Fabrice Gaillard

List of Publications by Year
in descending order

81 papers	4,577 citations	81900 39 h-index	102487 66 g-index
83 all docs	83 docs citations	83 times ranked	3574 citing authors

#	Article	IF	Citations
1	Carbonatite Melts and Electrical Conductivity in the Asthenosphere. Science, 2008, 322, 1363-1365.	12.6	271
2	Atmospheric oxygenation caused by a change in volcanic degassing pressure. Nature, 2011, 478, 229-232.	27.8	261
3	Rapid magma ascent recorded by water diffusion profiles in mantle olivine. Geology, 2006, 34, 429.	4.4	255
4	New experimental data and semi-empirical parameterization of H2Oâ€“CO2 solubility in mafic melts. Geochimica Et Cosmochimica Acta, 2012, 97, 1-23.	3.9	167
5	Electrical conductivity during incipient melting in the oceanic low-velocity zone. Nature, 2014, 509, 81-85.	27.8	164
6	A theoretical framework for volcanic degassing chemistry in a comparative planetology perspective and implications for planetary atmospheres. Earth and Planetary Science Letters, 2014, 403, 307-316.	4.4	148
7	The sulfur content of volcanic gases on Mars. Earth and Planetary Science Letters, 2009, 279, 34-43.	4.4	141
8	Transport of metals and sulphur in magmas by flotation of sulphide melt on vapour bubbles. Nature Geoscience, 2015, 8, 216-219.	12.9	139
9	Laboratory measurements of electrical conductivity of hydrous and dry silicic melts under pressure. Earth and Planetary Science Letters, 2004, 218, 215-228.	4.4	131
10	Limestone assimilation by basaltic magmas: an experimental re-assessment and application to Italian volcanoes. Contributions To Mineralogy and Petrology, 2008, 155, 719-738.	3.1	129
11	Interaction of magma with sedimentary wall rock and magnetite ore genesis in the Panzhihua mafic intrusion, SW China. Mineralium Deposita, 2008, 43, 677-694.	4.1	123
12	Toward a unified hydrous olivine electrical conductivity law. Geochemistry, Geophysics, Geosystems, 2014, 15, 4984-5000.	2.5	114
13	Tracking the changing oxidation state of Erebus magmas, from mantle to surface, driven by magma ascent and degassing. Earth and Planetary Science Letters, 2014, 393, 200-209.	4.4	111
14	Geochemical Reservoirs and Timing of Sulfur Cycling on Mars. Space Science Reviews, 2013, 174, 251-300.	8.1	103
15	The effect of water and fO2 on the ferricâ€“ferrous ratio of silicic melts. Chemical Geology, 2001, 174, 255-273.	3.3	101
16	Geochemical Aspects of Melts: Volatiles and Redox Behavior. Elements, 2006, 2, 275-280.	0.5	97
17	The redox geodynamics linking basalts and their mantle sources through space and time. Chemical Geology, 2015, 418, 217-233.	3.3	95
18	Limestone assimilation and the origin of CO2 emissions at the Alban Hills (Central Italy): Constraints from experimental petrology. Journal of Volcanology and Geothermal Research, 2007, 166, 91-105.	2.1	88

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19	Role of non-mantle CO2 in the dynamics of volcano degassing: The Mount Vesuvius example. Geology, 2009, 37, 319-322.	4.4	85
20	Laboratory measurements of electrical conductivities of hydrous and dry Mount Vesuvius melts under pressure. Journal of Geophysical Research, 2008, 113, .	3.3	83
21	Giant magmatic water reservoirs at mid-crustal depth inferred from electrical conductivity and the growth of the continental crust. Earth and Planetary Science Letters, 2017, 457, 173-180.	4.4	78
22	Origins of cratonic mantle discontinuities: A view from petrology, geochemistry and thermodynamic models. Lithos, 2017, 268-271, 364-382.	1.4	74
23	Rate of hydrogenâ€"iron redox exchange in silicate melts and glasses. Geochimica Et Cosmochimica Acta, 2003, 67, 2427-2441.	3.9	73
24	A relatively reduced Hadean continental crust and implications for the early atmosphere and crustal rheology. Earth and Planetary Science Letters, 2014, 393, 210-219.	4.4	71
25	The effect of pressure and water concentration on the electrical conductivity of dacitic melts: Implication for magnetotelluric imaging in subduction areas. Chemical Geology, 2015, 418, 66-76.	3.3	70
26	Câ€"Oâ€"H fluid solubility in haplobasalt under reducing conditions: An experimental study. Chemical Geology, 2010, 279, 1-16.	3.3	66
27	Electrical conductivity of magma in the course of crystallization controlled by their residual liquid composition. Journal of Geophysical Research, 2005, 110, .	3.3	65
28	Experimental determination of activities of FeO and Fe 2 O 3 components in hydrous silicic melts under oxidizing conditions. Geochimica Et Cosmochimica Acta, 2003, 67, 4389-4409.	3.9	58
29	Evidence for present-day leucogranite pluton growth in Tibet. Geology, 2004, 32, 801.	4.4	56
30	Experimental determination of electrical conductivity during deformation of melt-bearing olivine aggregates: Implications for electrical anisotropy in the oceanic low velocity zone. Earth and Planetary Science Letters, 2011, 302, 81-94.	4.4	53
31	Methodological re-evaluation of the electrical conductivity of silicate melts. American Mineralogist, 2010, 95, 284-291.	1.9	52
32	Noble gas solubilities in silicate melts: New experimental results and a comprehensive model of the effects of liquid composition, temperature and pressure. Chemical Geology, 2010, 279, 145-157.	3.3	52
33	Experimental assessment of the relationships between electrical resistivity, crustal melting and strain localization beneath the Himalayanâ€"Tibetan Belt. Earth and Planetary Science Letters, 2013, 373, 20-30.	4.4	50
34	Assimilation of sulfate and carbonaceous rocks: Experimental study, thermodynamic modeling and application to the Norilâ€™sk-Talnakh region (Russia). Ore Geology Reviews, 2017, 90, 399-413.	2.7	49
35	CO2 solubility in kimberlite melts. Chemical Geology, 2015, 418, 198-205.	3.3	46
36	H 2 Oâ€"CO 2 solubility in low SiO 2 -melts and the unique mode of kimberlite degassing and emplacement. Earth and Planetary Science Letters, 2016, 447, 151-160.	4.4	46

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37	Extremely reducing conditions reached during basaltic intrusion in organic matter-bearing sediments. Earth and Planetary Science Letters, 2012, 357-358, 319-326.	4.4	44
38	A model for the activity of silica along the carbonatiteâ€“kimberliteâ€“mellilititeâ€“basanite melt compositional joint. Chemical Geology, 2015, 418, 206-216.	3.3	44
39	Redox controls during magma ocean degassing. Earth and Planetary Science Letters, 2022, 577, 117255.	4.4	43
40	A window in the course of alkaline magma differentiation conducive to immiscible REE-rich carbonatites. Geochimica Et Cosmochimica Acta, 2020, 282, 297-323.	3.9	42
41	Time-dependent changes of the electrical conductivity of basaltic melts with redox state. Geochimica Et Cosmochimica Acta, 2010, 74, 1653-1671.	3.9	37
42	Kinetics of iron oxidation-reduction in hydrous silicic melts. American Mineralogist, 2002, 87, 829-837.	1.9	36
43	Experimental constraints on the fate of H and C during planetary core-mantle differentiation. Implications for the Earth. Icarus, 2019, 321, 473-485.	2.5	35
44	Effects of temperature, pressure and chemical compositions on the electrical conductivity of carbonated melts and its relationship with viscosity. Chemical Geology, 2015, 418, 189-197.	3.3	31
45	Melting conditions in the modern Tibetan crust since the Miocene. Nature Communications, 2018, 9, 3515.	12.8	31
46	Gas emissions due to magmaâ€“sediment interactions during flood magmatism at the Siberian Traps: Gas dispersion and environmental consequences. Earth and Planetary Science Letters, 2012, 357-358, 308-318.	4.4	30
47	The molecular structure of melts along the carbonatiteâ€“kimberliteâ€“basalt compositional joint: CO 2 and polymerisation. Earth and Planetary Science Letters, 2016, 434, 129-140.	4.4	29
48	Raman quantification factor calibration for COâ€“CO2 gas mixture in synthetic fluid inclusions: Application to oxygen fugacity calculation in magmatic systems. Chemical Geology, 2009, 264, 58-70.	3.3	28
49	Redox state of early magmas. Nature, 2011, 480, 48-49.	27.8	28
50	Local redox buffering by carbon at low pressures and the formation of moissanite â€“ natural SiC. European Journal of Mineralogy, 2014, 26, 53-59.	1.3	27
51	Carbon dioxide in silica-undersaturated melt. Part I: The effect of mixed alkalis (K and Na) on CO2 solubility and speciation. Geochimica Et Cosmochimica Acta, 2014, 141, 45-61.	3.9	26
52	Sulfur on Mars from the Atmosphere to the Core. , 2019, , 119-183.		25
53	Towards the reconciliation of viscosity change and CO2-induced polymerization in silicate melts. Chemical Geology, 2017, 458, 38-47.	3.3	22
54	Chemical transfer during redox exchanges between H₂and Fe-bearing silicate melts. American Mineralogist, 2003, 88, 308-315.	1.9	21

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55	Nitrogen solubility in basaltic silicate melt - Implications for degassing processes. Chemical Geology, 2021, 573, 120192.	3.3	21
56	Unravelling partial melt distribution in the oceanic low velocity zone. Earth and Planetary Science Letters, 2020, 540, 116242.	4.4	18
57	Low-T neutron powder-diffraction and synchrotron-radiation IR study of synthetic amphibole Na(NaMg)Mg5Si8O22(OH)2. American Mineralogist, 2005, 90, 695-700.	1.9	17
58	Phase transition induced by solid solution: The BCa-BMg substitution in richteritic amphiboles. American Mineralogist, 2010, 95, 369-381.	1.9	16
59	Geoscience for Understanding Habitability in the Solar System and Beyond. Space Science Reviews, 2019, 215, 1.	8.1	14
60	A new petrological and geophysical investigation of the presentâ€day plumbing system of Mount Vesuvius. Geochemistry, Geophysics, Geosystems, 2010, 11, .	2.5	13
61	The effect of Mg concentration in silicate glasses on CO2 solubility and solution mechanism: Implication for natural magmatic systems. Geochimica Et Cosmochimica Acta, 2017, 198, 115-130.	3.9	13
62	MAGLAB: A computing platform connecting geophysical signatures to melting processes in Earth's mantle. Physics of the Earth and Planetary Interiors, 2021, 314, 106638.	1.9	13
63	Carbon dioxide in silica-undersaturated melt Part II: Effect of CO 2 on quenched glass structure. Geochimica Et Cosmochimica Acta, 2014, 144, 202-216.	3.9	12
64	¹⁷O NMR evidence of free ionic clusters Mⁿ⁺CO₃^{2âˆ’}in silicate glasses: Precursors for carbonate-silicate liquids immiscibility. American Mineralogist, 2017, 102, 1561-1564.	1.9	12
65	X-ray absorption spectroscopic investigation of the Ca and Mg environments in CO2-bearing silicate glasses. Chemical Geology, 2019, 510, 91-102.	3.3	12
66	Numerical modelling of erosion and assimilation of sulfur-rich substrate by martian lava flows: Implications for the genesis of massive sulfide mineralization on Mars. Icarus, 2017, 296, 257-274.	2.5	11
67	Possible Atmospheric Diversity of Low Mass Exoplanets â€“ Some Central Aspects. Space Science Reviews, 2020, 216, 1.	8.1	11
68	Comment to â€œHigh and highly anisotropic electrical conductivity of the asthenosphere due to hydrogen diffusion in olivineâ€•by Dai and Karato [Earth Planet. Sci. Lett. 408 (2014) 79â€“86]. Earth and Planetary Science Letters, 2015, 427, 296-299.	4.4	10
69	A speciation model linking the fate of carbon and hydrogen during core â€“ magma ocean equilibration. Earth and Planetary Science Letters, 2022, 577, 117266.	4.4	8
70	Synthesis of a spinifexâ€textured basalt as an analog to Gusev crater basalts, Mars. Meteoritics and Planetary Science, 2012, 47, 820-831.	1.6	6
71	Characterisation of 17O-enriched alumina from a new hydrothermal preparation. Solid State Nuclear Magnetic Resonance, 2004, 26, 197-202.	2.3	5
72	Crystallisation sequence of a REE-rich carbonate melt: an experimental approach. Comptes Rendus - Geoscience, 2021, 353, 217-231.	1.2	5

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73	Gold buried by oxygen. Nature Geoscience, 2015, 8, 170-171.	12.9	3
74	Gaillard et al. reply. Nature, 2012, 487, E2-E2.	27.8	2
75	Volcanic Gases. Encyclopedia of Earth Sciences Series, 2016, , 1-4.	0.1	2
76	Geochemical Reservoirs and Timing of Sulfur Cycling on Mars. Space Sciences Series of ISSI, 2012, , 251-300.	0.0	2
77	No direct effect of F, Cl and P on REE partitioning between carbonate and alkaline silicate melts. Comptes Rendus - Geoscience, 2021, 353, 233-272.	1.2	2
78	The Link between the Physical and Chemical Properties of Carbon-Bearing Melts and Their Application for Geophysical Imaging of Earthâ€™s Mantle. , 2019, , 163-187.		1
79	High S and high CO2 contents in haplokimberlite: An experimental and Raman spectroscopic study. Mineralogy and Petrology, 2020, 114, 363-373.	1.1	1
80	Reply on the comment by X. Xue on Â«Towards the reconciliation of viscosity change and CO2-induced polymerization in silicate meltÂ» by Yann Morizet, Michael Paris, David SifrÃ©, Ida Di Carlo, Sandra Ory, and Fabrice Gaillard [chemical Geology 458, 38-47]. Chemical Geology, 2020, 550, 119676.	3.3	0
81	Volcanic Gases. Encyclopedia of Earth Sciences Series, 2018, , 1476-1480.	0.1	0