Francis M Mccubbin

List of Publications by Year
in descending order

80	4,747	66343	95266
papers	citations	42 h-index	68 g-index

80	80	80	2682
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Unique Meteorite from Early Amazonian Mars: Water-Rich Basaltic Breccia Northwest Africa 7034. Science, 2013, 339, 780-785.	12.6	340
2	Nominally hydrous magmatism on the Moon. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 11223-11228.	7.1	257
3	Hydrous melting of the martian mantle produced both depleted and enriched shergottites. Geology, 2012, 40, 683-686.	4.4	193
4	Magmatic volatiles (H, C, N, F, S, Cl) in the lunar mantle, crust, and regolith: Abundances, distributions, processes, and reservoirs. American Mineralogist, 2015, 100, 1668-1707.	1.9	160
5	Fluorine and chlorine abundances in lunar apatite: Implications for heterogeneous distributions of magmatic volatiles in the lunar interior. Geochimica Et Cosmochimica Acta, 2011, 75, 5073-5093.	3.9	140
6	Early accretion of water in the inner solar system from a carbonaceous chondriteâ€“like source. Science, 2014, 346, 623-626.	12.6	128
7	Is Mercury a volatileâ€rich planet?. Geophysical Research Letters, 2012, 39, .	4.0	119
8	The origin of water in the primitive Moon as revealed by the lunar highlands samples. Earth and Planetary Science Letters, 2014, 390, 244-252.	4.4	118
9	Detection of structurally bound hydroxyl in fluorapatite from Apollo Mare basalt 15058,128 using TOF-SIMS. American Mineralogist, 2010, 95, 1141-1150.	1.9	116
10	A petrogenetic model for the comagmatic origin of chassignites and nakhlites: Inferences from chlorineâ€rich minerals, petrology, and geochemistry. Meteoritics and Planetary Science, 2013, 48, 819-853.	1.6	116
11	A hydrogen-based oxidation mechanism relevant to planetary formation. Earth and Planetary Science Letters, 2013, 380, 88-97.	4.4	115
12	Experimental investigation of F, Cl, and OH partitioning between apatite and Fe-rich basaltic melt at 1.0â€“1.2 GPa and 950â€“1000 Â°C. American Mineralogist, 2015, 100, 1790-1802.	1.9	112
13	Exotic crust formation on Mercury: Consequences of a shallow, FeOâ€poor mantle. Journal of Geophysical Research E: Planets, 2015, 120, 195-209.	3.6	110
14	Origin of the lunar highlands Mg-suite: An integrated petrology, geochemistry, chronology, and remote sensing perspective. American Mineralogist, 2015, 100, 294-325.	1.9	110
15	Petrology of igneous clasts in Northwest Africa 7034: Implications for the petrologic diversity of the martian crust. Geochimica Et Cosmochimica Acta, 2015, 157, 56-85.	3.9	105
16	Hydrous magmatism on Mars: A source of water for the surface and subsurface during the Amazonian. Earth and Planetary Science Letters, 2010, 292, 132-138.	4.4	104
17	Heterogeneous distribution of H₂O in the Martian interior: Implications for the abundance of H₂O in depleted and enriched mantle sources. Meteoritics and Planetary Science, 2016, 51, 2036-2060.	1.6	103
18	Hydrothermal jarosite and hematite in a pyroxene-hosted melt inclusion in martian meteorite Miller Range (MIL) 03346: Implications for magmatic-hydrothermal fluids on Mars. Geochimica Et Cosmochimica Acta, 2009, 73, 4907-4917.	3.9	102

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19	Apatites in lunar KREEP basalts: The missing link to understanding the H isotope systematics of the Moon. Geology, 2014, 42, 363-366.	4.4	98
20	Maskelynite-hosted apatite in the Chassigny meteorite: Insights into late-stage magmatic volatile evolution in martian magmas. American Mineralogist, 2008, 93, 676-684.	1.9	84
21	Phosphate minerals in LL chondrites: A record of the action of fluids during metamorphism on ordinary chondrite parent bodies. Geochimica Et Cosmochimica Acta, 2014, 132, 120-140.	3.9	80
22	The provenance, formation, and implications of reduced carbon phases in Martian meteorites. Meteoritics and Planetary Science, 2016, 51, 2203-2225.	1.6	80
23	Geochemistry, mineralogy, and petrology of boninitic and komatiitic rocks on the mercurian surface: Insights into the mercurian mantle. Icarus, 2017, 285, 155-168.	2.5	79
24	Early degassing of lunar urKREEP by crust-breaching impact(s). Earth and Planetary Science Letters, 2016, 447, 84-94.	4.4	78
25	Alkalic parental magmas for chassignites?. Meteoritics and Planetary Science, 2007, 42, 979-992.	1.6	69
26	Chlorine on the surface of Mercury: MESSENGER gamma-ray measurements and implications for the planetâ€™s formation and evolution. Icarus, 2015, 257, 417-427.	2.5	66
27	Geologic history of Martian regolith breccia Northwest Africa 7034: Evidence for hydrothermal activity and lithologic diversity in the Martian crust. Journal of Geophysical Research E: Planets, 2016, 121, 2120-2149.	3.6	65
28	Solid-state NMR and IR spectroscopic investigation of the role of structural water and F in carbonate-rich fluorapatite. American Mineralogist, 2009, 94, 507-516.	1.9	63
29	Rbâ€Sr and Smâ€Nd isotopic and <scp>REE</scp> studies of igneous components in the bulk matrix domain of Martian breccia Northwest Africa 7034. Meteoritics and Planetary Science, 2016, 51, 483-498.	1.6	59
30	Origin and abundances of H2O in the terrestrial planets, Moon, and asteroids. Earth and Planetary Science Letters, 2019, 526, 115771.	4.4	59
31	The Northwest Africa 8159 martian meteorite: Expanding the martian sample suite to the early Amazonian. Geochimica Et Cosmochimica Acta, 2017, 218, 1-26.	3.9	58
32	Chromite symplectites in Mg-suite troctolite 76535 as evidence for infiltration metasomatism of a lunar layered intrusion. Geochimica Et Cosmochimica Acta, 2012, 87, 154-177.	3.9	56
33	Volatile abundances of coexisting merrillite and apatite in the martian meteorite Shergotty: Implications for merrillite in hydrous magmas. American Mineralogist, 2014, 99, 1347-1354.	1.9	54
34	Silica-rich volcanism in the early solar system dated at 4.565 Ga. Nature Communications, 2018, 9, 3036.	12.8	52
35	Early accretion of water and volatile elements to the inner Solar System: evidence from angrites. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160209.	3.4	51
36	Advanced Curation of Astromaterials for Planetary Science. Space Science Reviews, 2019, 215, 1.	8.1	50

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37	Degassing pathways of Cl-, F-, H-, and S-bearing magmas near the lunar surface: Implications for the composition and Cl isotopic values of lunar apatite. American Mineralogist, 2015, 100, 1717-1727.	1.9	49
38	Phosphate minerals in the H group of ordinary chondrites, and fluid activity recorded by apatite heterogeneity in the Zag H3-6 regolith breccia. American Mineralogist, 2016, 101, 2452-2467.	1.9	49
39	The origin of boninites on Mercury: An experimental study of the northern volcanic plains lavas. Geochimica Et Cosmochimica Acta, 2016, 173, 246-263.	3.9	49
40	Compositional diversity and stratification of the Martian crust: Inferences from crystallization experiments on the picrobasalt Humphrey from Gusev Crater, Mars. Journal of Geophysical Research, 2008, 113, .	3.3	47
41	Inventory of H₂O in the ancient Martian regolith from Northwest Africa 7034: The important role of Fe oxides. Geophysical Research Letters, 2014, 41, 8235-8244.	4.0	43
42	A review of volatiles in the Martian interior. Meteoritics and Planetary Science, 2016, 51, 1935-1958.	1.6	43
43	Multiple early-formed water reservoirs in the interior of Mars. Nature Geoscience, 2020, 13, 260-264.	12.9	43
44	Density and compressibility of the molten lunar picritic glasses: Implications for the roles of Ti and Fe in the structures of silicate melts. Geochimica Et Cosmochimica Acta, 2015, 149, 1-20.	3.9	42
45	Synthesis and characterization of low-OH fluor-chlorapatite: A single-crystal XRD and NMR spectroscopic study. American Mineralogist, 2008, 93, 210-216.	1.9	41
46	Constraints on the water, chlorine, and fluorine content of the Martian mantle. Meteoritics and Planetary Science, 2016, 51, 2023-2035.	1.6	41
47	Multiple reservoirs of volatiles in the Moon revealed by the isotopic composition of chlorine in lunar basalts. Geochimica Et Cosmochimica Acta, 2019, 266, 144-162.	3.9	41
48	A Low O/Si Ratio on the Surface of Mercury: Evidence for Silicon Smelting?. Journal of Geophysical Research E: Planets, 2017, 122, 2053-2076.	3.6	36
49	Early loss, fractionation, and redistribution of chlorine in the Moon as revealed by the low-Ti lunar mare basalt suite. Earth and Planetary Science Letters, 2018, 500, 205-214.	4.4	34
50	Linking the Chassigny meteorite and the Martian surface rock Backstay: Insights into igneous crustal differentiation processes on Mars. Meteoritics and Planetary Science, 2009, 44, 853-869.	1.6	33
51	Organic synthesis associated with serpentinization and carbonation on early Mars. Science, 2022, 375, 172-177.	12.6	32
52	Mercury surface composition: Integrating petrologic modeling and remote sensing data to place constraints on FeO abundance. Icarus, 2010, 209, 301-313.	2.5	31
53	The oxidation state of sulfur in lunar apatite. American Mineralogist, 2019, 104, 307-312.	1.9	30
54	Solid solution in the fluorapatite-chlorapatite binary system: High-precision crystal structure refinements of synthetic F-Cl apatite. American Mineralogist, 2014, 99, 369-376.	1.9	28

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55	Early crust building enhanced on the Moonâ€™s nearside by mantle melting-point depression. Nature Geoscience, 2020, 13, 339-343.	12.9	25
56	A novel technique for fluorapatite synthesis and the thermodynamic mixing behavior of F-OH apatite crystalline solutions. American Mineralogist, 2014, 99, 890-897.	1.9	16
57	Petrogenesis of primitive and evolved basalts in a cooling Moon: Experimental constraints from the youngest known lunar magmas. Earth and Planetary Science Letters, 2015, 422, 126-137.	4.4	16
58	Preliminary Planning for Mars Sample Return (MSR) Curation Activities in a Sample Receiving Facility (SRF). Astrobiology, 2022, 22, S-57-S-80.	3.0	16
59	Thermal expansion of fluorapatite-hydroxylapatite crystalline solutions. American Mineralogist, 2014, 99, 2171-2175.	1.9	15
60	The potential for metal contamination during Apollo lunar sample curation. Meteoritics and Planetary Science, 2018, 53, 1283-1291.	1.6	15
61	Experimental investigation of F and Cl partitioning between apatite and Fe-rich basaltic melt at 0 GPa and 950â€“1050 Â°C: Evidence for steric controls on apatite-melt exchange equilibria in OH-poor apatite. American Mineralogist, 2018, 103, 1455-1467.	1.9	15
62	Final Report of the Mars Sample Return Science Planning Group 2 (MSPG2). Astrobiology, 2022, 22, S-5-S-26.	3.0	15
63	Reclassification of four aubrites as enstatite chondrite impact melts: Potential geochemical analogs for Mercury. Meteoritics and Planetary Science, 2019, 54, 785-810.	1.6	14
64	Rationale and Proposed Design for a Mars Sample Return (MSR) Science Program. Astrobiology, 2022, 22, S-27-S-56.	3.0	14
65	Discreditation of bobdownsite and the establishment of criteria for the identification of minerals with essential monofluorophosphate (PO3F2â€“). American Mineralogist, 2018, 103, 1319-1328.	1.9	13
66	Constraints on the Abundances of Carbon and Silicon in Mercury's Core From Experiments in the Feâ€Siâ€C System. Journal of Geophysical Research E: Planets, 2020, 125, e2019JE006239.	3.6	13
67	Volatiles in Martian Magmas and the Interior. , 2019, , 13-33.		12
68	The abundances of F, Cl, and H2O in eucrites: Implications for the origin of volatile depletion in the asteroid 4 Vesta. Geochimica Et Cosmochimica Acta, 2021, 314, 270-293.	3.9	11
69	Revolutionizing Our Understanding of the Solar System via Sample Return from Mercury. Space Science Reviews, 2019, 215, 1.	8.1	10
70	Time-Sensitive Aspects of Mars Sample Return (MSR) Science. Astrobiology, 2021, , .	3.0	10
71	The effects of highly reduced magmatism revealed through aubrites. Meteoritics and Planetary Science, 2022, 57, 1387-1420.	1.6	9
72	The chlorine-isotopic composition of lunar KREEP from magnesian-suite troctolite 76535. American Mineralogist, 2020, 105, 1270-1274.	1.9	8

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73	The Role of Halogens During Fluid and Magmatic Processes on Mars. Springer Geochemistry, 2018, , 959-995.	0.1	7
74	Planning Implications Related to Sterilization-Sensitive Science Investigations Associated with Mars Sample Return (MSR). Astrobiology, 2022, 22, S-112-S-164.	3.0	7
75	Science and Curation Considerations for the Design of a Mars Sample Return (MSR) Sample Receiving Facility (SRF). Astrobiology, 2022, 22, S-217-S-237.	3.0	7
76	COSPAR Sample Safety Assessment Framework (SSAF). Astrobiology, 2022, 22, S-186-S-216.	3.0	7
77	Prokaryotic and Fungal Characterization of the Facilities Used to Assemble, Test, and Launch the OSIRIS-REx Spacecraft. Frontiers in Microbiology, 2020, 11, 530661.	3.5	5
78	The Scientific Importance of Returning Airfall Dust as a Part of Mars Sample Return (MSR). Astrobiology, 2022, 22, S-176-S-185.	3.0	5
79	Development towards stable chlorine isotope measurements of astromaterials using the modified Middleton source of an accelerator mass spectrometer. International Journal of Mass Spectrometry, 2022, 477, 116849.	1.5	1
80	Multispectral imaging and hyperspectral scanning of the first dissection of core 73002: Preliminary results. Meteoritics and Planetary Science, 2021, 56, 1574-1584.	1.6	0