# Francis M Mccubbin

List of Publications by Year
in descending order



| 80 | 4,747 | 66315 | 95218 |
|---|---|---|---|
| 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. | 6.0 | 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. | 3.3 | 257 |
| 3 | Hydrous melting of the martian mantle produced both depleted and enriched shergottites. Geology, 2012, 40, 683-686. | 2.0 | 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. | 0.9 | 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. | 1.6 | 140 |
| 6 | Early accretion of water in the inner solar system from a carbonaceous chondriteâ€“like source. Science, 2014, 346, 623-626. | 6.0 | 128 |
| 7 | Is Mercury a volatileâ€rich planet?. Geophysical Research Letters, 2012, 39, . | 1.5 | 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. | 1.8 | 118 |
| 9 | Detection of structurally bound hydroxyl in fluorapatite from Apollo Mare basalt 15058,128 using TOF-SIMS. American Mineralogist, 2010, 95, 1141-1150. | 0.9 | 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. | 0.7 | 116 |
| 11 | A hydrogen-based oxidation mechanism relevant to planetary formation. Earth and Planetary Science Letters, 2013, 380, 88-97. | 1.8 | 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. | 0.9 | 112 |
| 13 | Exotic crust formation on Mercury: Consequences of a shallow, FeOâ€poor mantle. Journal of Geophysical Research E: Planets, 2015, 120, 195-209. | 1.5 | 110 |
| 14 | Origin of the lunar highlands Mg-suite: An integrated petrology, geochemistry, chronology, and remote sensing perspective. American Mineralogist, 2015, 100, 294-325. | 0.9 | 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. | 1.6 | 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. | 1.8 | 104 |
| 17 | Heterogeneous distribution of H<sub>2</sub>O in the Martian interior: Implications for the abundance of H<sub>2</sub>O in depleted and enriched mantle sources. Meteoritics and Planetary Science, 2016, 51, 2036-2060. | 0.7 | 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. | 1.6 | 102 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Apatites in lunar KREEP basalts: The missing link to understanding the H isotope systematics of the Moon. Geology, 2014, 42, 363-366. | 2.0 | 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. | 0.9 | 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. | 1.6 | 80 |
| 22 | The provenance, formation, and implications of reduced carbon phases in Martian meteorites. Meteoritics and Planetary Science, 2016, 51, 2203-2225. | 0.7 | 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. | 1.1 | 79 |
| 24 | Early degassing of lunar urKREEP by crust-breaching impact(s). Earth and Planetary Science Letters, 2016, 447, 84-94. | 1.8 | 78 |
| 25 | Alkalic parental magmas for chassignites?. Meteoritics and Planetary Science, 2007, 42, 979-992. | 0.7 | 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. | 1.1 | 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. | 1.5 | 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. | 0.9 | 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. | 0.7 | 59 |
| 30 | Origin and abundances of H2O in the terrestrial planets, Moon, and asteroids. Earth and Planetary Science Letters, 2019, 526, 115771. | 1.8 | 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. | 1.6 | 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. | 1.6 | 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. | 0.9 | 54 |
| 34 | Silica-rich volcanism in the early solar system dated at 4.565 Ga. Nature Communications, 2018, 9, 3036. | 5.8 | 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. | 1.6 | 51 |
| 36 | Advanced Curation of Astromaterials for Planetary Science. Space Science Reviews, 2019, 215, 1. | 3.7 | 50 |

| # | Article | IF | Citations |
|---|---|---|---|
| 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. | 0.9 | 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. | 0.9 | 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. | 1.6 | 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 H<sub>2</sub>O in the ancient Martian regolith from Northwest Africa 7034: The important role of Fe oxides. Geophysical Research Letters, 2014, 41, 8235-8244. | 1.5 | 43 |
| 42 | A review of volatiles in the Martian interior. Meteoritics and Planetary Science, 2016, 51, 1935-1958. | 0.7 | 43 |
| 43 | Multiple early-formed water reservoirs in the interior of Mars. Nature Geoscience, 2020, 13, 260-264. | 5.4 | 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. | 1.6 | 42 |
| 45 | Synthesis and characterization of low-OH fluor-chlorapatite: A single-crystal XRD and NMR spectroscopic study. American Mineralogist, 2008, 93, 210-216. | 0.9 | 41 |
| 46 | Constraints on the water, chlorine, and fluorine content of the Martian mantle. Meteoritics and Planetary Science, 2016, 51, 2023-2035. | 0.7 | 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. | 1.6 | 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. | 1.5 | 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. | 1.8 | 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. | 0.7 | 33 |
| 51 | Organic synthesis associated with serpentinization and carbonation on early Mars. Science, 2022, 375, 172-177. | 6.0 | 32 |
| 52 | Mercury surface composition: Integrating petrologic modeling and remote sensing data to place constraints on FeO abundance. Icarus, 2010, 209, 301-313. | 1.1 | 31 |
| 53 | The oxidation state of sulfur in lunar apatite. American Mineralogist, 2019, 104, 307-312. | 0.9 | 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. | 0.9 | 28 |

| # | Article | IF | Citations |
|---|---|---|---|
| 55 | Early crust building enhanced on the Moonâ€™s nearside by mantle melting-point depression. Nature Geoscience, 2020, 13, 339-343. | 5.4 | 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. | 0.9 | 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. | 1.8 | 16 |
| 58 | Preliminary Planning for Mars Sample Return (MSR) Curation Activities in a Sample Receiving Facility (SRF). Astrobiology, 2022, 22, S-57-S-80. | 1.5 | 16 |
| 59 | Thermal expansion of fluorapatite-hydroxylapatite crystalline solutions. American Mineralogist, 2014, 99, 2171-2175. | 0.9 | 15 |
| 60 | The potential for metal contamination during Apollo lunar sample curation. Meteoritics and Planetary Science, 2018, 53, 1283-1291. | 0.7 | 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. | 0.9 | 15 |
| 62 | Final Report of the Mars Sample Return Science Planning Group 2 (MSPG2). Astrobiology, 2022, 22, S-5-S-26. | 1.5 | 15 |
| 63 | Reclassification of four aubrites as enstatite chondrite impact melts: Potential geochemical analogs for Mercury. Meteoritics and Planetary Science, 2019, 54, 785-810. | 0.7 | 14 |
| 64 | Rationale and Proposed Design for a Mars Sample Return (MSR) Science Program. Astrobiology, 2022, 22, S-27-S-56. | 1.5 | 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. | 0.9 | 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. | 1.5 | 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. | 1.6 | 11 |
| 69 | Revolutionizing Our Understanding of the Solar System via Sample Return from Mercury. Space Science Reviews, 2019, 215, 1. | 3.7 | 10 |
| 70 | Time-Sensitive Aspects of Mars Sample Return (MSR) Science. Astrobiology, 2021, , . | 1.5 | 10 |
| 71 | The effects of highly reduced magmatism revealed through aubrites. Meteoritics and Planetary Science, 2022, 57, 1387-1420. | 0.7 | 9 |
| 72 | The chlorine-isotopic composition of lunar KREEP from magnesian-suite troctolite 76535. American Mineralogist, 2020, 105, 1270-1274. | 0.9 | 8 |

| # | Article | IF | Citations |
|---|---|---|---|
| 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. | 1.5 | 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. | 1.5 | 7 |
| 76 | COSPAR Sample Safety Assessment Framework (SSAF). Astrobiology, 2022, 22, S-186-S-216. | 1.5 | 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. | 1.5 | 5 |
| 78 | The Scientific Importance of Returning Airfall Dust as a Part of Mars Sample Return (MSR). Astrobiology, 2022, 22, S-176-S-185. | 1.5 | 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. | 0.7 | 1 |
| 80 | Multispectral imaging and hyperspectral scanning of the first dissection of core 73002: Preliminary results. Meteoritics and Planetary Science, 2021, 56, 1574-1584. | 0.7 | 0 |