1	0
144	Inference from noisy data with an unknown number of discontinuities: ideas from outside the box.. ASEG Extended Abstracts, 2010, 2010, 1-5.	0.1	0

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145	Taming uncertainty in geophysical inversion. ASEG Extended Abstracts, 2016, 2016, 1-5.	0.1	0
146	Inverse Theory, Monte Carlo Method. Encyclopedia of Earth Sciences Series, 2020, , 1-7.	0.1	0