

Alistair Borthwick

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

120
papers

2,645
citations

31
h-index

48
g-index

136
ext. papers

3,180
ext. citations

4.3
avg, IF

5.61
L-index

#	Paper	IF	Citations
120	Quantifying multiple uncertainties in modelling shallow water-sediment flows: A stochastic Galerkin framework with Haar wavelet expansion and an operator-splitting approach. <i>Applied Mathematical Modelling</i> , 2022 , 106, 259-259	4.5	1
119	Microbial selenate detoxification linked to elemental sulfur oxidation: Independent and synergic pathways. <i>Journal of Hazardous Materials</i> , 2022 , 422, 126932	12.8	3
118	Weakly nonlinear theory for dispersive waves generated by moving seabed deformation. <i>Journal of Fluid Mechanics</i> , 2022 , 937,	3.7	2
117	Global syndromes induced by changes in solutes of the world's large rivers. <i>Nature Communications</i> , 2021 , 12, 5940	17.4	1
116	Environmental Impacts of Conventional versus Organic Eggplant Cultivation Systems: Influence of Electricity Mix, Yield, Over-Fertilization, and Transportation. <i>Environments - MDPI</i> , 2021 , 8, 23	3.2	2
115	Anomalous wave statistics following sudden depth transitions: application of an alternative Boussinesq-type formulation. <i>Journal of Ocean Engineering and Marine Energy</i> , 2021 , 7, 145-155	1.5	
114	Steady-state harmonic resonance of periodic interfacial waves with free-surface boundary conditions based on the homotopy analysis method. <i>Journal of Fluid Mechanics</i> , 2021 , 916,	3.7	3
113	Plant Roots Steer Resilience to Perturbation of River Floodplains. <i>Geophysical Research Letters</i> , 2021 , 48, e2021GL092388	4.9	0
112	Uncertainty quantification in shallow water-sediment flows: A stochastic Galerkin shallow water hydro-sediment-morphodynamic model. <i>Applied Mathematical Modelling</i> , 2021 , 99, 458-477	4.5	4
111	Decadal link between longitudinal morphological changes in branching channels of Yangtze estuary and movement of the offshore depo-center. <i>Earth Surface Processes and Landforms</i> , 2020 , 45, 2689-2705	3.7	1
110	Erosion-deposition patterns and depo-center movements in branching channels at the near-estuary reach of the Yangtze River. <i>Frontiers of Earth Science</i> , 2020 , 14, 537-552	1.7	
109	Piston-Driven Numerical Wave Tank Based on WENO Solver of Well-Balanced Shallow Water Equations. <i>KSCE Journal of Civil Engineering</i> , 2020 , 24, 1959-1982	1.9	1
108	Sustainability of global Golden Inland Waterways. <i>Nature Communications</i> , 2020 , 11, 1553	17.4	5
107	Aerodynamic Analysis of a Two-Bladed Vertical-Axis Wind Turbine Using a Coupled Unsteady RANS and Actuator Line Model. <i>Energies</i> , 2020 , 13, 776	3.1	6
106	Grain-energy release governs mobility of debris flow due to solid-liquid mass release. <i>Earth Surface Processes and Landforms</i> , 2020 , 45, 2912-2926	3.7	0
105	Alternate erosion and deposition in the Yangtze Estuary and the future change. <i>Journal of Chinese Geography</i> , 2020 , 30, 145-163	3.7	3
104	Vanadium contamination and associated health risk of farmland soil near smelters throughout China. <i>Environmental Pollution</i> , 2020 , 263, 114540	9.3	26

103	Power extraction by a water turbine in inviscid free surface flow with vertical shear. <i>European Journal of Mechanics, B/Fluids</i> , 2020 , 79, 401-418	2.4	
102	The role of natural Fe(II)-bearing minerals in chemoautotrophic chromium (VI) bio-reduction in groundwater. <i>Journal of Hazardous Materials</i> , 2020 , 389, 121911	12.8	39
101	Barrier lake formation due to landslide impacting a river: A numerical study using a double layer-averaged two-phase flow model. <i>Applied Mathematical Modelling</i> , 2020 , 80, 574-601	4.5	8
100	Dynamic flood topographies in the Terai region of Nepal. <i>Earth Surface Processes and Landforms</i> , 2020 , 45, 3092-3102	3.7	3
99	Steady-state multiple near resonances of periodic interfacial waves with rigid boundary. <i>Physics of Fluids</i> , 2020 , 32, 087104	4.4	5
98	Flow and magnetic structures in a kinematic ABC-dynamo. <i>Science China: Physics, Mechanics and Astronomy</i> , 2020 , 63, 1	3.6	
97	Global trends in water and sediment fluxes of the world's large rivers. <i>Science Bulletin</i> , 2020 , 65, 62-69	10.6	66
96	Offshore conversion of wind power to gaseous fuels: Feasibility study in a depleted gas field. <i>Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy</i> , 2020 , 234, 226-236	1.6	2
95	The effect of bed roughness uncertainty on tidal stream power estimates for the Pentland Firth. <i>Royal Society Open Science</i> , 2020 , 7, 191127	3.3	4
94	Microbial Community Responses to Vanadium Distributions in Mining Geological Environments and Bioremediation Assessment. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2019 , 124, 601-615	3.7	100
93	The effect of uncertain bottom friction on estimates of tidal current power. <i>Royal Society Open Science</i> , 2019 , 6, 180941	3.3	6
92	Active and passive in-plane wall fluctuations in turbulent channel flows. <i>Journal of Fluid Mechanics</i> , 2019 , 866, 689-720	3.7	12
91	On the arrangement of tidal turbines in rough and oscillatory channel flow. <i>Journal of Fluid Mechanics</i> , 2019 , 865, 790-810	3.7	4
90	Multi-directional focused wave group interactions with a plane beach. <i>Coastal Engineering</i> , 2019 , 152, 103531	4.8	6
89	Insights into interactions between vanadium (V) bio-reduction and pentachlorophenol dechlorination in synthetic groundwater. <i>Chemical Engineering Journal</i> , 2019 , 375, 121965	14.7	75
88	Experimental Observation of Modulational Instability in Crossing Surface Gravity Wavetrains. <i>Fluids</i> , 2019 , 4, 105	1.6	3
87	Hydrodynamic X Waves. <i>Physical Review Letters</i> , 2019 , 123, 184501	7.4	4
86	Laboratory study of the wave-induced mean flow and set-down in unidirectional surface gravity wave packets on finite water depth. <i>Physical Review Fluids</i> , 2019 , 4,	2.8	9

85	Solving the mystery of vanishing rivers in China. <i>National Science Review</i> , 2019 , 6, 1239-1246	10.8	4
84	Molecular biogeography of planktonic and benthic diatoms in the Yangtze River. <i>Microbiome</i> , 2019 , 7, 153	16.6	21
83	Enhanced sulfide removal and bioelectricity generation in microbial fuel cells with anodes modified by vertically oriented nanosheets. <i>Environmental Technology (United Kingdom)</i> , 2019 , 40, 1770-1779	2.6	6
82	Spatiotemporal variations in vegetation cover on the Loess Plateau, China, between 1982 and 2013: possible causes and potential impacts. <i>Environmental Science and Pollution Research</i> , 2018 , 25, 13633-13644	5.1	39
81	Approximate Solutions for Ideal Dam-Break Sediment-Laden Flows on Uniform Slopes. <i>Water Resources Research</i> , 2018 , 54, 2731-2748	5.4	4
80	Quasi-two-layer morphodynamic model for bedload-dominated problems: bed slope-induced morphological diffusion. <i>Royal Society Open Science</i> , 2018 , 5, 172018	3.3	11
79	Tracer advection in a pair of adjacent side-wall cavities, and in a rectangular channel containing two groynes in series. <i>Journal of Hydrodynamics</i> , 2018 , 30, 564-572	3.3	2
78	A 2DH hybrid Boussinesq-NSWE solver for near-shore hydrodynamics. <i>Coastal Engineering</i> , 2018 , 142, 9-26	4.8	2
77	Risks of airborne pollution accidents in a major conurbation: case study of Zhangjiakou, a host city for the 2022 Winter Olympics. <i>Stochastic Environmental Research and Risk Assessment</i> , 2018 , 32, 3257-3272	3.5	2
76	Extreme coastal responses using focused wave groups: Overtopping and horizontal forces exerted on an inclined seawall. <i>Coastal Engineering</i> , 2018 , 140, 292-305	4.8	9
75	Offshore monopile in the southern North Sea: part II, simulated hydrodynamics and loading. <i>Proceedings of the Institution of Civil Engineers: Maritime Engineering</i> , 2018 , 171, 70-85	1.8	1
74	Performance of non-uniform tidal turbine arrays in uniform flow. <i>Journal of Ocean Engineering and Marine Energy</i> , 2018 , 4, 231-241	1.5	2
73	Tracer advection in an idealised river bend with groynes. <i>Journal of Hydrodynamics</i> , 2018 , 30, 780-790	3.3	
72	Synchronous microbial vanadium (V) reduction and denitrification in groundwater using hydrogen as the sole electron donor. <i>Water Research</i> , 2018 , 141, 289-296	12.5	74
71	Advances in Numerical Techniques for Modelling Water Flows. <i>Mathematical Problems in Engineering</i> , 2018 , 2018, 1-2	1.1	
70	Regional-scale probabilistic shoreline evolution modelling for flood-risk assessment. <i>Coastal Engineering</i> , 2017 , 121, 129-144	4.8	4
69	One-dimensional and two-dimensional Green-Naghdi equations for sloshing in shallow basins. <i>Proceedings of the Institution of Civil Engineers: Engineering and Computational Mechanics</i> , 2017 , 170, 49-70	0.3	0
68	Flow through a very porous obstacle in a shallow channel. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2017 , 473, 20160672	2.4	5

67	Wave directional spreading from point field measurements. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2017 , 473, 20160781	2.4	4
66	Life cycle assessment of the environmental performance of conventional and organic methods of open field pepper cultivation system. <i>International Journal of Life Cycle Assessment</i> , 2017 , 22, 896-908	4.6	32
65	A finite volume shock-capturing solver of the fully coupled shallow water-sediment equations. <i>International Journal for Numerical Methods in Fluids</i> , 2017 , 84, 509-542	1.9	4
64	Optimisation of focused wave group runup on a plane beach. <i>Coastal Engineering</i> , 2017 , 121, 44-55	4.8	25
63	Effects of Support Structures in an LES Actuator Line Model of a Tidal Turbine with Contra-Rotating Rotors. <i>Energies</i> , 2017 , 10, 726	3.1	15
62	Environmental impact assessments of the Xiaolangdi Reservoir on the most hyperconcentrated laden river, Yellow River, China. <i>Environmental Science and Pollution Research</i> , 2017 , 24, 4337-4351	5.1	50
61	Offshore monopile in the southern North Sea: Part I, calibrated input sea state. <i>Proceedings of the Institution of Civil Engineers: Maritime Engineering</i> , 2017 , 170, 122-132	1.8	2
60	Improving global accessibility to offshore wind power through decreased operations and maintenance costs: a hydrodynamic analysis. <i>Energy Procedia</i> , 2017 , 138, 1055-1060	2.3	4
59	Acceptable Risk Analysis for Abrupt Environmental Pollution Accidents in Zhangjiakou City, China. <i>International Journal of Environmental Research and Public Health</i> , 2017 , 14,	4.6	2
58	Irregular wave runup statistics on plane beaches: Application of a Boussinesq-type model incorporating a generating/absorbing sponge layer and second-order wave generation. <i>Coastal Engineering</i> , 2016 , 114, 309-324	4.8	10
57	Marine Renewable Energy Seascape. <i>Engineering</i> , 2016 , 2, 69-78	9.7	84
56	Lateral transport of soil carbon and land-atmosphere CO ₂ flux induced by water erosion in China. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016 , 113, 6617-22	11.5	86
55	Enhanced bioelectricity generation of double-chamber air-cathode catalyst free microbial fuel cells with the addition of non-consumptive vanadium(V). <i>RSC Advances</i> , 2016 , 6, 32940-32946	3.7	6
54	Linkage Between Hourly Precipitation Events and Atmospheric Temperature Changes over China during the Warm Season. <i>Scientific Reports</i> , 2016 , 6, 22543	4.9	43
53	Microbial reduction and precipitation of vanadium (V) in groundwater by immobilized mixed anaerobic culture. <i>Bioresource Technology</i> , 2015 , 192, 410-7	11	65
52	Social and ecological impacts of marine energy development. <i>Renewable and Sustainable Energy Reviews</i> , 2015 , 47, 486-495	16.2	77
51	Dual-Enhanced Photocatalytic Activity of Fe-Deposited Titanate Nanotubes Used for Simultaneous Removal of As(III) and As(V). <i>ACS Applied Materials & Interfaces</i> , 2015 , 7, 19726-35	9.5	52
50	Sensitivity Analysis and Statistical Convergence of a Saltating Particle Model. <i>Journal of Hydraulic Engineering</i> , 2015 , 141, 04014091	1.8	5

49	Accidental Water Pollution Risk Analysis of Mine Tailings Ponds in Guanting Reservoir Watershed, Zhangjiakou City, China. <i>International Journal of Environmental Research and Public Health</i> , 2015 , 12, 15269-84	4.6	26
48	Estimate of the tidal stream power resource of the Pentland Firth. <i>Renewable Energy</i> , 2014 , 63, 650-657	8.1	63
47	Tidal stream power in the Pentland Firth – long-term variability, multiple constituents and capacity factor. <i>Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy</i> , 2014 , 228, 854-861	1.6	15
46	Importance of second-order wave generation for focused wave group run-up and overtopping. <i>Coastal Engineering</i> , 2014 , 94, 63-79	4.8	40
45	Wind-induced chaotic mixing in a two-layer density-stratified shallow flow. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2014 , 52, 219-227	1.9	3
44	Tracer dynamics in two-layer density-stratified estuarine flow. <i>Proceedings of the Institution of Civil Engineers: Engineering and Computational Mechanics</i> , 2014 , 167, 41-49	0.3	2
43	An electrical analogy for the Pentland Firth tidal stream power resource. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2014 , 470, 20130207	2.4	12
42	Environmental risk mapping of accidental pollution and its zonal prevention in a city. <i>Chemical Engineering Research and Design</i> , 2013 , 91, 397-404	5.5	17
41	Tidal stream energy resource assessment of the Anglesey Skerries. <i>International Journal of Marine Energy</i> , 2013 , 3-4, e98-e111		44
40	The importance of understanding computer analyses in civil engineering. <i>Proceedings of the Institution of Civil Engineers: Civil Engineering</i> , 2013 , 166, 137-143	0.4	1
39	The available power from tidal stream turbines in the Pentland Firth. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2013 , 469, 20130072	2.4	81
38	From the paddle to the beach – A Boussinesq shallow water numerical wave tank based on Madsen and Sørensen equations. <i>Journal of Computational Physics</i> , 2012 , 231, 328-344	4.1	38
37	Separation of structure and ripples on sand mounds using Hermite functions. <i>Proceedings of the Institution of Civil Engineers: Engineering and Computational Mechanics</i> , 2012 , 165, 15-24	0.3	0
36	A three-dimensional PSME model for rotating flows in an annular cavity. <i>International Journal of Computational Fluid Dynamics</i> , 2012 , 26, 181-191	1.2	1
35	Diagnosis of river basins as CO2 sources or sinks subject to sediment movement. <i>Earth Surface Processes and Landforms</i> , 2012 , 37, 1398-1406	3.7	3
34	Run-Up of Solitary Waves on Twin Conical Islands Using a Boussinesq Model. <i>Journal of Offshore Mechanics and Arctic Engineering</i> , 2012 , 134,	1.5	7
33	Variable density bore interaction with block obstacles. <i>International Journal of Computational Fluid Dynamics</i> , 2011 , 25, 223-237	1.2	4
32	Experimental measurement of focused wave group and solitary wave overtopping. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2011 , 49, 450-464	1.9	33

31	Vortex-induced chaotic mixing in wavy channels. <i>Journal of Fluid Mechanics</i> , 2010 , 654, 501-538	3.7	7
30	Adaptive quadtree simulation of sediment transport. <i>Proceedings of the Institution of Civil Engineers: Engineering and Computational Mechanics</i> , 2010 , 163, 101-110	0.3	1
29	1-D numerical modelling of shallow flows with variable horizontal density. <i>International Journal for Numerical Methods in Fluids</i> , 2009 , 62, n/a-n/a	1.9	4
28	Adaptive quadtree simulation of shallow flows with wet/dry fronts over complex topography. <i>Computers and Fluids</i> , 2009 , 38, 221-234	2.8	248
27	One-dimensional modelling of fluvial bed morphodynamics. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2008 , 46, 636-647	1.9	10
26	A COMPARATIVE STUDY OF FINITE VOLUME AND FINITE ELEMENT ON SOME TRANSCRITICAL FREE SURFACE FLOW PROBLEMS. <i>International Journal of Computational Methods</i> , 2008 , 05, 413-431	1.1	8
25	Simple treatment of non-aligned boundaries in a Cartesian grid shallow flow model. <i>International Journal for Numerical Methods in Fluids</i> , 2008 , 56, 2091-2110	1.9	8
24	Shallow flow simulation on dynamically adaptive cut cell quadtree grids. <i>International Journal for Numerical Methods in Fluids</i> , 2007 , 53, 1777-1799	1.9	37
23	Wind-induced chaotic advection in shallow flow geometries. Part II: Non-circular basins. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2006 , 44, 180-188	1.9	11
22	Godunov-type solution of the shallow water equations on adaptive unstructured triangular grids. <i>International Journal of Computational Fluid Dynamics</i> , 2006 , 20, 621-636	1.2	22
21	Wind-induced chaotic advection in shallow flow geometries. Part I: Circular basins. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2006 , 44, 170-79	1.9	10
20	Solitary wave transformation, breaking and run-up at a beach. <i>Proceedings of the Institution of Civil Engineers: Maritime Engineering</i> , 2006 , 159, 97-105	1.8	32
19	Flow kinematics of focused wave groups on a plane beach in the U.K. Coastal Research Facility. <i>Coastal Engineering</i> , 2006 , 53, 1033-1044	4.8	28
18	Chaotic mixing in a basin due to a sinusoidal wind field. <i>International Journal for Numerical Methods in Fluids</i> , 2005 , 47, 871-877	1.9	3
17	Finite-volume-type VOF method on dynamically adaptive quadtree grids. <i>International Journal for Numerical Methods in Fluids</i> , 2004 , 45, 485-508	1.9	37
16	Simulation of dam- and dyke-break hydrodynamics on dynamically adaptive quadtree grids. <i>International Journal for Numerical Methods in Fluids</i> , 2004 , 46, 127-162	1.9	88
15	Godunov-type adaptive grid model of wave/current interaction at cusped beaches. <i>International Journal for Numerical Methods in Fluids</i> , 2004 , 46, 569-606	1.9	8
14	Numerical wave tank based on a transformed finite element inviscid flow solver. <i>International Journal for Numerical Methods in Fluids</i> , 2003 , 42, 641-663	1.9	44

13	Mathematical balancing of flux gradient and source terms prior to using Roe's approximate Riemann solver. <i>Journal of Computational Physics</i> , 2003 , 192, 422-451	4.1	146
12	Wave-structure interaction using coupled structured-unstructured finite element meshes. <i>Applied Ocean Research</i> , 2003 , 25, 63-77	3.4	28
11	Quadtree grid numerical model of nearshore wave-current interaction. <i>Coastal Engineering</i> , 2001 , 42, 219-239	4.8	21
10	Adaptive Q-tree Godunov-type scheme for shallow water equations. <i>International Journal for Numerical Methods in Fluids</i> , 2001 , 35, 247-280	1.9	85
9	Simulation of non-linear free surface motions in a cylindrical domain using a Chebyshev-Fourier spectral collocation method. <i>International Journal for Numerical Methods in Fluids</i> , 2001 , 36, 465-496	1.9	13
8	Adaptive quadtree model of shallow-flow hydrodynamics. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2001 , 39, 413-424	1.9	24
7	Water wave diffraction by a cylinder array. Part 1. Regular waves. <i>Journal of Fluid Mechanics</i> , 2001 , 442, 1-32	3.7	40
6	Water wave diffraction by a cylinder array. Part 2. Irregular waves. <i>Journal of Fluid Mechanics</i> , 2001 , 442, 33-66	3.7	19
5	On the use of adaptive hierarchical meshes for numerical simulation of separated flows. <i>International Journal for Numerical Methods in Fluids</i> , 1998 , 26, 303-322	1.9	25
4	Shallow flow modelling using curvilinear depth-averaged stream function and vorticity transport equations. <i>International Journal for Numerical Methods in Fluids</i> , 1993 , 17, 417-445	1.9	8
3	River and reservoir flow modelling using the transformed shallow water equations. <i>International Journal for Numerical Methods in Fluids</i> , 1992 , 14, 1193-1217	1.9	38
2	Numerical simulation of jet-forced flow in a circular reservoir using discrete and random vortex methods. <i>International Journal for Numerical Methods in Fluids</i> , 1992 , 14, 1453-1472	1.9	6
1	Three Gorges Dam: Friend or Foe of Riverine Greenhouse Gases?. <i>National Science Review</i> ,	10.8	1