

# Michael G Worster

## List of Publications by Year in descending order

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111  
papers

6,040  
citations

61857

43  
h-index

74018

75  
g-index

112  
all docs

112  
docs citations

112  
times ranked

3205  
citing authors

#	ARTICLE	IF	CITATIONS
1	Solidification of an alloy from a cooled boundary. <i>Journal of Fluid Mechanics</i> , 1986, 167, 481.	1.4	282
2	Instabilities of the liquid and mushy regions during solidification of alloys. <i>Journal of Fluid Mechanics</i> , 1992, 237, 649-669.	1.4	273
3	Interfacial conditions between a pure fluid and a porous medium: implications for binary alloy solidification. <i>Journal of Fluid Mechanics</i> , 2006, 550, 149.	1.4	265
4	CONVECTION IN MUSHY LAYERS. <i>Annual Review of Fluid Mechanics</i> , 1997, 29, 91-122.	10.8	260
5	PREMELTING DYNAMICS. <i>Annual Review of Fluid Mechanics</i> , 2006, 38, 427-452.	10.8	199
6	Premelting dynamics in a continuum model of frost heave. <i>Journal of Fluid Mechanics</i> , 2004, 498, 227-244.	1.4	194
7	Natural convection in a mushy layer. <i>Journal of Fluid Mechanics</i> , 1991, 224, 335-359.	1.4	179
8	Dynamic solidification of a binary melt. <i>Nature</i> , 1985, 314, 703-707.	13.7	170
9	Natural convection during solidification of an alloy from above with application to the evolution of sea ice. <i>Journal of Fluid Mechanics</i> , 1997, 344, 291-316.	1.4	166
10	Solidification of colloidal suspensions. <i>Journal of Fluid Mechanics</i> , 2006, 554, 147.	1.4	158
11	Desalination processes of sea ice revisited. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	157
12	The interaction between a particle and an advancing solidification front. <i>Journal of Crystal Growth</i> , 1999, 205, 427-440.	0.7	131
13	Possible displacement of the climate signal in ancient ice by premelting and anomalous diffusion. <i>Nature</i> , 2001, 411, 568-571.	13.7	124
14	Convection and crystallization in magma cooled from above. <i>Earth and Planetary Science Letters</i> , 1990, 101, 78-89.	1.8	114
15	Impact of underwater-ice evolution on Arctic summer sea ice. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	114
16	The case for a dynamic contact angle in containerless solidification. <i>Journal of Crystal Growth</i> , 1996, 163, 329-338.	0.7	108
17	Solidification of an alloy cooled from above Part 1. Equilibrium growth. <i>Journal of Fluid Mechanics</i> , 1990, 216, 323-342.	1.4	99
18	Weakly nonlinear analysis of convection in mushy layers during the solidification of binary alloys. <i>Journal of Fluid Mechanics</i> , 1995, 302, 307-331.	1.4	99

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19	Two-dimensional viscous gravity currents flowing over a deep porous medium. <i>Journal of Fluid Mechanics</i> , 2001, 440, 359-380.	1.4	97
20	Natural Convection, Solute Trapping, and Channel Formation during Solidification of Saltwater. <i>Journal of Physical Chemistry B</i> , 1997, 101, 6132-6136.	1.2	95
21	In situ measurements of the evolution of young sea ice. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	93
22	Solidification using smoothed particle hydrodynamics. <i>Journal of Computational Physics</i> , 2005, 206, 684-705.	1.9	89
23	Morphological instability in freezing colloidal suspensions. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2007, 463, 723-733.	1.0	82
24	Stability of ice-sheet grounding lines. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2010, 466, 1597-1620.	1.0	80
25	Time-dependent density profiles in a filling box. <i>Journal of Fluid Mechanics</i> , 1983, 132, 457-466.	1.4	78
26	Particle trapping at an advancing solidification front with interfacial-curvature effects. <i>Journal of Crystal Growth</i> , 2001, 223, 420-432.	0.7	76
27	A Theory of Premelting Dynamics for all Power Law Forces. <i>Physical Review Letters</i> , 1996, 76, 3602-3605.	2.9	69
28	Disequilibrium and macrosegregation during solidification of a binary melt. <i>Nature</i> , 1989, 340, 357-362.	13.7	68
29	the phase evolution of Young Sea Ice. <i>Geophysical Research Letters</i> , 1997, 24, 1251-1254.	1.5	67
30	A non-destructive method for measuring the salinity and solid fraction of growing sea ice in situ. <i>Journal of Glaciology</i> , 2005, 51, 159-166.	1.1	67
31	A new oscillatory instability in a mushy layer during the solidification of binary alloys. <i>Journal of Fluid Mechanics</i> , 1996, 307, 245-267.	1.4	62
32	Weak convection, liquid inclusions and the formation of chimneys in mushy layers. <i>Journal of Fluid Mechanics</i> , 1999, 388, 197-215.	1.4	62
33	The crystallization of lava lakes. <i>Journal of Geophysical Research</i> , 1993, 98, 15891-15901.	3.3	61
34	Solidification of leads: Theory, experiment, and field observations. <i>Journal of Geophysical Research</i> , 2000, 105, 1123-1134.	3.3	59
35	Simulation of directional solidification, thermochemical convection, and chimney formation in a Hele-Shaw cell. <i>Journal of Computational Physics</i> , 2008, 227, 9823-9840.	1.9	59
36	A geophysical-scale model of vertical natural convection boundary layers. <i>Journal of Fluid Mechanics</i> , 2008, 609, 111-137.	1.4	59

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37	Steady-state solidification of aqueous ammonium chloride. <i>Journal of Fluid Mechanics</i> , 2008, 599, 465-476.	1.4	59
38	Solidification of an alloy cooled from above Part 2. Non-equilibrium interfacial kinetics. <i>Journal of Fluid Mechanics</i> , 1990, 217, 331-348.	1.4	56
39	A numerical investigation of steady convection in mushy layers during the directional solidification of binary alloys. <i>Journal of Fluid Mechanics</i> , 1998, 356, 199-220.	1.4	51
40	Frost flower formation on sea ice and lake ice. <i>Geophysical Research Letters</i> , 2009, 36, .	1.5	51
41	Dynamics of premelted films: Frost heave in a capillary. <i>Physical Review E</i> , 1995, 51, 4679-4689.	0.8	50
42	Periodic Ice Banding in Freezing Colloidal Dispersions. <i>Langmuir</i> , 2012, 28, 16512-16523.	1.6	50
43	Ice growth in a spherical cavity of a porous medium. <i>Journal of Glaciology</i> , 2010, 56, 271-277.	1.1	48
44	Steady-state chimneys in a mushy layer. <i>Journal of Fluid Mechanics</i> , 2002, 455, 387-411.	1.4	44
45	Magnetic resonance imaging of structure and convection in solidifying mushy layers. <i>Journal of Fluid Mechanics</i> , 2006, 552, 99.	1.4	43
46	Steady-state mushy layers: experiments and theory. <i>Journal of Fluid Mechanics</i> , 2007, 570, 69-77.	1.4	42
47	Elastic dynamics and tidal migration of grounding lines modify subglacial lubrication and melting. <i>Geophysical Research Letters</i> , 2013, 40, 5877-5881.	1.5	42
48	Laminar free convection in confined regions. <i>Journal of Fluid Mechanics</i> , 1985, 156, 301.	1.4	41
49	The transient behaviour of alloys solidified from below prior to the formation of chimneys. <i>Journal of Fluid Mechanics</i> , 1994, 269, 23-44.	1.4	41
50	The influence of ocean flow on newly forming sea ice. <i>Journal of Geophysical Research</i> , 2002, 107, 1-1.	3.3	41
51	Flow-induced morphological instability of a mushy layer. <i>Journal of Fluid Mechanics</i> , 1999, 391, 337-357.	1.4	38
52	Diffusion-controlled solidification of a ternary melt from a cooled boundary. <i>Journal of Fluid Mechanics</i> , 2001, 432, 201-217.	1.4	38
53	Freezing colloidal suspensions: periodic ice lenses and compaction. <i>Journal of Fluid Mechanics</i> , 2014, 758, 786-808.	1.4	35
54	The Axisymmetric Laminar Plume: Asymptotic Solution for Large Prandtl Number. <i>Studies in Applied Mathematics</i> , 1986, 75, 139-152.	1.1	32

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55	Solidification of a binary alloy: Finite-element, single-domain simulation and new benchmark solutions. <i>Journal of Computational Physics</i> , 2006, 216, 247-263.	1.9	32
56	Sea-ice thermodynamics and brine drainage. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2015, 373, 20140166.	1.6	32
57	Solidification of an alloy cooled from above. Part 3. Compositional stratification within the solid. <i>Journal of Fluid Mechanics</i> , 1990, 218, 337.	1.4	30
58	Elastic response of a grounded ice sheet coupled to a floating ice shelf. <i>Physical Review E</i> , 2011, 84, 036111.	0.8	30
59	Dynamics of viscous grounding lines. <i>Journal of Fluid Mechanics</i> , 2010, 648, 363-380.	1.4	29
60	Dynamics of a viscous layer flowing radially over an inviscid ocean. <i>Journal of Fluid Mechanics</i> , 2012, 696, 152-174.	1.4	28
61	Flow-induced compaction of a deformable porous medium. <i>Physical Review E</i> , 2016, 93, 023116.	0.8	28
62	A one-dimensional enthalpy model of sea ice. <i>Annals of Glaciology</i> , 2006, 44, 123-128.	2.8	25
63	Axisymmetric gravity currents of power-law fluids over a rigid horizontal surface. <i>Journal of Fluid Mechanics</i> , 2013, 716, .	1.4	25
64	Time-dependent fluxes across double-diffusive interfaces. <i>Journal of Fluid Mechanics</i> , 2004, 505, 287-307.	1.4	24
65	Lateral controls on grounding-line dynamics. <i>Journal of Fluid Mechanics</i> , 2013, 722, .	1.4	23
66	Fluxes through steady chimneys in a mushy layer during binary alloy solidification. <i>Journal of Fluid Mechanics</i> , 2013, 714, 127-151.	1.4	23
67	A physically based parameterization of gravity drainage for sea-ice modeling. <i>Journal of Geophysical Research: Oceans</i> , 2014, 119, 5599-5621.	1.0	23
68	On measurement and prediction of the solid fraction within mushy layers. <i>Journal of Crystal Growth</i> , 1992, 125, 487-494.	0.7	21
69	Nonlinear oscillatory convection in mushy layers. <i>Journal of Fluid Mechanics</i> , 2006, 553, 419.	1.4	21
70	Measurement of the solid fraction in the crystallization of a binary melt. <i>Journal of Crystal Growth</i> , 1991, 113, 566-574.	0.7	20
71	Solidification and compositional convection of a ternary alloy. <i>Journal of Fluid Mechanics</i> , 2003, 497, 167-199.	1.4	19
72	A simple dynamical model for gravity drainage of brine from growing sea ice. <i>Geophysical Research Letters</i> , 2013, 40, 307-311.	1.5	19

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73	Segregation and flow during the solidification of alloys. <i>Journal of Crystal Growth</i> , 1994, 139, 134-146.	0.7	18
74	Flow focusing instability in a solidifying mushy layer. <i>Journal of Fluid Mechanics</i> , 1995, 297, 293-305.	1.4	18
75	A time-dependent formulation of the mushy-zone free-boundary problem. <i>Journal of Fluid Mechanics</i> , 2005, 541, 193.	1.4	18
76	Axisymmetric viscous gravity currents flowing over a porous medium. <i>Journal of Fluid Mechanics</i> , 2009, 622, 135-144.	1.4	18
77	Melting and dissolving of a vertical solid surface with laminar compositional convection. <i>Journal of Fluid Mechanics</i> , 2011, 687, 118-140.	1.4	18
78	Lubricated viscous gravity currents. <i>Journal of Fluid Mechanics</i> , 2015, 766, 626-655.	1.4	18
79	Controls on microstructural features during solidification of colloidal suspensions. <i>Acta Materialia</i> , 2018, 157, 288-297.	3.8	17
80	Similarity solutions describing the melting of a mushy layer. <i>Journal of Crystal Growth</i> , 2000, 208, 746-756.	0.7	16
81	On the mechanisms of icicle evolution. <i>Journal of Fluid Mechanics</i> , 2010, 647, 287-308.	1.4	16
82	Interactions between steady and oscillatory convection in mushy layers. <i>Journal of Fluid Mechanics</i> , 2010, 645, 411-434.	1.4	16
83	Free convection in laterally solidifying mushy regions. <i>Journal of Fluid Mechanics</i> , 2006, 558, 69.	1.4	13
84	An experimental and theoretical study of the dynamics of grounding lines. <i>Journal of Fluid Mechanics</i> , 2013, 728, 5-28.	1.4	13
85	Conditions for defect-free solidification of aqueous ammonium chloride in a quasi two-dimensional directional solidification facility. <i>Journal of Crystal Growth</i> , 2008, 310, 3545-3551.	0.7	11
86	Release of a viscous power-law fluid over an inviscid ocean. <i>Journal of Fluid Mechanics</i> , 2012, 700, 63-76.	1.4	11
87	Instability of radially spreading extensional flows. Part 1. Experimental analysis. <i>Journal of Fluid Mechanics</i> , 2019, 881, 722-738.	1.4	11
88	Stability of lubricated viscous gravity currents. Part 1. Internal and frontal analyses and stabilisation by horizontal shear. <i>Journal of Fluid Mechanics</i> , 2019, 871, 970-1006.	1.4	11
89	Stability of lubricated viscous gravity currents. Part 2. Global analysis and stabilisation by buoyancy forces. <i>Journal of Fluid Mechanics</i> , 2019, 871, 1007-1027.	1.4	11
90	Dynamics of laterally confined marine ice sheets. <i>Journal of Fluid Mechanics</i> , 2016, 790, .	1.4	10

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91	Numerical modelling of convection in a reactive porous medium with a mobile mushy-liquid interface. <i>Journal of Fluid Mechanics</i> , 2006, 549, 99.	1.4	9
92	Assessment of ice flow dynamics in the zone close to the calving front of Antarctic ice shelves. <i>Journal of Glaciology</i> , 2015, 61, 1194-1206.	1.1	9
93	Transpiration through hydrogels. <i>Journal of Fluid Mechanics</i> , 2021, 925, .	1.4	9
94	Instability of radially spreading extensional flows. Part 2. Theoretical analysis. <i>Journal of Fluid Mechanics</i> , 2019, 881, 739-771.	1.4	8
95	Vigorous Motions in Magma Chambers and Lava Lakes. <i>The IMA Volumes in Mathematics and Its Applications</i> , 1992, , 141-173.	0.5	8
96	Surface Transport in Premelted Films with Application to Grain-Boundary Grooving. <i>Physical Review Letters</i> , 2005, 95, 176102.	2.9	7
97	Comment on "A quantitative framework for interpretation of basal ice facies formed by ice accretion over subglacial sediment" by Poul Christoffersen et al.. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	7
98	Can unconfined ice shelves provide buttressing via hoop stresses?. <i>Journal of Glaciology</i> , 2020, 66, 349-361.	1.1	7
99	Colloidal mushy layers. <i>Journal of Fluid Mechanics</i> , 2021, 914, .	1.4	7
100	The formation of grounding zone wedges: theory and experiments. <i>Journal of Fluid Mechanics</i> , 2020, 898, .	1.4	6
101	Mushy Zones with Fully Developed Chimneys. , 2001, , 71-80.		5
102	Structure of a Convecting Mushy Layer. <i>Applied Mechanics Reviews</i> , 1990, 43, S59-S62.	4.5	4
103	On the thermodynamic boundary conditions of a solidifying mushy layer with outflow. <i>Journal of Fluid Mechanics</i> , 2015, 762, .	1.4	4
104	Linear stability of a solid-vapour interface. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2010, 466, 1005-1025.	1.0	3
105	Patterns of convection in solidifying binary solutions. <i>Geophysical and Astrophysical Fluid Dynamics</i> , 2011, 105, 304-328.	0.4	2
106	Dynamics of Marine Ice Sheets. <i>Procedia IUTAM</i> , 2014, 10, 263-272.	1.2	2
107	Permeability measurements using oscillatory flows. <i>Experiments in Fluids</i> , 2020, 61, 1.	1.1	1
108	Thermal regelation of single particles and particle clusters in ice. <i>Soft Matter</i> , 2021, 17, 1779-1787.	1.2	1

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109	Fluid Sciences and Materials Science in Space. Edited by H. U. WALTER. Springer-Verlag, 1987. 745 pp. DM 320.. Journal of Fluid Mechanics, 1990, 211, 657-659.	1.4	0
110	SESSILE DROP SOLIDIFICATION. , 2002, , 283-283.		0
111	Corrugations of the Sea-Ice-Ocean Interface Caused By Ocean Shear. , 1999, , 285-287.		0