Mark S Ghiorso

List of Publications by Year
in descending order

87	10,151	66343	58581
papers	citations	42 h-index	82 g-index

90	90	90	4719
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Chemical mass transfer in magmatic processes IV. A revised and internally consistent thermodynamic model for the interpolation and extrapolation of liquid-solid equilibria in magmatic systems at elevated temperatures and pressures. Contributions To Mineralogy and Petrology, 1995, 119, 197-212.	3.1	2,458
2	Rhyolite-MELTS: a Modified Calibration of MELTS Optimized for Silica-rich, Fluid-bearing Magmatic Systems. Journal of Petrology, 2012, 53, 875-890.	2.8	1,001
3	The pMELTS: A revision of MELTS for improved calculation of phase relations and major element partitioning related to partial melting of the mantle to 3 GPa. Geochemistry, Geophysics, Geosystems, 2002, 3, 1-35.	2.5	670
4	Algorithmic modifications extending MELTS to calculate subsolidus phase relations. American Mineralogist, 1998, 83, 1127-1132.	1.9	618
5	An H2Oâ€“CO2 mixed fluid saturation model compatible with rhyolite-MELTS. Contributions To Mineralogy and Petrology, 2015, 169, 1.	3.1	423
6	Fe-Ti oxide geothermometry: thermodynamic formulation and the estimation of intensive variables in silicic magmas. Contributions To Mineralogy and Petrology, 1991, 108, 485-510.	3.1	336
7	Chemical mass transfer in magmatic processes. Contributions To Mineralogy and Petrology, 1985, 90, 121-141.	3.1	244
8	The Gibbs free energy of mixing of natural silicate liquids; an expanded regular solution approximation for the calculation of magmatic intensive variables. Contributions To Mineralogy and Petrology, 1983, 84, 107-145.	3.1	212
9	An internally consistent model for the thermodynamic properties of Fe?Mg-titanomagnetite-aluminate spinels. Contributions To Mineralogy and Petrology, 1991, 106, 474-505.	3.1	207
10	Oxidation-reduction relations in basic magma: a case for homogeneous equilibria. Earth and Planetary Science Letters, 1986, 78, 200-210.	4.4	202
11	Importance of considerations of mixing properties in establishing an internally consistent thermodynamic database: thermochemistry of minerals in the system Mg2SiO4-Fe2SiO4-SiO2. Contributions To Mineralogy and Petrology, 1989, 102, 41-68.	3.1	201
12	Assimilation of felsic crust by basaltic magma: Thermal limits and extents of crustal contamination of mantle-derived magmas. Geology, 1995, 23, 563.	4.4	185
13	<scp>MELTS</scp>_<scp>E</scp>xcel: <scp>A</scp><scp>M</scp>icrosoft <scp>E</scp>xcelâ€based <scp>MELTS</scp> interface for research and teaching of magma properties and evolution. Geochemistry, Geophysics, Geosystems, 2015, 16, 315-324.	2.5	166
14	Chemical mass transfer in magmatic processes IV. A revised and internally consistent thermodynamic model for the interpolation and extrapolation of liquid-solid equilibria in magmatic systems at elevated temperatures and pressures. Contributions To Mineralogy and Petrology, 1995, 119, 197-212.	3.1	134
15	Prolonged magmatic activity on Mars inferred from the detection of felsic rocks. Nature Geoscience, 2013, 6, 1013-1017.	12.9	131
16	Petrological models of magma evolution and deep crustal structure beneath hotspots and flood basalt provinces. Earth and Planetary Science Letters, 1996, 143, 81-94.	4.4	124
17	Low-Pressure Origin of High-Silica Rhyolites and Granites. Journal of Geology, 2013, 121, 537-545.	1.4	122
18	A method for estimating the activity of titania in magmatic liquids from the compositions of coexisting rhombohedral and cubic ironâ€“titanium oxides. Contributions To Mineralogy and Petrology, 2013, 165, 73-81.	3.1	120

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19	Chemical mass transfer in magmatic processes. Contributions To Mineralogy and Petrology, 1985, 90, 107-120.	3.1	113
20	Thermodynamic Model for Energy-Constrained Open-System Evolution of Crustal Magma Bodies Undergoing Simultaneous Recharge, Assimilation and Crystallization: the Magma Chamber Simulator. Journal of Petrology, 2014, 55, 1685-1717.	2.8	103
21	Thermodynamic properties of hematite ? ilmenite ? geikielite solid solutions. Contributions To Mineralogy and Petrology, 1990, 104, 645-667.	3.1	97
22	Timescales of Quartz Crystallization and the Longevity of the Bishop Giant Magma Body. PLoS ONE, 2012, 7, e37492.	2.5	97
23	Thermodynamics of multicomponent pyroxenes: II. Phase relations in the quadrilateral. Contributions To Mineralogy and Petrology, 1994, 116, 287-300.	3.1	93
24	Thermodynamics of multicomponent pyroxenes: I. Formulation of a general model. Contributions To Mineralogy and Petrology, 1994, 116, 277-286.	3.1	85
25	The Bishop Tuff giant magma body: an alternative to the Standard Model. Contributions To Mineralogy and Petrology, 2013, 166, 755-775.	3.1	85
26	Activities of nickel, cobalt, and manganese silicates in magmatic liquids and applications to olivine/liquid and to silicate/metal partitioning. Geochimica Et Cosmochimica Acta, 1994, 58, 4109-4126.	3.9	80
27	Assimilation of peridotite in zoned calc-alkaline plutonic complexes: evidence from the Big Jim complex, Washington Cascades. Contributions To Mineralogy and Petrology, 1986, 94, 12-28.	3.1	75
28	THERMODYNAMIC MODELS OF IGNEOUS PROCESSES. Annual Review of Earth and Planetary Sciences, 1997, 25, 221-241.	11.0	75
29	Origin, development and chemistry of silica-alumina rock coatings from the semi-arid regions of the island of Hawaii. Geochimica Et Cosmochimica Acta, 1985, 49, 49-56.	3.9	74
30	Peralkaline magma evolution and the tephra record in the Ethiopian Rift. Contributions To Mineralogy and Petrology, 2012, 164, 407-426.	3.1	73
31	Phase-equilibrium geobarometers for silicic rocks based on rhyolite-MELTS. Part 1: Principles, procedures, and evaluation of the method. Contributions To Mineralogy and Petrology, 2014, 168, 1.	3.1	73
32	Activity/composition relations in the ternary feldspars. Contributions To Mineralogy and Petrology, 1984, 87, 282-296.	3.1	68
33	Thermodynamics of multicomponent pyroxenes: III. Calibration of Fe2+(Mg)-1, TiAl2(MgSi2)-1, TiFe 2 3+ (MgSi2)-1, AlFe3+(MgSi)-1, NaAl(CaMg)-1, Al2(MgSi)-1 and Ca(Mg)-1 exchange reactions between pyroxenes and silicate melts. Contributions To Mineralogy and Petrology, 1994, 118, 271-296.	3.1	63
34	Algorithms for the estimation of phase stability in heterogeneous thermodynamic systems. Geochimica Et Cosmochimica Acta, 1994, 58, 5489-5501.	3.9	60
35	Coupled fluid flow and reaction in mid-ocean ridge hydrothermal systems: The behavior of silica. Geochimica Et Cosmochimica Acta, 1991, 55, 2467-2481.	3.9	59
36	Origin and ore-forming consequences of the advanced argillic alteration process in hypogene environments by magmatic gas contamination of meteoric fluids. Economic Geology, 1983, 78, 73-90.	3.8	53

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37	New software models thermodynamics of magmatic systems. Eos, 1994, 75, 571.	0.1	51
38	Structure, thermodynamic and transport properties of liquid MgSiO3: Comparison of molecular models and laboratory results. Geochimica Et Cosmochimica Acta, 2011, 75, 1272-1296.	3.9	51
39	Thermodynamic modeling of post-entrapment crystallization in igneous phases. Journal of Volcanology and Geothermal Research, 2004, 137, 247-260.	2.1	49
40	Multicomponent diffusion in basaltic melts. Geochimica Et Cosmochimica Acta, 1995, 59, 313-324.	3.9	48
41	Adiabatic temperature changes of magmaâ€“gas mixtures during ascent and eruption. Contributions To Mineralogy and Petrology, 2001, 141, 307-321.	3.1	48
42	Thermodynanics and petrology of cummingtonite. American Mineralogist, 1995, 80, 649-663.	1.9	47
43	Experimental constraints on rhyolite-MELTS and the Late Bishop Tuff magma body. Contributions To Mineralogy and Petrology, 2014, 168, 1.	3.1	42
44	Partitioning of trace elements among coexisting crystals, melt, and supercritical fluid during isobaric crystallization and melting. American Mineralogist, 2007, 92, 1881-1898.	1.9	41
45	A solution model for high-temperature PbS-AgSbS2-AgBiS2 galena. American Mineralogist, 2008, 93, 1630-1640.	1.9	40
46	Magnetite scavenging and the buoyancy of bubbles in magmas. Part 2: Energetics of crystal-bubble attachment in magmas. Contributions To Mineralogy and Petrology, 2007, 154, 479-490.	3.1	39
47	Shear viscosity and diffusion in liquid MgSiO3: Transport properties and implications for terrestrial planet magma oceans. American Mineralogist, 2009, 94, 975-980.	1.9	38
48	Chemical mass transfer in magmatic processes. Contributions To Mineralogy and Petrology, 1987, 96, 291-313.	3.1	37
49	Structure, thermodynamic, and transport properties of molten Mg2SiO4: Molecular dynamics simulations and model EOS. American Mineralogist, 2009, 94, 693-703.	1.9	35
50	Phase-equilibrium geobarometers for silicic rocks based on rhyolite-MELTSâ€”Part 3: Application to the Peach Spring Tuff (Arizonaâ€“Californiaâ€“Nevada, USA). Contributions To Mineralogy and Petrology, 2015, 169, 1.	3.1	35
51	Climbing the crustal ladder: Magma storage-depth evolution during a volcanic flare-up. Science Advances, 2018, 4, eaap7567.	10.3	35
52	Evidence for a reduced, Fe-depleted martian mantle source region of shergottites. Contributions To Mineralogy and Petrology, 1998, 130, 346-357.	3.1	34
53	Phase-equilibrium geobarometers for silicic rocks based on rhyolite-MELTS. Part 2: application to Taupo Volcanic Zone rhyolites. Contributions To Mineralogy and Petrology, 2014, 168, 1.	3.1	34
54	Internal triggering of volcanic eruptions: tracking overpressure regimes for giant magma bodies. Earth and Planetary Science Letters, 2017, 472, 142-151.	4.4	33

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55	Thermodynamics of the amphiboles: Fe-Mg cummingtonite solid solution. American Mineralogist, 1995, 80, 502-519.	1.9	28
56	Microsoft EXCEL spreadsheet-based program for calculating equilibrium gas speciation in the Câ€“Oâ€“Hâ€“Sâ€“Clâ€“F system. Computers and Geosciences, 2004, 30, 211-214.	4.2	27
57	High-Ti, bright-CL rims in volcanic quartz: a result of very rapid growth. Contributions To Mineralogy and Petrology, 2016, 171, 1.	3.1	27
58	Thermodynamics of the amphiboles: Ca-Mg-Fe²⁺quadrilateral. American Mineralogist, 2002, 87, 79-98.	1.9	26
59	Highly CO2-supersaturated melts in the Pannonian lithospheric mantle â€“ A transient carbon reservoir?. Lithos, 2017, 286-287, 519-533.	1.4	26
60	Gibbs energy minimization in gas + liquid + solid systems. Journal of Computational Chemistry, 2000, 21, 247-256.	3.3	25
61	Magma extraction pressures and the architecture of volcanic plumbing systems. Earth and Planetary Science Letters, 2019, 522, 118-124.	4.4	22
62	Molecular dynamics studies of CaAl2Si2O8 liquid. Part II: Equation of state and a thermodynamic model. Geochimica Et Cosmochimica Acta, 2009, 73, 6937-6951.	3.9	20
63	Comment on â€œDensity calculations for silicate liquids. I. Revised method for aluminosilicate compositionsâ€•by Bottinga, Weill and Richet. Geochimica Et Cosmochimica Acta, 1984, 48, 401-408.	3.9	18
64	Thermodynamic properties of tremolite: A correction and some comments. American Mineralogist, 2000, 85, 466-472.	1.9	18
65	Thermodynamics of the amphiboles: Anthophyllite-ferroanthophyllite and the ortho-clino phase loop. American Mineralogist, 2001, 86, 640-651.	1.9	17
66	Chapter 13. MODELING MAGMATIC SYSTEMS: PETROLOGIC APPLICATIONS. , 1987, , 467-502.		14
67	Chapter 12. MODELING MAGMATIC SYSTEMS: THERMODYNAMIC RELATIONS. , 1987, , 443-466.		13
68	Igneous inclusions from ordinary chondrites: High temperature cumulates and a shock melt. Journal of Geophysical Research, 1994, 99, 26029.	3.3	13
69	Phase-equilibrium geobarometers for silicic rocks based on rhyolite-MELTS. Part 4: Plagioclase, orthopyroxene, clinopyroxene, glass geobarometer, and application to Mt. Ruapehu, New Zealand. Contributions To Mineralogy and Petrology, 2018, 173, 1.	3.1	13
70	Rock alteration, mercury transport, and metal deposition at Sulphur Bank, California. Economic Geology, 1988, 83, 606-618.	3.8	12
71	Thermodynamics of feldspathoid solutions. Contributions To Mineralogy and Petrology, 1998, 130, 256-274.	3.1	12
72	Thermodynamics, self-diffusion, and structure of liquid NaAlSi₃O₈to 30 GPa by classical molecular dynamics simulations. American Mineralogist, 2016, 101, 2029-2040.	1.9	11

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73	Ti ³⁺ â€“ and Ti ⁴⁺ â€“ rich fassaites at the birth of the solar system: Thermodynamics and applications. Numerische Mathematik, 2017, 317, 807-845.	1.4	11
74	LSEQIEQ: a FORTRAN IV subroutine package for the analysis of multiple linear regression problems with possibly deficient pseudorank and linear equality and inequality constraints. Computers and Geosciences, 1983, 9, 391-416.	4.2	10
75	On the stability relations of hydrous minerals in water-undersaturated magmas. American Mineralogist, 1999, 84, 1506-1511.	1.9	10
76	Thermodynamics of cation ordering in karrooite (MgTi2O5). American Mineralogist, 1999, 84, 1370-1374.	1.9	10
77	Temperatures in and around cooling magma bodies. , 1991, , 387-410.		9
78	Chemical Thermodynamics and the StudyÂof Magmas. , 2015, , 143-161.		7
79	Rhyolite-MELTS vs DERPâ€"Newer Does not Make it Better: a Comment on â€˜The Effect of Anorthite Content and Water on Quartzâ€“Feldspar Cotectic Compositions in the Rhyolitic System and Implications for Geobarometryâ€™ by Wilke et al. (2017; Journal of Petrology, 58, 789â€“818). Journal of Petrology, 2019, 60, 855-864.	2.8	7
80	The molar volume of FeOâ€“MgOâ€“Fe2O3â€“Cr2O3â€“Al2O3â€“TiO2 spinels. Contributions To Mineralogy and Petrology, 2013, 165, 25.	3.1	6
81	Thermodynamics of minerals and melts. Reviews of Geophysics, 1987, 25, 1054-1064.	23.0	4
82	Comment on 'A Metamodel for Crustal Magmatism: Phase Equilibria of Giant Ignimbrites' by S. J. Fowler and F. J. Spera. Journal of Petrology, 2011, 52, 431-434.	2.8	4
83	A globally convergent saturation state algorithm applicable to thermodynamic systems with a stable or metastable omni-component phase. Geochimica Et Cosmochimica Acta, 2013, 103, 295-300.	3.9	4
84	Using Chemical Affinities to Understand Disequilibrium Textures of Plagioclase Preserved in Magmatic Systems. Geophysical Research Letters, 2021, 48, e2021GL092884.	4.0	2
85	Thermodynamics of Minerals and Melts. Reviews of Geophysics, 1991, 29, 446-456.	23.0	1
86	An issue honoring Ian S. E. Carmichael. Contributions To Mineralogy and Petrology, 2013, 166, 655-663.	3.1	0
87	Presentation of the Dana Medal of the Mineralogical Society of America for 2015 to Marc Hirschmann. American Mineralogist, 2015, 100, 1315-1315.	1.9	0