Demian M Saffer

List of Publications by Year
in descending order

130 papers	8,321 citations	44069 48 h-index	51608 86 g-index
134 all docs	134 docs citations	134 times ranked	3835 citing authors

#	Article	IF	Citations
1	Comparison of smectite- and illite-rich gouge frictional properties: application to the updip limit of the seismogenic zone along subduction megathrusts. Earth and Planetary Science Letters, 2003, 215, 219-235.	4.4	476
2	Hydrogeology and Mechanics of Subduction Zone Forearcs: Fluid Flow and Pore Pressure. Annual Review of Earth and Planetary Sciences, 2011, 39, 157-186.	11.0	428
3	Updip limit of the seismogenic zone beneath the accretionary prism of southwest Japan: An effect of diagenetic to low-grade metamorphic processes and increasing effective stress. Geology, 2001, 29, 183.	4.4	405
4	Frictional and hydrologic properties of clayâ€rich fault gouge. Journal of Geophysical Research, 2009, 114, .	3.3	342
5	Laboratory observations of slow earthquakes and the spectrum of tectonic fault slip modes. Nature Communications, 2016, 7, 11104.	12.8	301
6	On the relation between fault strength and frictional stability. Geology, 2011, 39, 83-86.	4.4	278
7	Weakness of the San Andreas Fault revealed by samples from the active fault zone. Nature Geoscience, 2011, 4, 251-254.	12.9	235
8	Recurring and triggered slow-slip events near the trench at the Nankai Trough subduction megathrust. Science, 2017, 356, 1157-1160.	12.6	222
9	The frictional, hydrologic, metamorphic and thermal habitat of shallow slow earthquakes. Nature Geoscience, 2015, 8, 594-600.	12.9	216
10	New insights into deformation and fluid flow processes in the Nankai Trough accretionary prism: Results of Ocean Drilling Program Leg 190. Geochemistry, Geophysics, Geosystems, 2001, 2, n/a-n/a.	2.5	189
11	Elevated fluid pressure and extreme mechanical weakness of a plate boundary thrust, Nankai Trough subduction zone. Geology, 2009, 37, 679-682.	4.4	170
12	Critically pressured free-gas reservoirs below gas-hydrate provinces. Nature, 2004, 427, 142-144.	27.8	167
13	Effect of hydration state on the frictional properties of montmorillonite-based fault gouge. Journal of Geophysical Research, 2007, 112, .	3.3	154
14	Episodic fluid flow in the Nankai accretionary complex: Timescale, geochemistry, flow rates, and fluid budget. Journal of Geophysical Research, 1998, 103, 30351-30370.	3.3	152
15	Laboratory results indicating complex and potentially unstable frictional behavior of smectite clay. Geophysical Research Letters, 2001, 28, 2297-2300.	4.0	134
16	Porosity loss within the underthrust sediments of the Nankai accretionary complex: Implications for overpressures. Geology, 2002, 30, 19.	4.4	122
17	Slip weakening as a mechanism for slow earthquakes. Nature Geoscience, 2013, 6, 468-472.	12.9	121
18	Shear zones in clay-rich fault gouge: A laboratory study of fabric development and evolution. Journal of Structural Geology, 2013, 51, 206-225.	2.3	121

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19	Breakdown pressure and fracture surface morphology of hydraulic fracturing in shale with H 2 O, CO 2 and N 2. Geomechanics and Geophysics for Geo-Energy and Geo-Resources, 2016, 2, 63-76.	2.9	119
20	Smectite diagenesis, pore-water freshening, and fluid flow at the toe of the Nankai wedge. Earth and Planetary Science Letters, 2001, 194, 97-109.	4.4	115
21	Pore pressure development and progressive dewatering in underthrust sediments at the Costa Rican subduction margin: Comparison with northern Barbados and Nankai. Journal of Geophysical Research, 2003, 108, .	3.3	112
22	Stress State in the Largest Displacement Area of the 2011 Tohoku-Oki Earthquake. Science, 2013, 339, 687-690.	12.6	112
23	Elevated pore pressure and anomalously low stress in regions of low frequency earthquakes along the Nankai Trough subduction megathrust. Geophysical Research Letters, 2012, 39, .	4.0	110
24	Hydrologic controls on the morphology and mechanics of accretionary wedges. Geology, 2002, 30, 271.	4.4	104
25	Inferred pore pressures at the Costa Rica subduction zone: implications for dewatering processes. Earth and Planetary Science Letters, 2000, 177, 193-207.	4.4	95
26	Slow slip source characterized by lithological and geometric heterogeneity. Science Advances, 2020, 6, eaay3314.	10.3	95
27	Evaluation of factors controlling smectite transformation and fluid production in subduction zones: Application to the Nankai Trough. Island Arc, 2008, 17, 208-230.	1.1	93
28	Frictional properties and sliding stability of the San Andreas fault from deep drill core. Geology, 2012, 40, 759-762.	4.4	88
29	An evaluation of factors influencing pore pressure in accretionary complexes: Implications for taper angle and wedge mechanics. Journal of Geophysical Research, 2006, 111, .	3.3	83
30	Frictional properties of the active San Andreas Fault at SAFOD: Implications for fault strength and slip behavior. Journal of Geophysical Research: Solid Earth, 2015, 120, 5273-5289.	3.4	82
31	Clay fabric intensity in natural and artificial fault gouges: Implications for brittle fault zone processes and sedimentary basin clay fabric evolution. Journal of Geophysical Research, 2009, 114, .	3.3	80
32	Comparison of frictional strength and velocity dependence between fault zones in the Nankai accretionary complex. Geochemistry, Geophysics, Geosystems, 2011, 12, .	2.5	79
33	Hydrogeologic responses to three-dimensional temperature variability, Costa Rica subduction margin. Journal of Geophysical Research, 2006, 111, .	3.3	76
34	Presentâ€day principal horizontal stress orientations in the Kumano forearc basin of the southwest Japan subduction zone determined from IODP NanTroSEIZE drilling Site C0009. Geophysical Research Letters, 2010, 37, .	4.0	76
35	Frictional behavior of materials in the 3D SAFOD volume. Geophysical Research Letters, 2009, 36, .	4.0	75
36	Mechanical and hydrological effects of seamount subduction on megathrust stress and slip. Nature Geoscience, 2020, 13, 249-255.	12.9	74

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37	Nearâ€field observations of an offshore <i>M_w</i> 6.0 earthquake from an integrated seafloor and subseafloor monitoring network at the Nankai Trough, southwest Japan. Journal of Geophysical Research: Solid Earth, 2016, 121, 8338-8351.	3.4	71
38	Strength characteristics of Japan Trench borehole samples in the high-slip region of the 2011 Tohoku-Oki earthquake. Earth and Planetary Science Letters, 2015, 412, 35-41.	4.4	68
39	Tsunamigenic structures in a creeping section of the Alaska subduction zone. Nature Geoscience, 2017, 10, 609-613.	12.9	65
40	Fluid budgets along the northern Hikurangi subduction margin, New Zealand: the effect of a subducting seamount on fluid pressure. Geophysical Journal International, 2015, 202, 277-297.	2.4	62
41	Links between sediment consolidation and Cascadia megathrust slip behaviour. Nature Geoscience, 2017, 10, 954-959.	12.9	60
42	Escape of methane gas through sediment waves in a large methane hydrate province. Geology, 2002, 30, 467.	4.4	58
43	Along-strike variations in underthrust sediment dewatering on the Nicoya margin, Costa Rica related to the updip limit of seismicity. Geophysical Research Letters, 2004, 31, .	4.0	58
44	Consolidation and overpressure near the seafloor in the Ursa Basin, Deepwater Gulf of Mexico. Earth and Planetary Science Letters, 2011, 305, 11-20.	4.4	57
45	Pore pressure development beneath the dÃ©collement at the Nankai subduction zone: Implications for plate boundary fault strength and sediment dewatering. Journal of Geophysical Research, 2009, 114, .	3.3	56
46	Downdip variations in seismic reflection character: Implications for fault structure and seismogenic behavior in the Alaska subduction zone. Journal of Geophysical Research: Solid Earth, 2015, 120, 7883-7904.	3.4	54
47	Frictional Mechanics of Slow Earthquakes. Journal of Geophysical Research: Solid Earth, 2018, 123, 7931-7949.	3.4	54
48	Slip-rate-dependent friction as a universal mechanism for slow slip events. Nature Geoscience, 2020, 13, 705-710.	12.9	51
49	Hydraulic and acoustic properties of the active Alpine Fault, New Zealand: Laboratory measurements on DFDP-1 drill core. Earth and Planetary Science Letters, 2014, 390, 45-51.	4.4	50
50	Anisotropy of electrical conductivity record of initial strain at the toe of the Nankai accretionary wedge. Journal of Geophysical Research, 2003, 108, .	3.3	49
51	Effects of smectite to illite transformation on the frictional strength and sliding stability of intact marine mudstones. Geophysical Research Letters, 2012, 39, .	4.0	49
52	Experimental evidence linking slip instability with seafloor lithology and topography at the Costa Rica convergent margin. Geology, 2013, 41, 891-894.	4.4	49
53	The State of Stress on the Fault Before, During, and After a Major Earthquake. Annual Review of Earth and Planetary Sciences, 2020, 48, 49-74.	11.0	49
54	Evaluation of in situ smectite dehydration as a pore water freshening mechanism in the Nankai Trough, offshore southwest Japan. Geochemistry, Geophysics, Geosystems, 2009, 10, .	2.5	47

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55	Connections between subducted sediment, pore-fluid pressure, and earthquake behavior along the Alaska megathrust. Geology, 2018, 46, 299-302.	4.4	47
56	Fluid budgets at convergent plate margins: Implications for the extent and duration of fault-zone dilation. Geology, 1999, 27, 1095.	4.4	45
57	Distribution of stress state in the Nankai subduction zone, southwest Japan and a comparison with Japan Trench. Tectonophysics, 2016, 692, 120-130.	2.2	45
58	Re-evaluation of heat flow data near Parkfield, CA: Evidence for a weak San Andreas Fault. Geophysical Research Letters, 2004, 31, .	4.0	44
59	Analysis of normal fault populations in the Kumano Forearc Basin, Nankai Trough, Japan: 1. Multiple orientations and generations of faults from 3â€Ð coherency mapping. Geochemistry, Geophysics, Geosystems, 2013, 14, 1989-2002.	2.5	42
60	The permeability of active subduction plate boundary faults. Geofluids, 2015, 15, 193-215.	0.7	39
61	Topographically driven groundwater flow and the San Andreas heat flow paradox revisited. Journal of Geophysical Research, 2003, 108, .	3.3	36
62	Fluid flow at the toe of convergent margins: interpretation of sharp pore-water geochemical gradients. Earth and Planetary Science Letters, 2003, 213, 261-270.	4.4	35
63	Mixed deformation styles observed on a shallow subduction thrust, Hikurangi margin, New Zealand. Geology, 2019, 47, 872-876.	4.4	33
64	Fluid expulsion and overpressure development during initial subduction at the Costa Rica convergent margin. Earth and Planetary Science Letters, 2005, 233, 361-374.	4.4	31
65	12. Fault Friction and the Upper Transition from Seismic to Aseismic Faulting. , 2007, , 346-369.		30
66	The roles of quartz and water in controlling unstable slip in phyllosilicate-rich megathrust fault gouges. Earth, Planets and Space, 2014, 66, .	2.5	30
67	Frictional properties of low-angle normal fault gouges and implications for low-angle normal fault slip. Earth and Planetary Science Letters, 2014, 408, 57-65.	4.4	30
68	Stiffness evolution of granular layers and the origin of repetitive, slow, stick-slip frictional sliding. Granular Matter, 2015, 17, 447-457.	2.2	30
69	Submarine landslide potential near the megasplay fault at the Nankai subduction zone. Earth and Planetary Science Letters, 2011, 312, 453-462.	4.4	28
70	Site C0002. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	28
71	Permeability of underthrust sediments at the Costa Rican subduction zone: Scale dependence and implications for dewatering. Geophysical Research Letters, 2005, 32, .	4.0	27
72	Analysis of normal fault populations in the Kumano forearc basin, Nankai Trough, Japan: 2. Principal axes of stress and strain from inversion of fault orientations. Geochemistry, Geophysics, Geosystems, 2013, 14, 1973-1988.	2.5	27

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73	Determination of stress state in deep subsea formation by combination of hydraulic fracturing in situ test and core analysis: A case study in the IODP Expedition 319. Journal of Geophysical Research: Solid Earth, 2013, 118, 1203-1215.	3.4	25
74	Mechanical characterization of slope sediments: Constraints on in situ stress and pore pressure near the tip of the megasplay fault in the Nankai accretionary complex. Geochemistry, Geophysics, Geosystems, 2011, 12, n/a-n/a.	2.5	24
75	In situ stress and pore pressure in the Kumano Forearc Basin, offshore SW Honshu from downhole measurements during riser drilling. Geochemistry, Geophysics, Geosystems, 2013, 14, 1454-1470.	2.5	23
76	A critical evaluation of crustal dehydration as the cause of an overpressured and weak San Andreas Fault. Earth and Planetary Science Letters, 2009, 284, 447-454.	4.4	22
77	In situ stress magnitudes at the toe of the Nankai Trough Accretionary Prism, offshore Shikoku Island, Japan. Journal of Geophysical Research: Solid Earth, 2016, 121, 1202-1217.	3.4	22
78	Pressure and Stress Prediction in the Nankai Accretionary Prism: A Critical State Soil Mechanics Porosityâ€Based Approach. Journal of Geophysical Research: Solid Earth, 2018, 123, 1089-1115.	3.4	22
79	Permeability Evolution of Propped Artificial Fractures in Green River Shale. Rock Mechanics and Rock Engineering, 2017, 50, 1473-1485.	5.4	21
80	Fluid budgets of subduction zone forearcs: The contribution of splay faults. Geophysical Research Letters, 2012, 39, .	4.0	20
81	In Situ Stress and Pore Pressure in the Deep Interior of the Nankai Accretionary Prism, Integrated Ocean Drilling Program Site C0002. Geophysical Research Letters, 2017, 44, 9644-9652.	4.0	20
82	Mapping fluids to subduction megathrust locking and slip behavior. Geophysical Research Letters, 2017, 44, 9337-9340.	4.0	20
83	The postearthquake stress state on the Tohoku megathrust as constrained by reanalysis of the JFAST breakout data. Geophysical Research Letters, 2017, 44, 8294-8302.	4.0	20
84	Physical Properties and Gas Hydrate at a Nearâ€Seafloor Thrust Fault, Hikurangi Margin, New Zealand. Geophysical Research Letters, 2020, 47, e2020GL088474.	4.0	20
85	Expedition 372B/375 summary. Proceedings of the International Ocean Discovery Program, 0, , .	0.0	20
86	Data report: consolidation characteristics of sediments from Sites C0002, C0006, and C0007, IODP Expeditions 315 and 316, NanTroSEIZE Stage 1. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	20
87	Scale dependence of <i>inâ€situ</i> permeability measurements in the Nankai accretionary prism: The role of fractures. Geophysical Research Letters, 2012, 39, .	4.0	19
88	Mechanics of Foldâ€andâ€Thrust Belts Based on Geomechanical Modeling. Journal of Geophysical Research: Solid Earth, 2018, 123, 4454-4474.	3.4	19
89	The Effects of Shear Strain, Fabric, and Porosity Evolution on Elastic and Mechanical Properties of Clayâ€Rich Fault Gouge. Journal of Geophysical Research: Solid Earth, 2019, 124, 10968-10982.	3.4	19
90	The impact of splay faults on fluid flow, solute transport, and pore pressure distribution in subduction zones: A case study offshore the <scp>N</scp>icoya <scp>P</scp>eninsula, <scp>C</scp>osta <scp>R</scp>ica. Geochemistry, Geophysics, Geosystems, 2015, 16, 1089-1104.	2.5	18

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91	Expedition 348 summary. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	18
92	Consolidation state of incoming sediments to the Nankai Trough subduction zone: Implications for sediment deformation and properties. Geochemistry, Geophysics, Geosystems, 2014, 15, 2821-2839.	2.5	17
93	Data report: consolidation, permeability, and fabric of sediments from the Nankai continental slope, IODP Sites C0001, C0008, and C0004. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	17
94	Heat advection by groundwater flow through a heterogeneous permeability crust: A potential cause of scatter in surface heat flow near Parkfield, California. Journal of Geophysical Research, 2011, 116, .	3.3	16
95	Permeability and pressure measurements in Lesser Antilles submarine slides: Evidence for pressureâ€driven slowâ€slip failure. Journal of Geophysical Research: Solid Earth, 2015, 120, 7986-8011.	3.4	16
96	Coupled Evolution of Deformation, Pore Fluid Pressure, and Fluid Flow in Shallow Subduction Forearcs. Journal of Geophysical Research: Solid Earth, 2020, 125, e2019JB019101.	3.4	16
97	Site U1518. Proceedings of the International Ocean Discovery Program, 0, , .	0.0	16
98	Frictional and Lithological Controls on Shallow Slow Slip at the Northern Hikurangi Margin. Geochemistry, Geophysics, Geosystems, 2022, 23, .	2.5	16
99	Apparent overconsolidation of mudstones in the Kumano Basin of southwest Japan: Implications for fluid pressure and fluid flow within a forearc setting. Geochemistry, Geophysics, Geosystems, 2013, 14, 1023-1038.	2.5	15
100	Friction experiments under in-situ stress reveal unexpected velocity-weakening in Nankai accretionary prism samples. Earth and Planetary Science Letters, 2020, 538, 116180.	4.4	15
101	Effect of thermal refraction on heat flow near the San Andreas Fault, Parkfield, California. Journal of Geophysical Research, 2009, 114, .	3.3	14
102	In situ stress magnitude and rock strength in the Nankai accretionary complex: a novel approach using paired constraints from downhole data in two wells. Earth, Planets and Space, 2016, 68, .	2.5	13
103	The action of water films at Å...-scales in the Earth: Implications for the Nankai subduction system. Earth and Planetary Science Letters, 2017, 463, 266-276.	4.4	13
104	Evolution of Elastic and Mechanical Properties During Fault Shear: The Roles of Clay Content, Fabric Development, and Porosity. Journal of Geophysical Research: Solid Earth, 2020, 125, e2019JB018612.	3.4	12
105	Experimental constraints on the relationship between clay abundance, clay fabric, and frictional behavior for the <scp>C</scp>entral <scp>D</scp>eforming <scp>Z</scp>one of the <scp>S</scp>an <scp>A</scp>ndreas <scp>F</scp>ault. Geochemistry, Geophysics, Geosystems, 2016, 17, 3865-3881.	2.5	11
106	Implications of basement rock alteration in the Nankai Trough, Japan for subduction megathrust slip behavior. Tectonophysics, 2020, 774, 228275.	2.2	11
107	Changes in Physical Properties of the Nankai Trough Megasplay Fault Induced by Earthquakes, Detected by Continuous Pressure Monitoring. Journal of Geophysical Research: Solid Earth, 2018, 123, 1072-1088.	3.4	10
108	In Situ Permeability and Scale Dependence of an Active Accretionary Prism Determined From Crossâ€Borehole Experiments. Geophysical Research Letters, 2018, 45, 6935-6943.	4.0	10

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109	Effects of temperature on the frictional behavior of material from the Alpine Fault Zone, New Zealand. Tectonophysics, 2019, 762, 17-27.	2.2	10
110	Expedition 358 summary. Proceedings of the International Ocean Discovery Program, 0, , .	0.0	10
111	Data Report: Permeability and Consolidation Properties of Subducting Sediments off Costa Rica, ODP Leg 205. , 0, , .		10
112	Evolution of permeability across the transition from brittle failure to cataclastic flow in porous siltstone. Geochemistry, Geophysics, Geosystems, 2015, 16, 2980-2993.	2.5	9
113	Links between clay transformation and earthquakes along the Costa Rican subduction margin. Geophysical Research Letters, 2017, 44, 7725-7732.	4.0	9
114	Variable In Situ Stress Orientations Across the Northern Hikurangi Subduction Margin. Geophysical Research Letters, 2021, 48, e2020GL091707.	4.0	8
115	Boron desorption and fractionation in <scp>S</scp>ubduction <scp>Z</scp>one <scp>F</scp>ore Arcs: Implications for the sources and transport of deep fluids. Geochemistry, Geophysics, Geosystems, 2016, 17, 4992-5008.	2.5	7
116	IODP Expedition 319, NanTroSEIZE Stage 2: First IODP Riser Drilling Operations and Observatory Installation Towards Understanding Subduction Zone Seismogenesis. Scientific Drilling, 0, 10, 4-13.	0.6	7
117	Pâ€•and Sâ€Wave Velocities of Exhumed Metasediments From the Alaskan Subduction Zone: Implications for the In Situ Conditions Along the Megathrust. Geophysical Research Letters, 2021, 48, e2021GL094511.	4.0	7
118	Seafloor overthrusting causes ductile fault deformation and fault sealing along the Northern Hikurangi Margin. Earth and Planetary Science Letters, 2022, 593, 117651.	4.4	6
119	Fluid flow paths in the Middle America Trench and Costa Rica margin. Geology, 2000, 28, 679-682.	4.4	5
120	Spatial Variation of Shallow Stress Orientation Along the Hikurangi Subduction Margin: Insights From Inâ€Situ Borehole Image Logging. Journal of Geophysical Research: Solid Earth, 2022, 127, .	3.4	5
121	Strength and deformation behavior of the Shimanto accretionary complex across the Nobeoka thrust. Island Arc, 2017, 26, e12192.	1.1	4
122	A method for determining absolute ultrasonic velocities and elastic properties of experimental shear zones. International Journal of Rock Mechanics and Minings Sciences, 2020, 130, 104306.	5.8	4
123	Asymmetric Brittle Deformation at the PÄpaku Fault, Hikurangi Subduction Margin, NZ, IODP Expedition 375. Geochemistry, Geophysics, Geosystems, 2021, 22, e2021GC009662.	2.5	4
124	Data report: permeability and consolidation behavior of sediments from the northern Japan Trench subduction zone, IODP Site C0019. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	2
125	The Role of Deformation Bands in Dictating Poromechanical Properties of Unconsolidated Sand and Sandstone. Geochemistry, Geophysics, Geosystems, 2020, 21, e2020GC009143.	2.5	1
126	Site C0024. Proceedings of the International Ocean Discovery Program, 0, , .	0.0	1

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127	Deformation Process and Mechanism of the Frontal Megathrust at the Nankai Subduction Zone. Geochemistry, Geophysics, Geosystems, 2022, 23, .	2.5	1
128	Installation of a High Sensitivity Ocean Borehole Strainmeter in the Nankai Trough Under Severe Sea Current Conditions. Marine Technology Society Journal, 2018, 52, 128-137.	0.4	0
129	Introduction to Theme 2: Probing the Dynamic Earth and Assessing Geohazards. Oceanography, 2019, 32, 78-79.	1.0	0
130	Future Opportunities in Scientific Ocean Drilling: Natural Hazards. Oceanography, 2019, 32, 135-135.	1.0	0