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	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
2	Parameterizing Eddy-Induced Tracer Transports in Ocean Circulation Models. Journal of Physical Oceanography, 1995, 25, 463-474.	0.7	742
3	A Neutral Density Variable for the Worldâ€™s Oceans. Journal of Physical Oceanography, 1997, 27, 237-263.	0.7	519
4	Minimal Adjustment of Hydrographic Profiles to Achieve Static Stability. Journal of Atmospheric and Oceanic Technology, 1995, 12, 381-389.	0.5	332
5	Neutral Surfaces. Journal of Physical Oceanography, 1987, 17, 1950-1964.	0.7	263
6	Diagnosing Climate Change and Ocean Ventilation Using Hydrographic Data. Journal of Physical Oceanography, 1994, 24, 1137-1152.	0.7	229
7	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
8	Bubble plumes in stratified environments. Journal of Fluid Mechanics, 1978, 85, 655-672.	1.4	208
9	Thermobaricity, cabbeling, and waterâ€mass conversion. Journal of Geophysical Research, 1987, 92, 5448-5464.	3.3	172
10	Potential Enthalpy: A Conservative Oceanic Variable for Evaluating Heat Content and Heat Fluxes. Journal of Physical Oceanography, 2003, 33, 945-963.	0.7	147
11	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
12	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
13	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
14	Measurements of turbulence in a zero-mean-shear mixed layer. Journal of Fluid Mechanics, 1979, 94, 409-431.	1.4	132
15	Turning Ocean Mixing Upside Down. Journal of Physical Oceanography, 2016, 46, 2239-2261.	0.7	132
16	Decadal Changes along an Indian Ocean Section at 32Â°S and Their Interpretation. Journal of Physical Oceanography, 2000, 30, 1207-1222.	0.7	125
17	The Relative Roles of Diapycnal and Isopycnal Mixing on Subsurface Water Mass Conversion. Journal of Physical Oceanography, 1984, 14, 1577-1589.	0.7	122
18	A global algorithm for estimating Absolute Salinity. Ocean Science, 2012, 8, 1123-1134.	1.3	119

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19	A Model of Sea Level Rise Caused by Ocean Thermal Expansion. Journal of Climate, 1991, 4, 438-456.	1.2	103
20	The Temporal-Residual-Mean Velocity. Part I: Derivation and the Scalar Conservation Equations. Journal of Physical Oceanography, 1996, 26, 2653-2665.	0.7	98
21	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
22	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
23	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
24	Flux measurements across a finger interface at low values of the stability ratio. Journal of Marine Research, 1984, 42, 1-14.	0.3	91
25	Isopycnal Averaging and the Residual Mean Circulation. Journal of Physical Oceanography, 1996, 26, 1655-1660.	0.7	88
26	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
27	Abyssal ocean overturning shaped by seafloor distribution. Nature, 2017, 551, 181-186.	13.7	81
28	Double-diffusive convection caused by coupled molecular diffusion. Journal of Fluid Mechanics, 1983, 126, 379-397.	1.4	77
29	Abyssal Upwelling and Downwelling Driven by Near-Boundary Mixing. Journal of Physical Oceanography, 2017, 47, 261-283.	0.7	77
30	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
31	Vertical Mixing and Cabbeling in Layered Models. Journal of Physical Oceanography, 1998, 28, 1458-1480.	0.7	70
32	Double-Diffusive Interleaving. Part I: Linear Stability Analysis. Journal of Physical Oceanography, 1985, 15, 1532-1541.	0.7	64
33	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></m Applied Mathematics Letters, 2014, 29, 20-25.	1.5	63
34	Spiciness. Journal of Marine Research, 2015, 73, 141-152.	0.3	62
35	On the elimination of refractive-index variations in turbulent density-stratified liquid flows. Journal of Fluid Mechanics, 1979, 93, 83-96.	1.4	53
36	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

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37	Double-Diffusive Interleaving. Part II: Finite Amplitude, Steady State Interleaving. Journal of Physical Oceanography, 1985, 15, 1542-1556.	0.7	52
38	Bulk properties of â€œhot smokerâ€•plumes. Earth and Planetary Science Letters, 1990, 99, 185-194.	1.8	51
39	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
40	Pitfalls with the Numerical Representation of Isopycnal Diapycnal Mixing. Journal of Physical Oceanography, 1986, 16, 196-199.	0.7	46
41	Diagnosing the Southern Ocean Overturning from Tracer Fields. Journal of Physical Oceanography, 2009, 39, 2926-2940.	0.7	44
42	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
43	An Assessment of Orthobaric Density in the Global Ocean. Journal of Physical Oceanography, 2005, 35, 2054-2075.	0.7	41
44	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
45	On the helical nature of neutral trajectories in the ocean. Progress in Oceanography, 1988, 20, 153-183.	1.5	40
46	The material derivative of neutral density. Journal of Marine Research, 2005, 63, 159-185.	0.3	40
47	The Meridional Overturning Cells of a World Ocean Model in Neutral Density Coordinates. Journal of Physical Oceanography, 1996, 26, 775-791.	0.7	40
48	Mutually consistent thermodynamic potentials for fluid water, ice and seawater: a new standard for oceanography. Ocean Science, 2008, 4, 275-291.	1.3	39
49	Streamfunctions for the lateral velocity vector in a compressible ocean. Journal of Marine Research, 1989, 47, 267-284.	0.3	37
50	Metrological challenges for measurements of key climatological observables Part 2: oceanic salinity. Metrologia, 2016, 53, R12-R25.	0.6	37
51	A note on fluid dynamic processes which can influence the deposition of massive sulfides. Economic Geology, 1984, 79, 1905-1913.	1.8	36
52	The Representation of Ocean Circulation and Variability in Thermodynamic Coordinates. Journal of Physical Oceanography, 2014, 44, 1735-1750.	0.7	36
53	Fullâ€Depth Global Estimates of Ocean Mesoscale Eddy Mixing From Observations and Theory. Geophysical Research Letters, 2020, 47, e2020GL089425.	1.5	36
54	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

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55	Negatively buoyant vertical jets. Tellus, 1981, 33, 313-320.	0.4	34
56	On Conservation Equations in Oceanography: How Accurate Are Boussinesq Ocean Models?. Journal of Physical Oceanography, 2002, 32, 1574-1584.	0.7	34
57	Mixing Inferred from an Ocean Climatology and Surface Fluxes. Journal of Physical Oceanography, 2017, 47, 667-687.	0.7	34
58	Neutral-surface potential vorticity. Progress in Oceanography, 1988, 20, 185-221.	1.5	33
59	Quantifying the Nonconservative Production of Conservative Temperature, Potential Temperature, and Entropy. Journal of Physical Oceanography, 2013, 43, 838-862.	0.7	32
60	On Geometrical Aspects of Interior Ocean Mixing. Journal of Physical Oceanography, 2014, 44, 2164-2175.	0.7	31
61	Double-diffusive convection with a nonlinear equation of state. Progress in Oceanography, 1981, 10, 91-121.	1.5	30
62	Neutral surfaces and potential vorticity in the world's oceans. Journal of Geophysical Research, 1990, 95, 13235-13261.	3.3	28
63	An approximate geostrophic streamfunction for use in density surfaces. Ocean Modelling, 2010, 32, 105-117.	1.0	28
64	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
65	A new method for forming approximately neutral surfaces. Ocean Science, 2009, 5, 155-172.	1.3	27
66	Implications of a new eddy parameterization for ocean models. Geophysical Research Letters, 1996, 23, 2085-2088.	1.5	25
67	Calculation of Pressure in Ocean Simulations. Journal of Physical Oceanography, 1998, 28, 577-588.	0.7	25
68	The Non-Boussinesq Temporal Residual Mean. Journal of Physical Oceanography, 2003, 33, 1231-1239.	0.7	25
69	A Tracer-Contour Inverse Method for Estimating Ocean Circulation and Mixing. Journal of Physical Oceanography, 2010, 40, 26-47.	0.7	25
70	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
71	Scalar conservation equations in a turbulent ocean. Deep-sea Research Part A, Oceanographic Research Papers, 1992, 39, 1953-1966.	1.6	23
72	The Influence of Ocean Mixing on the Absolute Velocity Vector. Journal of Physical Oceanography, 1995, 25, 705-725.	0.7	23

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73	The Thinness of the Ocean in Sâ€“Îˆâ€“p Space and the Implications for Mean Diapycnal Advection. Journal of Physical Oceanography, 2007, 37, 1714-1732.	0.7	22
74	Two Interpolation Methods Using Multiply-Rotated Piecewise Cubic Hermite Interpolating Polynomials. Journal of Atmospheric and Oceanic Technology, 2020, 37, 605-619.	0.5	22
75	Thermal Expansion in Ocean and Coupled General Circulation Models. Journal of Climate, 2000, 13, 1384-1405.	1.2	21
76	What causes the adiabatic lapse rate?. Deep-Sea Research Part I: Oceanographic Research Papers, 2003, 50, 1523-1535.	0.6	21
77	Influence of cross-diffusion on â€˜fingerâ€™ double-diffusive convection. Nature, 1982, 299, 812-814.	13.7	20
78	Double-diffusive convection with a non-linear equation of state. Progress in Oceanography, 1981, 10, 71-89.	1.5	18
79	The Vertical Motion of Submesoscale Coherent Vortices across Neutral Surfaces. Journal of Physical Oceanography, 1987, 17, 2334-2342.	0.7	18
80	Interfacial advection in the thermohaline staircase east of barbados. Deep-sea Research Part A, Oceanographic Research Papers, 1991, 38, 357-370.	1.6	17
81	Quantifying the Consequences of the Ill-Defined Nature of Neutral Surfaces. Journal of Physical Oceanography, 2010, 40, 1866-1880.	0.7	17
82	Neutral surfaces in the ocean: Implications for modelling. Geophysical Research Letters, 1987, 14, 797-800.	1.5	16
83	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
84	Melting of Ice and Sea Ice into Seawater and Frazil Ice Formation. Journal of Physical Oceanography, 2014, 44, 1751-1775.	0.7	16
85	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
86	A Thermohaline Inverse Method for Estimating Diathermohaline Circulation and Mixing. Journal of Physical Oceanography, 2014, 44, 2681-2697.	0.7	15
87	Stabilizing Hydrographic Profiles with Minimal Change to the Water Masses. Journal of Atmospheric and Oceanic Technology, 2017, 34, 1935-1945.	0.5	15
88	VENM: An Algorithm to Accurately Calculate Neutral Slopes and Gradients. Journal of Advances in Modeling Earth Systems, 2019, 11, 1917-1939.	1.3	15
89	Bias correction for individual realisation LDA measurements. Journal of Physics E: Scientific Instruments, 1980, 13, 53-60.	0.7	12
90	Double-diffusive plumes in unconfined and confined environments. Journal of Fluid Mechanics, 1983, 133, 321-343.	1.4	12

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91	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
92	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
93	Thermodynamics of Sea Ice Phase Composition Revisited. Journal of Geophysical Research: Oceans, 2019, 124, 615-634.	1.0	12
94	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
95	Tracer Transport within Abyssal Mixing Layers. Journal of Physical Oceanography, 2019, 49, 2669-2695.	0.7	11
96	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
97	Some Implications of Ocean Mixing for Ocean Modelling. Elsevier Oceanography Series, 1988, 46, 21-35.	0.1	10
98	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
99	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
100	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
101	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
102	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
103	Comment on Tailleux, R. Neutrality versus Materiality: A Thermodynamic Theory of Neutral Surfaces. Fluids 2016, 1, 32. Fluids, 2017, 2, 19.	0.8	7
104	Spice Variables and Their Use in Physical Oceanography. Journal of Geophysical Research: Oceans, 2021, 126, e2019JC015936.	1.0	6
105	Diapycnal Transport near a Sloping Bottom Boundary. Journal of Physical Oceanography, 2020, 50, 3253-3266.	0.7	6
106	The Effects on Finestructure Measurements of Correcting for Internal Wave Strain. Journal of Physical Oceanography, 1982, 12, 495-497.	0.7	5
107	Semicompressible Ocean Dynamics. Journal of Physical Oceanography, 2015, 45, 149-156.	0.7	5
108	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:msqrt><mml:mn>3</mml:mn></mml:msqrt><mml:mo linebreak="goodbreak" linebreakstyle="after">+</mml:mo><mml:mn>1</mml:mn></mml:math>. Results in Applied Mathematics, 2019, 4, 100078.	0.5	5

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109	A Pressure-Invariant Neutral Density Variable for the World's Oceans. Journal of Physical Oceanography, 2020, 50, 3585-3604.	0.7	5
110	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
111	Double-Diffusive Interleaving: Properties of the Steady-State Solution. Journal of Physical Oceanography, 2015, 45, 813-835.	0.7	4
112	Semicompressible Ocean Thermodynamics and Boussinesq Energy Conservation. Fluids, 2016, 1, 9.	0.8	4
113	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
114	The downward spiralling nature of the North Atlantic Subtropical Gyre. Nature Communications, 2022, 13, 2000.	5.8	3
115	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
116	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
117	The Numerical Solution of the One-Dimensional Advectionâ€“Diffusion Equation in Layered Coordinates. Monthly Weather Review, 2000, 128, 2575-2587.	0.5	2
118	Algorithmic Improvements to Finding Approximately Neutral Surfaces. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002436.	1.3	2
119	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
120	The life and work of Nick Fofonoff. Journal of Marine Research, 2005, 63, 1-7.	0.3	0
121	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
122	Horizontal Residual Mean: Addressing the Limited Spatial Resolution of Ocean Models. Journal of Physical Oceanography, 2019, 49, 2741-2759.	0.7	0