Mark D. Behn

List of Publications by Year
in descending order

103	7,229	41344	56724
papers	citations	49 h-index	83 g-index

112	112	112	6132
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Fracture Propagation to the Base of the Greenland Ice Sheet During Supraglacial Lake Drainage. Science, 2008, 320, 778-781.	12.6	497
2	Differentiation of the continental crust by relamination. Earth and Planetary Science Letters, 2011, 307, 501-516.	4.4	414
3	Automated Analysis of Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectra of Natural Organic Matter. Analytical Chemistry, 2006, 78, 4363-4373.	6.5	335
4	Diapirs as the source of the sediment signature in arc lavas. Nature Geoscience, 2011, 4, 641-646.	12.9	330
5	Continental Lower Crust. Annual Review of Earth and Planetary Sciences, 2015, 43, 167-205.	11.0	260
6	Role of melt supply in oceanic detachment faulting and formation of megamullions. Geology, 2008, 36, 455.	4.4	245
7	Post-entrapment modification of volatiles and oxygen fugacity in olivine-hosted melt inclusions. Earth and Planetary Science Letters, 2013, 374, 145-155.	4.4	193
8	A community benchmark for subduction zone modeling. Physics of the Earth and Planetary Interiors, 2008, 171, 187-197.	1.9	187
9	Intermittent Plate Tectonics?. Science, 2008, 319, 85-88.	12.6	180
10	Detection of upper mantle flow associated with the African Superplume. Earth and Planetary Science Letters, 2004, 224, 259-274.	4.4	151
11	Global mantle flow and the development of seismic anisotropy: Differences between the oceanic and continental upper mantle. Journal of Geophysical Research, 2007, 112, .	3.3	134
12	Constraints on lithosphere net rotation and asthenospheric viscosity from global mantle flow models and seismic anisotropy. Geochemistry, Geophysics, Geosystems, 2010, 11, .	2.5	132
13	Spatio-temporal evolution of strain accumulation derived from multi-scale observations of Late Jurassic rifting in the northern North Sea: A critical test of models for lithospheric extension. Earth and Planetary Science Letters, 2005, 234, 401-419.	4.4	129
14	Formation of lower continental crust by relamination of buoyant arc lavas and plutons. Nature Geoscience, 2016, 9, 197-205.	12.9	125
15	Foundering of lower island-arc crust as an explanation for the origin of the continental Moho. Nature, 2013, 504, 131-134.	27.8	121
16	Correlated geophysical, geochemical, and volcanological manifestations of plume-ridge interaction along the GalÃ¡pagos Spreading Center. Geochemistry, Geophysics, Geosystems, 2002, 3, 1-14.	2.5	119
17	Implications of grain size evolution on the seismic structure of the oceanic upper mantle. Earth and Planetary Science Letters, 2009, 282, 178-189.	4.4	118
18	Stability of arc lower crust: Insights from the Talkeetna arc section, south central Alaska, and the seismic structure of modern arcs. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	115

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19	Greenland supraglacial lake drainages triggered by hydrologically induced basal slip. Nature, 2015, 522, 73-76.	27.8	106
20	Relationship between seismic P-wave velocity and the composition of anhydrous igneous and meta-igneous rocks. Geochemistry, Geophysics, Geosystems, 2003, 4, n/a-n/a.	2.5	105
21	Constraints on the lake volume required for hydroâ€fracture through ice sheets. Geophysical Research Letters, 2009, 36, .	4.0	105
22	Deep pooling of low degree melts and volatile fluxes at the 85Â°E segment of the Gakkel Ridge: Evidence from olivine-hosted melt inclusions and glasses. Earth and Planetary Science Letters, 2010, 289, 311-322.	4.4	105
23	The structure of oceanic core complexes controlled by the depth distribution of magmaÂemplacement. Nature Geoscience, 2010, 3, 491-495.	12.9	104
24	Thermal structure of oceanic transform faults. Geology, 2007, 35, 307.	4.4	100
25	Magmatic and tectonic extension at midâ€ocean ridges: 1. Controls on fault characteristics. Geochemistry, Geophysics, Geosystems, 2008, 9, .	2.5	100
26	Trench-Parallel Anisotropy Produced by Foundering of Arc Lower Crust. Science, 2007, 317, 108-111.	12.6	92
27	Limits to future expansion of surfaceâ€meltâ€enhanced ice flow into the interior of western Greenland. Geophysical Research Letters, 2015, 42, 1800-1807.	4.0	89
28	Effects of heterogeneous hydration in the incoming plate, slab rehydration, and mantle wedge hydration on slab-derived H 2 O flux in subduction zones. Earth and Planetary Science Letters, 2012, 353-354, 60-71.	4.4	88
29	Using shortâ€term postseismic displacements to infer the ambient deformation conditions of the upper mantle. Journal of Geophysical Research, 2012, 117, .	3.3	86
30	Variations in earthquake rupture properties along the Gofar transform fault, East Pacific Rise. Nature Geoscience, 2012, 5, 336-341.	12.9	86
31	Influence of ice-sheet geometry and supraglacial lakes on seasonal ice-flow variability. Cryosphere, 2013, 7, 1185-1192.	3.9	80
32	Thermalâ€mechanical behavior of oceanic transform faults: Implications for the spatial distribution of seismicity. Geochemistry, Geophysics, Geosystems, 2010, 11, .	2.5	78
33	Reconstruction of the Talkeetna intraoceanic arc of Alaska through thermobarometry. Journal of Geophysical Research, 2008, 113, .	3.3	75
34	Mid-ocean ridge jumps associated with hotspot magmatism. Earth and Planetary Science Letters, 2008, 266, 256-270.	4.4	75
35	Periodic slow earthquakes on the flank of KÄ«lauea volcano, HawaiÊ»i. Earth and Planetary Science Letters, 2006, 246, 207-216.	4.4	72
36	Melt generation, crystallization, and extraction beneath segmented oceanic transform faults. Journal of Geophysical Research, 2009, 114, .	3.3	71

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37	Understanding cratonic flood basalts. Earth and Planetary Science Letters, 2006, 245, 190-201.	4.4	69
38	Morphology and segmentation of the western GalÃ¡pagos Spreading Center, 90.5Â°-98Â°W: Plume-ridge interaction at an intermediate spreading ridge. Geochemistry, Geophysics, Geosystems, 2003, 4, .	2.5	68
39	Magmatic and tectonic extension at midâ€oocean ridges: 2. Origin of axial morphology. Geochemistry, Geophysics, Geosystems, 2008, 9, .	2.5	66
40	Sensitivity of seafloor bathymetry to climate-driven fluctuations in mid-ocean ridge magma supply. Science, 2015, 350, 310-313.	12.6	65
41	A continuum mechanics model for normal faulting using a strain-rate softening rheology: implications for thermal and rheological controls on continental and oceanic rifting. Earth and Planetary Science Letters, 2002, 202, 725-740.	4.4	64
42	Mantle flow and melting underneath oblique and ultraslow midâ€oocean ridges. Geophysical Research Letters, 2007, 34, .	4.0	64
43	Spreading rate dependence of gravity anomalies along oceanic transform faults. Nature, 2007, 448, 183-187.	27.8	63
44	Evidence for weak oceanic transform faults. Geophysical Research Letters, 2002, 29, 60-1-60-4.	4.0	58
45	Long-term preservation of slab signatures in the mantle inferred from hydrogen isotopes. Nature Geoscience, 2012, 5, 224-228.	12.9	57
46	Modes of extensional faulting controlled by surface processes. Geophysical Research Letters, 2014, 41, 6725-6733.	4.0	53
47	Segmentation in gravity and magnetic anomalies along the U.S. East Coast passive margin: Implications for incipient structure of the oceanic lithosphere. Journal of Geophysical Research, 2000, 105, 25769-25790.	3.3	51
48	Chalcophile behavior of thallium during <scp>MORB</scp> melting and implications for the sulfur content of the mantle. Geochemistry, Geophysics, Geosystems, 2014, 15, 4905-4919.	2.5	51
49	Variations in melting dynamics and mantle compositions along the Eastern Volcanic Zone of the Gakkel Ridge: insights from olivine-hosted melt inclusions. Contributions To Mineralogy and Petrology, 2014, 167, 1.	3.1	49
50	Controls on melt migration and extraction at the ultraslow Southwest Indian Ridge 10Â°â€“16Â°E. Journal of Geophysical Research, 2011, 116, .	3.3	44
51	Mechanism for normal faulting in the subducting plate at the Mariana Trench. Geophysical Research Letters, 2015, 42, 4309-4317.	4.0	44
52	Melting systematics in midâ€oocean ridge basalts: Application of a plagioclaseâ€spinel melting model to global variations in major element chemistry and crustal thickness. Journal of Geophysical Research: Solid Earth, 2015, 120, 4863-4886.	3.4	43
53	Topographic controls on dike injection in volcanic rift zones. Earth and Planetary Science Letters, 2006, 246, 188-196.	4.4	42
54	Effects of variable magma supply on midâ€oocean ridge eruptions: Constraints from mapped lava flow fields along the GalÃ¡pagos Spreading Center. Geochemistry, Geophysics, Geosystems, 2012, 13, .	2.5	42

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55	Effect of the GalÃ¡pagos hotspot on seafloor volcanism along the GalÃ¡pagos Spreading Center (90.9â€“97.6Â°W). Earth and Planetary Science Letters, 2004, 217, 331-347.	4.4	41
56	Compositional dependence of lower crustal viscosity. Geophysical Research Letters, 2015, 42, 8333-8340.	4.0	40
57	Marine Ice Cliff Instability Mitigated by Slow Removal of Ice Shelves. Geophysical Research Letters, 2019, 46, 12108-12116.	4.0	36
58	Mechanisms of normal fault development at mid-ocean ridges. Journal of Geophysical Research, 2002, 107, EPM 7-1-EPM 7-17.	3.3	35
59	A constitutive model for layer development in shear zones near the brittle-ductile transition. Geophysical Research Letters, 2007, 34, .	4.0	34
60	Pronounced zonation of seismic anisotropy in the Western Hellenic subduction zone and its geodynamic significance. Earth and Planetary Science Letters, 2014, 391, 100-109.	4.4	33
61	Magmatic plumbing at Lucky Strike volcano based on olivineâ€hosted melt inclusion compositions. Geochemistry, Geophysics, Geosystems, 2015, 16, 126-147.	2.5	30
62	Seismicity on the western Greenland Ice Sheet: Surface fracture in the vicinity of active moulins. Journal of Geophysical Research F: Earth Surface, 2015, 120, 1082-1106.	2.8	29
63	Greenland Ice Sheet flow response to runoff variability. Geophysical Research Letters, 2016, 43, 11295-11303.	4.0	29
64	Magmatic and tectonic extension at the Chile Ridge: Evidence for mantle controls on ridge segmentation. Geochemistry, Geophysics, Geosystems, 2016, 17, 2354-2373.	2.5	28
65	Inferring crustal viscosity from seismic velocity: Application to the lower crust of Southern California. Earth and Planetary Science Letters, 2018, 494, 83-91.	4.4	27
66	New Opportunities to Study Earthquake Precursors. Seismological Research Letters, 2020, 91, 2444-2447.	1.9	27
67	Focusing of upward fluid migration beneath volcanic arcs: Effect of mineral grain size variation in the mantle wedge. Geochemistry, Geophysics, Geosystems, 2015, 16, 3905-3923.	2.5	26
68	Seafloor expression of oceanic detachment faulting reflects gradients in mid-ocean ridge magma supply. Earth and Planetary Science Letters, 2019, 516, 176-189.	4.4	25
69	Rapid rotation of normal faults due to flexural stresses: An explanation for the global distribution of normal fault dips. Journal of Geophysical Research: Solid Earth, 2014, 119, 3722-3739.	3.4	22
70	Spreading rateâ€dependent variations in crystallization along the global midâ€ocean ridge system. Geochemistry, Geophysics, Geosystems, 2017, 18, 3016-3033.	2.5	22
71	The role of elasticity in simulating long-term tectonic extension. Geophysical Journal International, 2016, 205, 728-743.	2.4	21
72	Magmatic Focusing to Midâ€Ocean Ridges: The Role of Grainâ€Size Variability and Nonâ€Newtonian Viscosity. Geochemistry, Geophysics, Geosystems, 2017, 18, 4342-4355.	2.5	21

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73	Constraints on the composition of the Aleutian arc lower crust from V_P/V_S. Geophysical Research Letters, 2013, 40, 2579-2584.	4.0	20
74	Grainâ€size dynamics beneath midâ€ocean ridges: Implications for permeability and melt extraction. Geochemistry, Geophysics, Geosystems, 2015, 16, 925-946.	2.5	20
75	Frictional behavior of oceanic transform faults and its influence on earthquake characteristics. Journal of Geophysical Research, 2012, 117, .	3.3	18
76	Aseismic transient slip on the Gofar transform fault, East Pacific Rise. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 10188-10194.	7.1	17
77	Timescales for the growth of sediment diapirs in subduction zones. Geophysical Journal International, 2012, 190, 1361-1377.	2.4	16
78	Grain-size distribution in the mantle wedge of subduction zones. Journal of Geophysical Research, 2011, 116, .	3.3	15
79	Hydraulic transmissivity inferred from ice-sheet relaxation following Greenland supraglacial lake drainages. Nature Communications, 2021, 12, 3955.	12.8	13
80	High water content of arc magmas recorded in cumulates from subduction zone lower crust. Nature Geoscience, 2022, 15, 501-508.	12.9	13
81	High ³ He/ ⁴ He in central Panama reveals a distal connection to the GalÃ¡pagos plume. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	12
82	The continental drift convection cell. Geophysical Research Letters, 2015, 42, 4301-4308.	4.0	11
83	Archean crustal compositions promote full mantle convection. Earth and Planetary Science Letters, 2017, 474, 516-526.	4.4	11
84	Melt Segregation and Depletion During Ascent of Buoyant Diapirs in Subduction Zones. Journal of Geophysical Research: Solid Earth, 2020, 125, e2019JB018203.	3.4	11
85	Constraints on the Depth, Thickness, and Strength of the G Discontinuity in the Central Pacific From S Receiver Functions. Journal of Geophysical Research: Solid Earth, 2021, 126, e2019JB019256.	3.4	11
86	Origins of Major Element, Trace Element, and Isotope Garnet Signatures in Midâ€Ocean Ridge Basalts. Journal of Geophysical Research: Solid Earth, 2020, 125, e2020JB019612.	3.4	10
87	The role of grain size evolution in the rheology of ice: implications for reconciling laboratory creep data and the Glen flow law. Cryosphere, 2021, 15, 4589-4605.	3.9	10
88	Response to Comment on â€œSensitivity of seafloor bathymetry to climate-driven fluctuations in mid-ocean ridge magma supplyâ€. Science, 2016, 352, 1405-1405.	12.6	9
89	Thermal segmentation of midâ€ocean ridgeâ€transform faults. Geochemistry, Geophysics, Geosystems, 2017, 18, 3405-3418.	2.5	8
90	On the Evolution and Fate of Sediment Diapirs in Subduction Zones. Geochemistry, Geophysics, Geosystems, 2021, 22, e2021GC009873.	2.5	8

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91	A comparison of ocean topography derived from the Shuttle Laser Altimeter-01 and TOPEX/POSEIDON. IEEE Transactions on Geoscience and Remote Sensing, 2000, 38, 1425-1438.	6.3	7
92	Cellular convection in a chamber with a warm surface raft. Physics of Fluids, 2011, 23, .	4.0	7
93	Relationship Between Greenland Ice Sheet Surface Speed and Modeled Effective Pressure. Journal of Geophysical Research F: Earth Surface, 2018, 123, 2258-2278.	2.8	7
94	Controls on Midâ€ocean Ridge Normal Fault Seismicity Across Spreading Rates From Rateâ€andâ€State Friction Models. Journal of Geophysical Research: Solid Earth, 2018, 123, 6719-6733.	3.4	6
95	Causes of Oceanic Crustal Thickness Oscillations Along a 74â€M Midâ€Atlantic Ridge Flow Line. Geochemistry, Geophysics, Geosystems, 2019, 20, 6123-6139.	2.5	6
96	Sensitivity of rift tectonics to global variability in the efficiency of river erosion. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2115077119.	7.1	6
97	Predicting Rates and Distribution of Carbonate Melting in Oceanic Upper Mantle: Implications for Seismic Structure and Global Carbon Cycling. Geophysical Research Letters, 2018, 45, 6944-6953.	4.0	4
98	Mantle Heterogeneity and Melting Processes in the South China Sea: Thermal and Melting Models Constrained by Oceanic Crustal Thickness and Basalt Geochemistry. Journal of Geophysical Research: Solid Earth, 2021, 126, e2020JB020735.	3.4	4
99	Submarine Landslides and Slow Earthquakes: Monitoring Motion with GPS and Seafloor Geodesy. , 2011, , 889-907.		4
100	A three-dimensional gravity model of the southern contact of the Sebago pluton, Maine. Canadian Journal of Earth Sciences, 1998, 35, 649-656.	1.3	3
101	Effects of Hydrothermal Cooling and Magma Injection on Mid-Ocean Ridge Temperature Structure, Deformation, and Axial Morphology. Geophysical Monograph Series, 2013, , 151-165.	0.1	3
102	Response to Comment on â€œSensitivity of seafloor bathymetry to climate-driven fluctuations in mid-ocean ridge magma supplyâ€. Science, 2016, 353, 229-229.	12.6	3
103	MeltMigrator: A MATLABâ€based software for modeling threeâ€dimensional melt migration and crustal thickness variations at midâ€ocean ridges following a rulesâ€based approach. Geochemistry, Geophysics, Geosystems, 2017, 18, 445-456.	2.5	2