Takehiro Hirose

List of Publications by Year
in descending order

119 papers	5,676 citations	87888 38 h-index	82547 72 g-index
122 all docs	122 docs citations	122 times ranked	3050 citing authors

#	Article	IF	Citations
1	Fault lubrication during earthquakes. Nature, 2011, 471, 494-498.	27.8	712
2	Ultralow Friction of Carbonate Faults Caused by Thermal Decomposition. Science, 2007, 316, 878-881.	12.6	370
3	Natural and Experimental Evidence of Melt Lubrication of Faults During Earthquakes. Science, 2006, 311, 647-649.	12.6	331
4	Growth of molten zone as a mechanism of slip weakening of simulated faults in gabbro during frictional melting. Journal of Geophysical Research, 2005, 110, .	3.3	300
5	Stuck in the mud? Earthquake nucleation and propagation through accretionary forearcs. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	181
6	Strong velocity weakening and powder lubrication of simulated carbonate faults at seismic slip rates. Journal of Geophysical Research, 2010, 115, .	3.3	165
7	Fault lubrication and earthquake propagation in thermally unstable rocks. Geology, 2011, 39, 35-38.	4.4	159
8	Frictional melt and seismic slip. Journal of Geophysical Research, 2008, 113, .	3.3	148
9	Extreme dynamic weakening of faults during dehydration by coseismic shear heating. Geophysical Research Letters, 2007, 34, .	4.0	135
10	Reconstruction of seismic faulting by high-velocity friction experiments: An example of the 1995 Kobe earthquake. Geophysical Research Letters, 2007, 34, .	4.0	134
11	Granular nanoparticles lubricate faults during seismic slip. Geology, 2011, 39, 599-602.	4.4	113
12	Drilling constraints on lithospheric accretion and evolution at Atlantis Massif, Mid-Atlantic Ridge 30Â°N. Journal of Geophysical Research, 2011, 116, .	3.3	112
13	Stress State in the Largest Displacement Area of the 2011 Tohoku-Oki Earthquake. Science, 2013, 339, 687-690.	12.6	112
14	Evidence of thermal pressurization in high-velocity friction experiments on smectite-rich gouges. Terra Nova, 2010, 22, 347-353.	2.1	100
15	Shear-induced graphitization of carbonaceous materials during seismic fault motion: Experiments and possible implications for fault mechanics. Journal of Structural Geology, 2011, 33, 1122-1134.	2.3	85
16	Internal structure and permeability of the Nojima fault, southwest Japan. Journal of Structural Geology, 2008, 30, 513-524.	2.3	79
17	High-velocity frictional behavior and microstructure evolution of fault gouge obtained from Nojima fault, southwest Japan. Tectonophysics, 2009, 471, 285-296.	2.2	76
18	Volcanic drumbeat seismicity caused by stick-slip motion and magmatic frictional melting. Nature Geoscience, 2014, 7, 438-442.	12.9	74

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19	Mechanoradical H₂generation during simulated faulting: Implications for an earthquake-driven subsurface biosphere. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	68
20	Fractal dimension of molten surfaces as a possible parameter to infer the slip-weakening distance of faults from natural pseudotachylytes. Journal of Structural Geology, 2003, 25, 1569-1574.	2.3	66
21	Pelagic smectite as an important factor in tsunamigenic slip along the Japan Trench. Geology, 2015, 43, 155-158.	4.4	65
22	Temperature limits to deep subseafloor life in the Nankai Trough subduction zone. Science, 2020, 370, 1230-1234.	12.6	65
23	Frictional melting of peridotite and seismic slip. Journal of Geophysical Research, 2009, 114, .	3.3	62
24	Wear processes in rocks at slow to high slip rates. Journal of Structural Geology, 2012, 38, 102-116.	2.3	61
25	On the transient behavior of frictional melt during seismic slip. Journal of Geophysical Research, 2010, 115, .	3.3	56
26	High-velocity frictional behavior of Longmenshan fault gouge from Hongkou outcrop and its implications for dynamic weakening of fault during the 2008 Wenchuan earthquake. Earthquake Science, 2011, 24, 267-281.	0.9	56
27	The occurrence of graphite-bearing fault rocks in the Atotsugawa fault system, Japan: Origins and implications for fault creep. Journal of Structural Geology, 2012, 38, 39-50.	2.3	56
28	Low- to high-velocity frictional properties of the clay-rich gouges from the slipping zone of the 1963 Vaiont slide, northern Italy. Journal of Geophysical Research, 2011, 116, .	3.3	55
29	Graphite as a lubricating agent in fault zones: An insight from lowâ€•to highâ€velocity friction experiments on a mixed graphiteâ€quartz gouge. Journal of Geophysical Research: Solid Earth, 2013, 118, 2067-2084.	3.4	52
30	Slip-Weakening Distance of Faults during Frictional Melting as Inferred from Experimental and Natural Pseudotachylytes. Bulletin of the Seismological Society of America, 2005, 95, 1666-1673.	2.3	50
31	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
32	Experimental generation of volcanic pseudotachylytes: Constraining rheology. Journal of Structural Geology, 2012, 38, 222-233.	2.3	46
33	Dynamic weakening of smectiteâ€bearing faults at intermediate velocities: Implications for subduction zone earthquakes. Journal of Geophysical Research: Solid Earth, 2015, 120, 1572-1586.	3.4	46
34	Grain size distribution and microstructures of experimentally sheared granitoid gouge at coseismic slip rates â€“ Criteria to distinguish seismic and aseismic faults?. Journal of Structural Geology, 2010, 32, 59-69.	2.3	45
35	Thickness and grain-size distribution of the 2004 Indian Ocean tsunami deposits in Periya Kalapuwa Lagoon, eastern Sri Lanka. Sedimentary Geology, 2010, 230, 95-104.	2.1	42
36	Moisture-related weakening and strengthening of a fault activated at seismic slip rates. Geophysical Research Letters, 2006, 33, .	4.0	41

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37	Principal fault zone width and permeability of the active Neodani fault, Nobi fault system, Southwest Japan. Tectonophysics, 2004, 379, 93-108.	2.2	39
38	Quasi-equilibrium melting of quartzite upon extreme friction. Nature Geoscience, 2017, 10, 436-441.	12.9	39
39	Dynamic process of turbidity generation triggered by the 2011 Tohokuâ€Oki earthquake. Geochemistry, Geophysics, Geosystems, 2012, 13, .	2.5	38
40	Laboratory verification of submicron magnetite production in pseudotachylytes: relevance for paleointensity studies. Earth and Planetary Science Letters, 2002, 201, 13-18.	4.4	37
41	Coal maturation by frictional heat during rapid fault slip. Geophysical Research Letters, 2012, 39, .	4.0	37
42	Spine growth and seismogenic faulting at Mt. Unzen, Japan. Journal of Geophysical Research: Solid Earth, 2015, 120, 4034-4054.	3.4	36
43	Nucleation of frictional instability caused by fluid pressurization in subducted blueschist. Geophysical Research Letters, 2016, 43, 2543-2551.	4.0	36
44	Influence of fault slip rate on shearâ€induced permeability. Journal of Geophysical Research, 2010, 115, .	3.3	35
45	Clayâ€"clast aggregates in fault gouge: An unequivocal indicator of seismic faulting at shallow depths?. Journal of Structural Geology, 2012, 43, 92-99.	2.3	34
46	Fluid transport properties in sediments and their role in large slip near the surface of the plate boundary fault in the Japan Trench. Earth and Planetary Science Letters, 2013, 382, 150-160.	4.4	34
47	Frictional properties of incoming pelagic sediments at the Japan Trench: implications for large slip at a shallow plate boundary during the 2011 Tohoku earthquake. Earth, Planets and Space, 2014, 66, .	2.5	34
48	Displacement and dynamic weakening processes in smectiteâ€rich gouge from the Central Deforming Zone of the San Andreas Fault. Journal of Geophysical Research: Solid Earth, 2014, 119, 1777-1802.	3.4	34
49	The geochemical signature caused by earthquake propagation in carbonate-hosted faults. Earth and Planetary Science Letters, 2011, 310, 225-232.	4.4	32
50	The stabilizing effect of high pore-fluid pressure along subduction megathrust faults: Evidence from friction experiments on accretionary sediments from the Nankai Trough. Earth and Planetary Science Letters, 2021, 574, 117161.	4.4	32
51	Structure, permeability, and strength of a fault zone in the footwall of an oceanic core complex, the Central Dome of the Atlantis Massif, Mid-Atlantic Ridge, 30Â°N. Journal of Structural Geology, 2008, 30, 1060-1071.	2.3	29
52	Site C0002. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	28
53	Semi-brittle flow during dehydration of lizarditeâ€"chrysotile serpentinite deformed in torsion: Implications for the rheology of oceanic lithosphere. Earth and Planetary Science Letters, 2006, 249, 484-493.	4.4	27
54	Carbon-forming reactions under a reducing atmosphere during seismic fault slip. Geology, 2014, 42, 787-790.	4.4	27

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55	Velocity dependence of shearâ€induced permeability associated with frictional behavior in fault zones of the Nankai subduction zone. Journal of Geophysical Research, 2012, 117, .	3.3	26
56	The effect of water on strain localization in calcite fault gouge sheared at seismic slip rates. Journal of Structural Geology, 2017, 97, 104-117.	2.3	26
57	A frictional law for volcanic ash gouge. Earth and Planetary Science Letters, 2014, 400, 177-183.	4.4	25
58	Fault rheology beyond frictional melting. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 9276-9280.	7.1	25
59	Biological CO2 conversion to acetate in subsurface coal-sand formation using a high-pressure reactor system. Frontiers in Microbiology, 2013, 4, 361.	3.5	24
60	Dehydration reactions and micro/nanostructures in experimentally-deformed serpentinites. Contributions To Mineralogy and Petrology, 2009, 157, 327-338.	3.1	23
61	Thermal decomposition of serpentine during coseismic faulting: Nanostructures and mineral reactions. Journal of Structural Geology, 2010, 32, 1476-1484.	2.3	23
62	Hydration due to high-T brittle failure within in situ oceanic crust, 30Â°N Mid-Atlantic Ridge. Earth and Planetary Science Letters, 2008, 275, 348-354.	4.4	22
63	Frictional melting of clayey gouge during seismic fault slip: Experimental observation and implications. Geophysical Research Letters, 2014, 41, 5457-5466.	4.0	22
64	Intact preservation of environmental samples by freezing under an alternating magnetic field. Environmental Microbiology Reports, 2015, 7, 243-251.	2.4	22
65	Relating high-velocity rock-friction experiments to coseismic slip in the presence of melts. Geophysical Monograph Series, 2006, , 121-134.	0.1	21
66	Thermal conductivities under high pressure in core samples from IODP NanTroSEIZE drilling site C0001. Geochemistry, Geophysics, Geosystems, 2011, 12, n/a-n/a.	2.5	21
67	On the role of phyllosilicates on fault lubrication: Insight from microâ€and nanostructural investigations on talc friction experiments. Journal of Geophysical Research, 2012, 117, .	3.3	20
68	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
69	Frictional experiments of dolerite at intermediate slip rates with controlled temperature: Rate weakening or temperature weakening?. Journal of Geophysical Research, 2011, 116, .	3.3	19
70	Strength determination of rocks by using indentation tests with a spherical indenter. Journal of Structural Geology, 2017, 98, 1-11.	2.3	19
71	Frictional properties of JFAST core samples and implications for slow earthquakes at the Tohoku subduction zone. Geophysical Research Letters, 2017, 44, 8822-8831.	4.0	19
72	Examination of gas hydrate-bearing deep ocean sediments by X-ray Computed Tomography and verification of physical property measurements of sediments. Marine and Petroleum Geology, 2019, 108, 239-248.	3.3	19

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73	Expedition 348 summary. Proceedings of the Integrated Ocean Drilling Program Integrated Ocean Drilling Program, 0, , .	1.0	18
74	Influence of Effective Stress and Pore Fluid Pressure on Fault Strength and Slip Localization in Carbonate Slip Zones. Journal of Geophysical Research: Solid Earth, 2020, 125, e2020JB019805.	3.4	17
75	The action of water films at Ã…-scales in the Earth: Implications for the Nankai subduction system. Earth and Planetary Science Letters, 2017, 463, 266-276.	4.4	13
76	Porosity, permeability, and grain size of sediment cores from gas-hydrate-bearing sites and their implication for overpressure in shallow argillaceous formations: Results from the national gas hydrate program expedition 02, Krishna-Godavari Basin, India. Marine and Petroleum Geology, 2019, 108, 332-347.	3.3	13
77	Indian Monsoonal Variations During the Past 80ÂKyr Recorded in NGHPâ€02 Hole 19B, Western Bay of Bengal: Implications From Chemical and Mineral Properties. Geochemistry, Geophysics, Geosystems, 2019, 20, 148-165.	2.5	12
78	Fault Heals Rapidly after Dynamic Weakening. Bulletin of the Seismological Society of America, 2009, 99, 3470-3474.	2.3	11
79	Pressure dependence of fluid transport properties of shallow fault systems in the Nankai subduction zone. Earth, Planets and Space, 2014, 66, .	2.5	11
80	Dynamic weakening of ring faults and catastrophic caldera collapses. Geology, 2019, 47, 107-110.	4.4	11
81	Frictional melt homogenisation during fault slip: Geochemical, textural and rheological fingerprints. Geochimica Et Cosmochimica Acta, 2019, 255, 265-288.	3.9	11
82	Rupture to the trench? Frictional properties and fracture energy of incoming sediments at the Cascadia subduction zone. Earth and Planetary Science Letters, 2020, 546, 116413.	4.4	11
83	High Fluidâ€Pressure Patches Beneath the DÃ©collement: A Potential Source of Slow Earthquakes in the Nankai Trough off Cape Muroto. Journal of Geophysical Research: Solid Earth, 2021, 126, e2021JB021831.	3.4	11
84	A New Method for Quality Control of Geological Cores by X-Ray Computed Tomography: Application in IODP Expedition 370. Frontiers in Earth Science, 2019, 7, .	1.8	10
85	Strength characteristics of sediments from a gas hydrate deposit in the Krishnaâ€“Godavari Basin on the eastern margin of India. Marine and Petroleum Geology, 2019, 108, 348-355.	3.3	10
86	Materials Science and Seismological Approaches to Understanding Seismogenic Processes High-Velocity Friction of Faults and Earthquake Generating Processes: Current Status and Future Perspectives. Journal of Geography (Chigaku Zasshi), 2003, 112, 979-999.	0.3	9
87	Structural records and mechanical characteristics of seismic slip along an active fault crosscutting unconsolidated Quaternary sediments: Suryum fault, SE Korea. Geosciences Journal, 2020, 24, 379-389.	1.2	9
88	Experimental study for noble gas release and exchange under high-speed frictional melting. Chemical Geology, 2009, 266, 96-103.	3.3	8
89	Correction to â€œMechanoradical H₂generation during simulated faulting: Implications for an earthquakeâ€driven subsurface biosphereâ€• Geophysical Research Letters, 2012, 39, .	4.0	8
90	Constraints on the fluid supply rate into and through gas hydrate reservoir systems as inferred from pore-water chloride and in situ temperature profiles, Krishna-Godavari Basin, India. Marine and Petroleum Geology, 2019, 108, 368-376.	3.3	8

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91	Repeated large-scale mass-transport deposits and consequent rapid sedimentation in the western part of the Bay of Bengal, India. Geological Society Special Publication, 2019, 477, 183-193.	1.3	8
92	Hot fluids, burial metamorphism and thermal histories in the underthrust sediments at IODP 370 site C0023, Nankai Accretionary Complex. Marine and Petroleum Geology, 2020, 112, 104080.	3.3	8
93	Thermal Conductivity Profile in the Nankai Accretionary Prism at IODP NanTroSEIZE Site C0002: Estimations From Highâ€Pressure Experiments Using Input Site Sediments. Geochemistry, Geophysics, Geosystems, 2020, 21, e2020GC009108.	2.5	8
94	Continuous depth profile of the rock strength in the Nankai accretionary prism based on drilling performance parameters. Scientific Reports, 2018, 8, 2622.	3.3	7
95	Experimental investigations on dating the last earthquake event using OSL signals of quartz from fault gouges. Tectonophysics, 2019, 769, 228191.	2.2	7
96	Frictional strength of ground dolerite gouge at a wide range of slip rates. Journal of Geophysical Research: Solid Earth, 2016, 121, 2961-2979.	3.4	5
97	In-situ mechanical weakness of subducting sediments beneath a plate boundary dÃ©collement in the Nankai Trough. Progress in Earth and Planetary Science, 2018, 5, .	3.0	5
98	Equivalent formation strength as a proxy tool for exploring for the location and distribution of gas hydrates. Marine and Petroleum Geology, 2019, 108, 356-367.	3.3	5
99	Site C0023. Proceedings of the International Ocean Discovery Program, 0, , .	0.0	5
100	Weakening of quartz rocks at subseismic slip rates due to frictional heating, but not to lubrication by wear materials of hydrated amorphous silica or silica gel. Tectonophysics, 2020, 784, 228429.	2.2	4
101	Mechanical Weakness of the Nankai Accretionary Prism: Insights From <i>V</i>_p Measurements of Drill Cuttings. Geochemistry, Geophysics, Geosystems, 2021, 22, e2020GC009536.	2.5	4
102	The relationship between displacement and thickness of faults in the Shimanto accretionary complex. Journal of the Geological Society of Japan, 2014, 120, 11-21.	0.6	4
103	Deformation and material transfer in a fossil subduction channel: Evidence from the Island of Elba (Italy). Tectonics, 0, , .	2.8	4
104	Evaluating Stress State, Physical Properties, and Rupturing Behavior of Seismogenic Faults through Scientific Drillings. Journal of Geography (Chigaku Zasshi), 2017, 126, 223-246.	0.3	3
105	Strength Profile of the Inner Nankai Accretionary Prism at IODP Site C0002. Geophysical Research Letters, 2019, 46, 10791-10799.	4.0	3
106	Technical note on thermal conductivity measurement for drilled core samples. JAMSTEC Report of Research and Development, 2009, 9, 2_1-2_14.	0.2	3
107	Internal and permeability structures of Pre-Cretaceous nappe boundaries in the Inner Zone of Southwest Japan. Journal of the Geological Society of Japan, 2005, 111, 300-307.	0.6	3
108	Depth profile of frictional properties in the inner Nankai accretionary prism using cuttings from IODP Site C0002. Progress in Earth and Planetary Science, 2022, 9, .	3.0	3

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109	Provenance of submerged stone pillars in an earthquake and typhoon hazard zone, coastal Tosashimizu, southwest Japan: A multidisciplinary geological approach. Marine Geology, 2019, 415, 105962.	2.1	2
110	Development of Hydrothermal and Frictional Experimental Systems to Simulate Sub-seafloor Waterâ€"Rockâ€"Microbe Interactions. , 2015, , 71-85.		2
111	A debate on the fault strength and necessity of multidisciplinary perspectives. Journal of the Geological Society of Japan, 2018, 124, 725-739.	0.6	2
112	Transient water adsorption on newly formed fault gouge and its relation to frictional heating. Geophysical Research Letters, 2016, 43, 7921-7927.	4.0	1
113	A new perspective of the subduction zone derived from the Ocean Drilling Program for the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE). Journal of the Geological Society of Japan, 2018, 124, 47-65.	0.6	1
114	Carbonate Fault Mirrors With Extremely Low Frictional Healing Rates: A Possible Source of Aseismic Creep. Geophysical Research Letters, 2021, 48, e2021GL093749.	4.0	1
115	Thermal conductivity changes in subducting basalt, Nankai subduction zone, SW Japan: An estimation from laboratory measurements under separate high-pressure and high-temperature conditions. , 0, , .		1
116	FAULT LUBRICATION AND EARTHQUAKE PROPAGATION IN CARBONATE ROCKS. Springer Series in Geomechanics and Geoengineering, 2011, , 153-156.	0.1	1
117	Experimental Hydrogen Production in Hydrothermal and Fault Systems: Significance for Habitability of Subseafloor H2 Chemoautotroph Microbial Ecosystems. , 2015, , 87-94.		1
118	Frictional stability of porous tuff breccia under subsurface pressure conditions and implications for shallow seismicity. Earth, Planets and Space, 2021, 73, .	2.5	0
119	Volatile gas analysis released from simulated faults during frictional melting:. JAMSTEC Report of Research and Development, 2009, 2009, 51-57.	0.2	0