Trevor J Mcdougall

List of Publications by Year
in descending order

122 papers	7,887 citations	70961 41 h-index	53109 85 g-index
128 all docs	128 docs citations	128 times ranked	5445 citing authors

#	Article	IF	Citations
1	Sensitivity of a Coarseâ€Resolution Global Ocean Model to a Spatially Variable Neutral Diffusivity. Journal of Advances in Modeling Earth Systems, 2022, 14, .	1.3	5
2	The downward spiralling nature of the North Atlantic Subtropical Gyre. Nature Communications, 2022, 13, 2000.	5.8	3
3	Spice Variables and Their Use in Physical Oceanography. Journal of Geophysical Research: Oceans, 2021, 126, e2019JC015936.	1.0	6
4	Algorithmic Improvements to Finding Approximately Neutral Surfaces. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002436.	1.3	2
5	The interpretation of temperature and salinity variables in numerical ocean model output and the calculation of heat fluxes and heat content. Geoscientific Model Development, 2021, 14, 6445-6466.	1.3	4
6	Fullâ€Depth Global Estimates of Ocean Mesoscale Eddy Mixing From Observations and Theory. Geophysical Research Letters, 2020, 47, e2020GL089425.	1.5	36
7	A Pressure-Invariant Neutral Density Variable for the World's Oceans. Journal of Physical Oceanography, 2020, 50, 3585-3604.	0.7	5
8	Diapycnal Transport near a Sloping Bottom Boundary. Journal of Physical Oceanography, 2020, 50, 3253-3266.	0.7	6
9	Two Interpolation Methods Using Multiply-Rotated Piecewise Cubic Hermite Interpolating Polynomials. Journal of Atmospheric and Oceanic Technology, 2020, 37, 605-619.	0.5	22
10	VENM: An Algorithm to Accurately Calculate Neutral Slopes and Gradients. Journal of Advances in Modeling Earth Systems, 2019, 11, 1917-1939.	1.3	15
11	An accelerated version of Newtonâ€™s method with convergence order <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e1149" altimg="si2.svg"><mml:mrow><mml:msqrt><mml:mrow><mml:mn>3</mml:mn></mml:mrow></mml:msqrt><mml:mo linebreak="goodbreak" linebreakstyle="after">+</mml:mo><mml:mn>1</mml:mn></mml:mrow></mml:math>. Results in Applied Mathematics, 2019, 4, 100078.	0.5	5
12	Horizontal Residual Mean: Addressing the Limited Spatial Resolution of Ocean Models. Journal of Physical Oceanography, 2019, 49, 2741-2759.	0.7	0
13	Tracer Transport within Abyssal Mixing Layers. Journal of Physical Oceanography, 2019, 49, 2669-2695.	0.7	11
14	Thermodynamics of Sea Ice Phase Composition Revisited. Journal of Geophysical Research: Oceans, 2019, 124, 615-634.	1.0	12
15	Ridges, Seamounts, Troughs, and Bowls: Topographic Control of the Dianeutral Circulation in the Abyssal Ocean. Journal of Physical Oceanography, 2018, 48, 861-882.	0.7	24
16	Reply to â€œComment on â€˜Abyssal Upwelling and Downwelling Driven by Near-Boundary Mixingâ€™â€•. Journal of Physical Oceanography, 2018, 48, 749-753.	0.7	1
17	Mixing Inferred from an Ocean Climatology and Surface Fluxes. Journal of Physical Oceanography, 2017, 47, 667-687.	0.7	34
18	Abyssal Upwelling and Downwelling Driven by Near-Boundary Mixing. Journal of Physical Oceanography, 2017, 47, 261-283.	0.7	77

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19	Stabilizing Hydrographic Profiles with Minimal Change to the Water Masses. Journal of Atmospheric and Oceanic Technology, 2017, 34, 1935-1945.	0.5	15
20	Abyssal ocean overturning shaped by seafloor distribution. Nature, 2017, 551, 181-186.	13.7	81
21	Comment on Tailleux, R. Neutrality versus Materiality: A Thermodynamic Theory of Neutral Surfaces. Fluids 2016, 1, 32. Fluids, 2017, 2, 19.	0.8	7
22	Semicompressible Ocean Thermodynamics and Boussinesq Energy Conservation. Fluids, 2016, 1, 9.	0.8	4
23	OMIP contribution to CMIP6: experimental and diagnostic protocol for the physical component of the Ocean Model Intercomparison Project. Geoscientific Model Development, 2016, 9, 3231-3296.	1.3	223
24	Turning Ocean Mixing Upside Down. Journal of Physical Oceanography, 2016, 46, 2239-2261.	0.7	132
25	Metrological challenges for measurements of key climatological observables Part 2: oceanic salinity. Metrologia, 2016, 53, R12-R25.	0.6	37
26	Spiciness. Journal of Marine Research, 2015, 73, 141-152.	0.3	62
27	Accurate polynomial expressions for the density and specific volume of seawater using the TEOS-10 standard. Ocean Modelling, 2015, 90, 29-43.	1.0	98
28	Double-Diffusive Interleaving: Properties of the Steady-State Solution. Journal of Physical Oceanography, 2015, 45, 813-835.	0.7	4
29	Semicompressible Ocean Dynamics. Journal of Physical Oceanography, 2015, 45, 149-156.	0.7	5
30	Comment on â€œBuoyancy frequency profiles and internal semidiurnal tide turning depths in the oceansâ€•by B. King et al.. Journal of Geophysical Research: Oceans, 2014, 119, 9026-9032.	1.0	11
31	A Thermohaline Inverse Method for Estimating Diathermohaline Circulation and Mixing. Journal of Physical Oceanography, 2014, 44, 2681-2697.	0.7	15
32	A simple modification of Newtonâ€™s method to achieve convergence of order <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si37.gif" display="inline" overflow="scroll"><mml:mn>1</mml:mn><mml:mo>+</mml:mo><mml:msqrt><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mm Applied Mathematics Letters, 2014, 29, 20-25.	1.5	63
33	On Geometrical Aspects of Interior Ocean Mixing. Journal of Physical Oceanography, 2014, 44, 2164-2175.	0.7	31
34	The Representation of Ocean Circulation and Variability in Thermodynamic Coordinates. Journal of Physical Oceanography, 2014, 44, 1735-1750.	0.7	36
35	Melting of Ice and Sea Ice into Seawater and Frazil Ice Formation. Journal of Physical Oceanography, 2014, 44, 1751-1775.	0.7	16
36	Quantifying the Nonconservative Production of Conservative Temperature, Potential Temperature, and Entropy. Journal of Physical Oceanography, 2013, 43, 838-862.	0.7	32

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37	A global algorithm for estimating Absolute Salinity. Ocean Science, 2012, 8, 1123-1134.	1.3	119
38	Absolute Salinity, "Density Salinity" and the Reference-Composition Salinity Scale: present and future use in the seawater standard TEOS-10. Ocean Science, 2011, 7, 1-26.	1.3	75
39	Influence of the Nonlinear Equation of State on Global Estimates of Dianeutral Advection and Diffusion. Journal of Physical Oceanography, 2010, 40, 1690-1709.	0.7	85
40	A Tracer-Contour Inverse Method for Estimating Ocean Circulation and Mixing. Journal of Physical Oceanography, 2010, 40, 26-47.	0.7	25
41	Weak Mixing in the Eastern North Atlantic: An Application of the Tracer-Contour Inverse Method. Journal of Physical Oceanography, 2010, 40, 1881-1893.	0.7	16
42	Quantifying the Consequences of the Ill-Defined Nature of Neutral Surfaces. Journal of Physical Oceanography, 2010, 40, 1866-1880.	0.7	17
43	An approximate geostrophic streamfunction for use in density surfaces. Ocean Modelling, 2010, 32, 105-117.	1.0	28
44	A new method for forming approximately neutral surfaces. Ocean Science, 2009, 5, 155-172.	1.3	27
45	Diagnosing the Southern Ocean Overturning from Tracer Fields. Journal of Physical Oceanography, 2009, 39, 2926-2940.	0.7	44
46	The composition of Standard Seawater and the definition of the Reference-Composition Salinity Scale. Deep-Sea Research Part I: Oceanographic Research Papers, 2008, 55, 50-72.	0.6	827
47	Comment on â€œComplete Eulerian-mean tracer equation for coarse resolution OGCMsâ€•by M. S. Dubovikov and V. M. Canuto. Geophysical and Astrophysical Fluid Dynamics, 2008, 102, 249-256.	0.4	0
48	Vertical and Lateral Mixing Processes Deduced from the Mediterranean Water Signature in the North Atlantic. Journal of Physical Oceanography, 2008, 38, 164-176.	0.7	8
49	Water-Mass Transformations in a Neutral Density Framework and the Key Role of Light Penetration. Journal of Physical Oceanography, 2008, 38, 1357-1376.	0.7	95
50	Mutually consistent thermodynamic potentials for fluid water, ice and seawater: a new standard for oceanography. Ocean Science, 2008, 4, 275-291.	1.3	39
51	The Thinness of the Ocean in Sâ€“Î˜â€“p Space and the Implications for Mean Diapycnal Advection. Journal of Physical Oceanography, 2007, 37, 1714-1732.	0.7	22
52	Comment on â€œDynamical model of mesoscales in z-coordinatesâ€•and â€œThe effect of mesoscales on the tracer equation in z-coordinates OGCMsâ€•by V.M. Canuto and M.S. Dubovikov. Ocean Modelling, 2007, 17, 163-171.	1.0	9
53	Algorithms for Density, Potential Temperature, Conservative Temperature, and the Freezing Temperature of Seawater. Journal of Atmospheric and Oceanic Technology, 2006, 23, 1709-1728.	0.5	135
54	An Assessment of Orthobaric Density in the Global Ocean. Journal of Physical Oceanography, 2005, 35, 2054-2075.	0.7	41

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55	The life and work of Nick Fofonoff. Journal of Marine Research, 2005, 63, 1-7.	0.3	0
56	The material derivative of neutral density. Journal of Marine Research, 2005, 63, 159-185.	0.3	40
57	What causes the adiabatic lapse rate?. Deep-Sea Research Part I: Oceanographic Research Papers, 2003, 50, 1523-1535.	0.6	21
58	Potential Enthalpy: A Conservative Oceanic Variable for Evaluating Heat Content and Heat Fluxes. Journal of Physical Oceanography, 2003, 33, 945-963.	0.7	147
59	Accurate and Computationally Efficient Algorithms for Potential Temperature and Density of Seawater. Journal of Atmospheric and Oceanic Technology, 2003, 20, 730-741.	0.5	142
60	Does the nonlinearity of the equation of state impose an upper bound on the buoyancy frequency?. Journal of Marine Research, 2003, 61, 745-764.	0.3	8
61	The Non-Boussinesq Temporal Residual Mean. Journal of Physical Oceanography, 2003, 33, 1231-1239.	0.7	25
62	On Conservation Equations in Oceanography: How Accurate Are Boussinesq Ocean Models?. Journal of Physical Oceanography, 2002, 32, 1574-1584.	0.7	34
63	The Temporal-Residual-Mean Velocity. Part II: Isopycnal Interpretation and the Tracer and Momentum Equations. Journal of Physical Oceanography, 2001, 31, 1222-1246.	0.7	139
64	Thermal Expansion in Ocean and Coupled General Circulation Models. Journal of Climate, 2000, 13, 1384-1405.	1.2	21
65	Decadal Changes along an Indian Ocean Section at 32Â°S and Their Interpretation. Journal of Physical Oceanography, 2000, 30, 1207-1222.	0.7	125
66	The Numerical Solution of the One-Dimensional Advectionâ€“Diffusion Equation in Layered Coordinates. Monthly Weather Review, 2000, 128, 2575-2587.	0.5	2
67	Calculation of Pressure in Ocean Simulations. Journal of Physical Oceanography, 1998, 28, 577-588.	0.7	25
68	Vertical Mixing and Cabbeling in Layered Models. Journal of Physical Oceanography, 1998, 28, 1458-1480.	0.7	70
69	Meridional Overturning and Dianeutral Transport in az-Coordinate Ocean Model Including Eddy-Induced Advection. Journal of Physical Oceanography, 1998, 28, 1205-1223.	0.7	42
70	A Neutral Density Variable for the Worldâ€™s Oceans. Journal of Physical Oceanography, 1997, 27, 237-263.	0.7	519
71	Similarities of the deacon cell in the southern ocean and Ferrel cells in the atmosphere. Quarterly Journal of the Royal Meteorological Society, 1997, 123, 519-526.	1.0	35
72	Implications of a new eddy parameterization for ocean models. Geophysical Research Letters, 1996, 23, 2085-2088.	1.5	25

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73	Isopycnal Averaging and the Residual Mean Circulation. Journal of Physical Oceanography, 1996, 26, 1655-1660.	0.7	88
74	The Temporal-Residual-Mean Velocity. Part I: Derivation and the Scalar Conservation Equations. Journal of Physical Oceanography, 1996, 26, 2653-2665.	0.7	98
75	Deep-Water Properties and Surface Buoyancy Flux as Simulated by aZ-Coordinate Model Including Eddy-Induced Advection. Journal of Physical Oceanography, 1996, 26, 1320-1343.	0.7	96
76	The Meridional Overturning Cells of a World Ocean Model in Neutral Density Coordinates. Journal of Physical Oceanography, 1996, 26, 775-791.	0.7	40
77	Minimal Adjustment of Hydrographic Profiles to Achieve Static Stability. Journal of Atmospheric and Oceanic Technology, 1995, 12, 381-389.	0.5	332
78	The Influence of Ocean Mixing on the Absolute Velocity Vector. Journal of Physical Oceanography, 1995, 25, 705-725.	0.7	23
79	Dianeutral Motion, Water Mass Conversion, and Nonlinear Effects on the Density Ratio in the Pacific Thermocline. Journal of Physical Oceanography, 1995, 25, 1891-1904.	0.7	12
80	Parameterizing Eddy-Induced Tracer Transports in Ocean Circulation Models. Journal of Physical Oceanography, 1995, 25, 463-474.	0.7	742
81	Diagnosing Climate Change and Ocean Ventilation Using Hydrographic Data. Journal of Physical Oceanography, 1994, 24, 1137-1152.	0.7	229
82	Physical structure and temporal evolution of Gulf Stream warm-core ring 82B. Deep-sea Research Part A, Oceanographic Research Papers, 1992, 39, S19-S44.	1.6	15
83	The use of ocean microstructure to quantify both turbulent mixing and salt-fingering. Deep-sea Research Part A, Oceanographic Research Papers, 1992, 39, 1931-1952.	1.6	53
84	Scalar conservation equations in a turbulent ocean. Deep-sea Research Part A, Oceanographic Research Papers, 1992, 39, 1953-1966.	1.6	23
85	Interfacial advection in the thermohaline staircase east of barbados. Deep-sea Research Part A, Oceanographic Research Papers, 1991, 38, 357-370.	1.6	17
86	A Model of Sea Level Rise Caused by Ocean Thermal Expansion. Journal of Climate, 1991, 4, 438-456.	1.2	103
87	Neutral surfaces and potential vorticity in the world's oceans. Journal of Geophysical Research, 1990, 95, 13235-13261.	3.3	28
88	Bulk properties of â€œhot smokerâ€•plumes. Earth and Planetary Science Letters, 1990, 99, 185-194.	1.8	51
89	Streamfunctions for the lateral velocity vector in a compressible ocean. Journal of Marine Research, 1989, 47, 267-284.	0.3	37
90	On the helical nature of neutral trajectories in the ocean. Progress in Oceanography, 1988, 20, 153-183.	1.5	40

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91	Neutral-surface potential vorticity. Progress in Oceanography, 1988, 20, 185-221.	1.5	33
92	Some Implications of Ocean Mixing for Ocean Modelling. Elsevier Oceanography Series, 1988, 46, 21-35.	0.1	10
93	Neutral Surfaces. Journal of Physical Oceanography, 1987, 17, 1950-1964.	0.7	263
94	The Vertical Motion of Submesoscale Coherent Vortices across Neutral Surfaces. Journal of Physical Oceanography, 1987, 17, 2334-2342.	0.7	18
95	Neutral surfaces in the ocean: Implications for modelling. Geophysical Research Letters, 1987, 14, 797-800.	1.5	16
96	Thermobaricity, cabbeling, and waterâ€mass conversion. Journal of Geophysical Research, 1987, 92, 5448-5464.	3.3	172
97	Migration of intrusions across isopycnals, with examples from the Tasman Sea. Deep-sea Research Part A, Oceanographic Research Papers, 1987, 34, 1851-1866.	1.6	7
98	Two methods for the reduction of salinity spiking of CTDs. Deep-sea Research Part A, Oceanographic Research Papers, 1986, 33, 1253-1274.	1.6	12
99	Oceanic intrusions: some limitations of the Ruddick and Turner (1979) mechanism. Deep-sea Research Part A, Oceanographic Research Papers, 1986, 33, 1653-1664.	1.6	9
100	Pitfalls with the Numerical Representation of Isopycnal Diapycnal Mixing. Journal of Physical Oceanography, 1986, 16, 196-199.	0.7	46
101	Double-Diffusive Interleaving. Part II: Finite Amplitude, Steady State Interleaving. Journal of Physical Oceanography, 1985, 15, 1542-1556.	0.7	52
102	Double-Diffusive Interleaving. Part I: Linear Stability Analysis. Journal of Physical Oceanography, 1985, 15, 1532-1541.	0.7	64
103	A model of a frictionless doubleâ€“diffusive gravity current on a horizontal surface. Geophysical and Astrophysical Fluid Dynamics, 1985, 31, 221-245.	0.4	2
104	An oceanographic variable for the characterization of intrusions and water masses. Deep-sea Research Part A, Oceanographic Research Papers, 1985, 32, 1195-1207.	1.6	49
105	The Relative Roles of Diapycnal and Isopycnal Mixing on Subsurface Water Mass Conversion. Journal of Physical Oceanography, 1984, 14, 1577-1589.	0.7	122
106	Convective processes caused by a dense, hot saline source flowing into a submarine depression from above. Deep-sea Research Part A, Oceanographic Research Papers, 1984, 31, 1287-1309.	1.6	10
107	Fluid dynamic implications for massive sulphide deposits of hot saline fluid flowing into a submarine depression from below. Deep-sea Research Part A, Oceanographic Research Papers, 1984, 31, 145-170.	1.6	27
108	Flux measurements across a finger interface at low values of the stability ratio. Journal of Marine Research, 1984, 42, 1-14.	0.3	91

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109	A note on fluid dynamic processes which can influence the deposition of massive sulfides. Economic Geology, 1984, 79, 1905-1913.	1.8	36
110	Double-diffusive plumes in unconfined and confined environments. Journal of Fluid Mechanics, 1983, 133, 321-343.	1.4	12
111	Double-diffusive convection caused by coupled molecular diffusion. Journal of Fluid Mechanics, 1983, 126, 379-397.	1.4	77
112	Greenland sea bottom water formation: a balance between advection and double-diffusion. Deep-sea Research Part A, Oceanographic Research Papers, 1983, 30, 1109-1117.	1.6	40
113	The Effects on Finestructure Measurements of Correcting for Internal Wave Strain. Journal of Physical Oceanography, 1982, 12, 495-497.	0.7	5
114	Influence of cross-diffusion on â€˜fingerâ€™ double-diffusive convection. Nature, 1982, 299, 812-814.	13.7	20
115	Double-diffusive convection with a non-linear equation of state. Progress in Oceanography, 1981, 10, 71-89.	1.5	18
116	Double-diffusive convection with a nonlinear equation of state. Progress in Oceanography, 1981, 10, 91-121.	1.5	30
117	Fluxes of Properties through a Series of Double-Diffusive Interfaces with a Nonlinear Equation of State. Journal of Physical Oceanography, 1981, 11, 1294-1299.	0.7	2
118	Negatively buoyant vertical jets. Tellus, 1981, 33, 313-320.	0.4	34
119	Bias correction for individual realisation LDA measurements. Journal of Physics E: Scientific Instruments, 1980, 13, 53-60.	0.7	12
120	Measurements of turbulence in a zero-mean-shear mixed layer. Journal of Fluid Mechanics, 1979, 94, 409-431.	1.4	132
121	On the elimination of refractive-index variations in turbulent density-stratified liquid flows. Journal of Fluid Mechanics, 1979, 93, 83-96.	1.4	53
122	Bubble plumes in stratified environments. Journal of Fluid Mechanics, 1978, 85, 655-672.	1.4	208