FrÃ©dÃ©ric Cappa

List of Publications by Year
in descending order

85 papers	4,996 citations	109321 35 h-index	95266 68 g-index
95 all docs	95 docs citations	95 times ranked	3302 citing authors

#	Article	IF	Citations
1	Seismicity triggered by fluid injectionâ€“induced aseismic slip. Science, 2015, 348, 1224-1226.	12.6	516
2	Estimating maximum sustainable injection pressure during geological sequestration of CO2 using coupled fluid flow and geomechanical fault-slip analysis. Energy Conversion and Management, 2007, 48, 1798-1807.	9.2	382
3	Modeling of coupled deformation and permeability evolution during fault reactivation induced by deep underground injection of CO2. International Journal of Greenhouse Gas Control, 2011, 5, 336-346.	4.6	357
4	Modeling of fault reactivation and induced seismicity during hydraulic fracturing of shale-gas reservoirs. Journal of Petroleum Science and Engineering, 2013, 107, 31-44.	4.2	216
5	Induced seismicity provides insight into why earthquake ruptures stop. Science Advances, 2017, 3, eaap7528.	10.3	192
6	Location of largest earthquake slip and fast rupture controlled by alongâ€strike change in fault structural maturity due to fault growth. Journal of Geophysical Research: Solid Earth, 2016, 121, 3666-3685.	3.4	175
7	Impact of CO₂geological sequestration on the nucleation of earthquakes. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	168
8	Fault activation and induced seismicity in geological carbon storage â€“ Lessons learned from recent modeling studies. Journal of Rock Mechanics and Geotechnical Engineering, 2016, 8, 789-804.	8.1	150
9	Stabilization of fault slip by fluid injection in the laboratory and in situ. Science Advances, 2019, 5, eaau4065.	10.3	149
10	The 2012 Brawley swarm triggered by injection-induced aseismic slip. Earth and Planetary Science Letters, 2015, 422, 115-125.	4.4	141
11	Geomechanical effects on CO2 leakage through fault zones during large-scale underground injection. International Journal of Greenhouse Gas Control, 2014, 20, 117-131.	4.6	133
12	Modeling of fault activation and seismicity by injection directly into a fault zone associated with hydraulic fracturing of shale-gas reservoirs. Journal of Petroleum Science and Engineering, 2015, 127, 377-386.	4.2	127
13	Modeling crustal deformation and rupture processes related to upwelling of deep CO₂â€rich fluids during the 1965â€“1967 Matsushiro earthquake swarm in Japan. Journal of Geophysical Research, 2009, 114, .	3.3	109
14	Hydromechanical modeling of a large moving rock slope inferred from slope levelling coupled to spring long-term hydrochemical monitoring: example of the La ClapiÃ¨re landslide (Southern Alps,) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	3.4	84
15	Generic alongâ€strike segmentation of <scp>A</scp>far normal faults, <scp>E</scp>ast <scp>A</scp>frica: Implications on fault growth and stress heterogeneity on seismogenic fault planes. Geochemistry, Geophysics, Geosystems, 2015, 16, 443-467.	2.5	83
16	Seismic rupture and ground accelerations induced by CO2 injection in the shallow crust. Geophysical Journal International, 2012, 190, 1784-1789.	2.4	78
17	In situ observations on the coupling between hydraulic diffusivity and displacements during fault reactivation in shales. Journal of Geophysical Research: Solid Earth, 2015, 120, 7729-7748.	3.4	78
18	Discriminating the tectonic and nonâ€tectonic contributions in the ionospheric signature of the 2011, M_w7.1, dipâ€slip Van earthquake, Eastern Turkey. Geophysical Research Letters, 2013, 40, 2518-2522.	4.0	76

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19	Wastewater disposal and earthquake swarm activity at the southern end of the Central Valley, California. Geophysical Research Letters, 2016, 43, 1092-1099.	4.0	72
20	On the Relationship Between Fault Permeability Increases, Induced Stress Perturbation, and the Growth of Aseismic Slip During Fluid Injection. Geophysical Research Letters, 2018, 45, 11,012.	4.0	70
21	Aseismic Motions Drive a Sparse Seismicity During Fluid Injections Into a Fractured Zone in a Carbonate Reservoir. Journal of Geophysical Research: Solid Earth, 2017, 122, 8285-8304.	3.4	67
22	Hydromechanical interactions in a fractured carbonate reservoir inferred from hydraulic and mechanical measurements. International Journal of Rock Mechanics and Minings Sciences, 2005, 42, 287-306.	5.8	66
23	Hydromechanical modelling of pulse tests that measure fluid pressure and fracture normal displacement at the Coaraze Laboratory site, France. International Journal of Rock Mechanics and Minings Sciences, 2006, 43, 1062-1082.	5.8	64
24	Effects of faultâ€zone architecture on earthquake magnitude and gas leakage related to CO₂ injection in a multiâ€layered sedimentary system. , 2014, 4, 99-120.		60
25	Fault reactivation during CO₂ sequestration: Effects of well orientation on seismicity and leakage. , 2015, 5, 645-656.		60
26	Imbricated Aseismic Slip and Fluid Diffusion Drive a Seismic Swarm in the Corinth Gulf, Greece. Geophysical Research Letters, 2020, 47, e2020GL087142.	4.0	59
27	Improved detection of preeruptive seismic velocity drops at the Piton de La Fournaise volcano. Geophysical Research Letters, 2015, 42, 6332-6339.	4.0	54
28	Architectural characteristics and petrophysical properties evolution of a strike-slip fault zone in a fractured porous carbonate reservoir. Journal of Structural Geology, 2012, 44, 93-109.	2.3	53
29	ISRM Suggested Method for Step-Rate Injection Method for Fracture In-Situ Properties (SIMFIP): Using a 3-Components Borehole Deformation Sensor. Rock Mechanics and Rock Engineering, 2014, 47, 303-311.	5.4	53
30	Highâ€definition analysis of fluidâ€induced seismicity related to the mesoscale hydromechanical properties of a fault zone. Geophysical Research Letters, 2008, 35, .	4.0	51
31	Modelling fluid transfer and slip in a fault zone when integrating heterogeneous hydromechanical characteristics in its internal structure. Geophysical Journal International, 2009, 178, 1357-1362.	2.4	51
32	Coupling between hydrogeology and deformation of mountainous rock slopes: Insights from La ClapiÃ¨re area (southern Alps, France). Comptes Rendus - Geoscience, 2005, 337, 1154-1163.	1.2	47
33	Modeling of induced seismicity and ground vibrations associated with geologic CO2 storage, and assessing their effects on surface structures and human perception. International Journal of Greenhouse Gas Control, 2014, 24, 64-77.	4.6	47
34	Off-fault long-term damage: A condition to account for generic, triangular earthquake slip profiles. Geochemistry, Geophysics, Geosystems, 2014, 15, 1476-1493.	2.5	44
35	Stress Perturbation From Aseismic Slip Drives the Seismic Front During Fluid Injection in a Permeable Fault. Journal of Geophysical Research: Solid Earth, 2020, 125, e2019JB019179.	3.4	43
36	Regional-scale relief evolution and large landslides: Insights from geomechanical analyses in the TinÃ©e Valley (southern French Alps). Geomorphology, 2010, 117, 121-129.	2.6	38

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37	Multiscale seismic signature of a small fault zone in a carbonate reservoir: Relationships between VP imaging, fault zone architecture and cohesion. Tectonophysics, 2012, 554-557, 185-201.	2.2	38
38	Seismicity and fault aseismic deformation caused by fluid injection in decametric in-situ experiments. Comptes Rendus - Geoscience, 2018, 350, 464-475.	1.2	36
39	Use of in situ fiber optic sensors to characterize highly heterogeneous elastic displacement fields in fractured rocks. International Journal of Rock Mechanics and Minings Sciences, 2006, 43, 647-654.	5.8	35
40	Energy of injection-induced seismicity predicted from in-situ experiments. Scientific Reports, 2019, 9, 4999.	3.3	35
41	Use of the simultaneous seismic, GPS and meteorological monitoring for the characterization of a large unstable mountain slope in the southern French Alps. Geophysical Journal International, 2010, 182, 1395-1410.	2.4	34
42	The effects of lateral property variations on fault-zone reactivation by fluid pressurization: Application to CO2 pressurization effects within major and undetected fault zones. Journal of Structural Geology, 2014, 62, 97-108.	2.3	34
43	Estimation of fracture flow parameters through numerical analysis of hydromechanical pressure pulses. Water Resources Research, 2008, 44, .	4.2	32
44	Dynamic simulation of CO2-injection-induced fault rupture with slip-rate dependent friction coefficient. Geomechanics for Energy and the Environment, 2016, 7, 47-65.	2.5	32
45	Dissimilar properties within a carbonate-reservoir's small fault zone, and their impact on the pressurization and leakage associated with CO2 injection. Journal of Structural Geology, 2013, 47, 25-35.	2.3	30
46	Complexity of Fault Rupture and Fluid Leakage in Shale: Insights From a Controlled Fault Activation Experiment. Journal of Geophysical Research: Solid Earth, 2020, 125, e2019JB017781.	3.4	30
47	Seismic responses to fluid pressure perturbations in a slipping fault. Geophysical Research Letters, 2015, 42, 3197-3203.	4.0	29
48	Stress and fluid transfer in a fault zone due to overpressures in the seismogenic crust. Geophysical Research Letters, 2007, 34, .	4.0	28
49	Influence of hydromechanical heterogeneities of fault zones on earthquake ruptures. Geophysical Journal International, 2011, 185, 1049-1058.	2.4	27
50	Coupled seismo-hydromechanical monitoring of inelastic effects on injection-induced fracture permeability. International Journal of Rock Mechanics and Minings Sciences, 2013, 61, 266-274.	5.8	27
51	Deep fluids can facilitate rupture of slowâ€moving giant landslides as a result of stress transfer and frictional weakening. Geophysical Research Letters, 2014, 41, 61-66.	4.0	26
52	Seismic velocity changes associated with aseismic deformations of a fault stimulated by fluid injection. Geophysical Research Letters, 2016, 43, 9563-9572.	4.0	26
53	Reactivation of a strike-slip fault by fluid overpressuring in the southwestern French-Italian Alps. Geophysical Journal International, 2012, 189, 29-37.	2.4	25
54	Constraining Fault Friction and Stability With Fluidâ€Injection Field Experiments. Geophysical Research Letters, 2021, 48, e2020GL091188.	4.0	25

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55	Field-scale fault reactivation experiments by fluid injection highlight aseismic leakage in caprock analogs: Implications for CO2 sequestration. International Journal of Greenhouse Gas Control, 2021, 111, 103471.	4.6	22
56	Mesoscale characterization of coupled hydromechanical behavior of a fractured-porous slope in response to free water-surface movement. International Journal of Rock Mechanics and Minings Sciences, 2008, 45, 862-878.	5.8	21
57	Development and maintenance of fluid overpressures in crustal fault zones by elastic compaction and implications for earthquake swarms. Journal of Geophysical Research: Solid Earth, 2015, 120, 4450-4473.	3.4	21
58	Elastoâ€plastic and hydromechanical models of failure around an infinitely long magma chamber. Geochemistry, Geophysics, Geosystems, 2012, 13, .	2.5	19
59	Tracking fluid pressure buildup from focal mechanisms during the 2003â€“2004 Ubaye seismic swarm, France. Journal of Geophysical Research: Solid Earth, 2013, 118, 4461-4476.	3.4	18
60	Scientific Exploration of Induced SeisMicity and Stress (SEISMS). Scientific Drilling, 0, 23, 57-63.	0.6	18
61	Migration of Fluidâ€Induced Seismicity Reveals the Seismogenic State of Faults. Journal of Geophysical Research: Solid Earth, 2021, 126, .	3.4	17
62	Estimating perturbed stress from 3-D borehole displacements induced by fluid injection in fractured or faulted shales. Geophysical Journal International, 2020, 221, 1684-1695.	2.4	15
63	Geomechanical Modeling of Fault Responses and the Potential for Notable Seismic Events During Underground CO2 Injection. Energy Procedia, 2013, 37, 4774-4784.	1.8	14
64	Illuminating the Rupturing of Microseismic Sources in an Injectionâ€Induced Earthquake Experiment. Geophysical Research Letters, 2019, 46, 9563-9572.	4.0	12
65	Hydromechanical Heterogeneities of a Mature Fault Zone: Impacts on Fluid Flow. Ground Water, 2013, 51, 880-892.	1.3	11
66	RÃ1e des fluides dans le comportement hydromÃ©canique des roches fracturÃ©es hÃ©tÃ©rogÃ¨nes: CaractÃ©risation in situ et modÃ©lisation numÃ©rique. Bulletin of Engineering Geology and the Environment, 2006, 65, 321-337.	3.5	10
67	Transient evolution of permeability and friction in a slowly slipping fault activated by fluid pressurization. Nature Communications, 2022, 13, .	12.8	9
68	Stress changes induced at neighbouring faults by the June 2000 earthquakes, South Iceland Seismic Zone. Terra Nova, 2010, 22, 79-86.	2.1	6
69	Aseismic deformations perturb the stress state and trigger induced seismicity during injection experiments. Geophysical Journal International, 2020, 224, 1464-1475.	2.4	5
70	Dynamic modeling of injection-induced fault reactivation and ground motion and impact on surface structures and human perception. Energy Procedia, 2014, 63, 3379-3389.	1.8	4
71	Numerical Geomechanics Studies of Geological Carbon Storage (GCS). , 2019, , 237-252.		2
72	Sensitivity of the Seismic Moment Released During Fluid Injection to Fault Hydromechanical Properties and Background Stress. Frontiers in Earth Science, 2021, 9, .	1.8	2

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73	Extracting microphysical fault friction parameters from laboratory and field injection experiments. Solid Earth, 2020, 11, 2245-2256.	2.8	2
74	Modeling fault activation and seismicity in geologic carbon storage and shale-gas fracturing: Under what conditions could a felt seismic event be induced?. , 2017, , .		1
75	Fault Reactivation and Seismicity Associated with Shale-Gas Fracturing and Geologic Carbon Storageâ€"A Comparison from Recent Modeling Studies. , 2017, , .		1
76	Characterizing the reactivation mechanisms of coseismic surface ruptures associated with the 2011 Mw 6.7 Fukushima-ken Hamadori earthquake in Japan through borehole hydromechanical testing. Tectonophysics, 2021, 819, 229084.	2.2	1
77	Correction to â€œElasto-plastic and hydromechanical models of failure around an infinitely long magma chamberâ€• Geochemistry, Geophysics, Geosystems, 2012, 13, n/a-n/a.	2.5	0
78	Structural and hydraulic properties of a small fault zone in a layered reservoir. E3S Web of Conferences, 2014, 4, 03001.	0.5	0
79	In situ characterization of the geomechanical properties of an unstable fractured rock slope. , 2008, , 331-337.		0
80	A new approach to in situ characterization of rock slope discontinuities. , 2008, , 711-717.		0
81	Quantifying the Effect of Fluids and Mechanical Weakening of Fractures and the Implications for the Rupture of Large Landslides. , 2012, , .		0
82	ModÃ©lisation du comportement hydromÃ©canique dâ€™un versant calcaire poreux et fracturÃ© â€“ Âlmpact de simplifications gÃ©omÃ©triques et dâ€™une homogÃ©nÃ©isation des propriÃ©tÃ©s hydromÃ©caniques sur la qualitÃ© des prÃ©dictions. Revue FranÃ§aise De GÃ©otechnique, 2016, , 3.	0	0
83	FIRST RESULTS OF ASEISMIC FAULT SLIP AND LEAKAGE PRECEDING AN EARTHQUAKE INDUCED DURING AN IN SITU FAULT REACTIVATION EXPERIMENT IN SHALES (MONT TERRI FS EXPERIMENT, SWITZERLAND). , 2016, , .		0
84	THE INFLUENCE OF PERMEABILITY ANISOTROPY ON THE DISTRIBUTION OF PORE FLUID PRESSURE AROUND FAULT ZONES: INSIGHTS FOR FAULT STABILITY AND REACTIVATION. , 2016, , .		0
85	THE 2015 MESOSCALE FAULT SLIP EXPERIMENT AT MONT TERRI: MAIN FINDINGS, LESSONS LEARNED, AND NEXT STEPS. , 2019, , .		0