

# John F Mustard

## List of Publications by Year in descending order

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108  
papers

16,760  
citations

19608

61  
h-index

27345

106  
g-index

110  
all docs

110  
docs citations

110  
times ranked

6094  
citing authors

#	ARTICLE	IF	CITATIONS
1	Nitrogenous Altered Volcanic Glasses as Targets for Mars Sample Return: Examples From Antarctica and Iceland. <i>Journal of Geophysical Research E: Planets</i> , 2022, 127, .	1.5	2
2	The Circum-Ëksidis Capping Unit: An Extensive Regional Ashfall Deposit Exposed in Jezero Crater. <i>Geophysical Research Letters</i> , 2022, 49, .	1.5	8
3	Joint Hapke Model and Spatial Adaptive Sparse Representation with Iterative Background Purification for Martian Serpentine Detection. <i>Remote Sensing</i> , 2021, 13, 500.	1.8	4
4	Crustal Groundwater Volumes Greater Than Previously Thought. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL093549.	1.5	24
5	Characteristics, Origins, and Biosignature Preservation Potential of Carbonate-Bearing Rocks Within and Outside of Jezero Crater. <i>Journal of Geophysical Research E: Planets</i> , 2021, 126, e2021JE006898.	1.5	16
6	Cross-Over Infrared Spectroscopy: A New Tool for the Remote Determination of Olivine Composition. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL089151.	1.5	5
7	Orbital Identification of Hydrated Silica in Jezero Crater, Mars. <i>Geophysical Research Letters</i> , 2019, 46, 12771-12782.	1.5	53
8	A widespread olivine-rich ash deposit on Mars. <i>Geology</i> , 2019, 47, 677-681.	2.0	57
9	The potential science and engineering value of samples delivered to Earth by Mars sample return. <i>Meteoritics and Planetary Science</i> , 2019, 54, S3.	0.7	73
10	Visible to Short-Wave Infrared Spectral Analyses of Mars from Orbit Using CRISM and OMEGA. , 2019, , 453-483.		6
11	Sequestration of Volatiles in the Martian Crust Through Hydrated Minerals. , 2019, , 247-263.		13
12	A methodology for quantitative analysis of hydrated minerals on Mars with large endmember library using CRISM near-infrared data. <i>Planetary and Space Science</i> , 2019, 165, 124-136.	0.9	10
13	The formation of irregular polygonal ridge networks, Nili Fossae, Mars: Implications for extensive subsurface channelized fluid flow in the Noachian. <i>Icarus</i> , 2019, 319, 852-868.	1.1	12
14	Spectral properties of Martian and other planetary glasses and their detection in remotely sensed data. <i>Journal of Geophysical Research E: Planets</i> , 2017, 122, 249-268.	1.5	43
15	A 40,000 yr record of clay mineralogy at Lake Towuti, Indonesia: Paleoclimate reconstruction from reflectance spectroscopy and perspectives on paleolakes on Mars. <i>Bulletin of the Geological Society of America</i> , 2017, 129, 806-819.	1.6	16
16	From planets to crops and back: Remote sensing makes sense. <i>Journal of Geophysical Research E: Planets</i> , 2017, 122, 794-797.	1.5	6
17	The geological history of Northeast Syrtis Major, Mars. <i>Icarus</i> , 2017, 293, 66-93.	1.1	62
18	Sedimentological evidence for a deltaic origin of the western fan deposit in Jezero crater, Mars and implications for future exploration. <i>Earth and Planetary Science Letters</i> , 2017, 458, 357-365.	1.8	128

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19	Primordial clays on Mars formed beneath a steam or supercritical atmosphere. <i>Nature</i> , 2017, 552, 88-91.	13.7	36
20	Discovery of alunite in Cross crater, Terra Sirenum, Mars: Evidence for acidic, sulfurous waters. <i>American Mineralogist</i> , 2016, 101, 1527-1542.	0.9	51
21	Hyperspectral mapping of alteration assemblages within a hydrothermal vug at the Haughton impact structure, Canada. <i>Meteoritics and Planetary Science</i> , 2016, 51, 2274-2292.	0.7	3
22	The sustainability of habitability on terrestrial planets: Insights, questions, and needed measurements from Mars for understanding the evolution of Earth-like worlds. <i>Journal of Geophysical Research E: Planets</i> , 2016, 121, 1927-1961.	1.5	72
23	Characterization of artifacts introduced by the empirical volcano-scan atmospheric correction commonly applied to CRISM and OMEGA near-infrared spectra. <i>Icarus</i> , 2016, 269, 111-121.	1.1	16
24	Preserved glass-rich impactites on Mars. <i>Geology</i> , 2015, 43, 635-638.	2.0	42
25	Characterizing clay mineralogy in Lake Towuti, Indonesia, with reflectance spectroscopy. <i>Journal of Paleolimnology</i> , 2015, 54, 253-261.	0.8	5
26	Integrating CRISM and TES hyperspectral data to characterize a halloysite-bearing deposit in Kashira crater, Mars. <i>Icarus</i> , 2015, 250, 165-187.	1.1	27
27	Serpentinization, iron oxidation, and aqueous conditions in an ophiolite: Implications for hydrogen production and habitability on Mars. <i>Earth and Planetary Science Letters</i> , 2015, 416, 21-34.	1.8	24
28	Classification and analysis of candidate impact crater-hosted closed-basin lakes on Mars. <i>Icarus</i> , 2015, 260, 346-367.	1.1	91
29	Alteration of immature sedimentary rocks on Earth and Mars: Recording aqueous and surface-atmosphere processes. <i>Earth and Planetary Science Letters</i> , 2015, 417, 78-86.	1.8	18
30	Assessing the mineralogy of the watershed and fan deposits of the Jezero crater paleolake system, Mars. <i>Journal of Geophysical Research E: Planets</i> , 2015, 120, 775-808.	1.5	193
31	Revised CRISM spectral parameters and summary products based on the currently detected mineral diversity on Mars. <i>Journal of Geophysical Research E: Planets</i> , 2014, 119, 1403-1431.	1.5	280
32	Mineralogy and morphology of geologic units at Libya Montes, Mars: Ancient aqueously derived outcrops, mafic flows, fluvial features, and impacts. <i>Journal of Geophysical Research E: Planets</i> , 2013, 118, 487-513.	1.5	56
33	Exposures of olivine-rich rocks in the vicinity of Ares Vallis: Implications for Noachian and Hesperian volcanism. <i>Journal of Geophysical Research E: Planets</i> , 2013, 118, 916-929.	1.5	11
34	Extensive linear ridge networks in Nili Fossae and Nilosyrtis, Mars: implications for fluid flow in the ancient crust. <i>Geophysical Research Letters</i> , 2013, 40, 245-249.	1.5	26
35	An in-situ record of major environmental transitions on early Mars at Northeast Syrtis Major. <i>Geophysical Research Letters</i> , 2012, 39, .	1.5	94
36	Constraints on the history of open-basin lakes on Mars from the composition and timing of volcanic resurfacing. <i>Journal of Geophysical Research</i> , 2012, 117, .	3.3	46

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37	Low temperature aqueous alteration of basalt: Mineral assemblages of Deccan basalts and implications for Mars. <i>Journal of Geophysical Research</i> , 2012, 117, .	3.3	38
38	A spectroscopic analysis of Martian crater central peaks: Formation of the ancient crust. <i>Journal of Geophysical Research</i> , 2012, 117, .	3.3	32
39	Mineralogy and chemistry of altered Icelandic basalts: Application to clay mineral detection and understanding aqueous environments on Mars. <i>Journal of Geophysical Research</i> , 2012, 117, .	3.3	62
40	Pristine Noachian crust and key geologic transitions in the lower walls of Valles Marineris: Insights into early igneous processes on Mars. <i>Icarus</i> , 2012, 221, 420-435.	1.1	65
41	An analysis of open-basin lake deposits on Mars: Evidence for the nature of associated lacustrine deposits and post-lacustrine modification processes. <i>Icarus</i> , 2012, 219, 211-229.	1.1	105
42	New insights into lunar petrology: Distribution and composition of prominent low-Ca pyroxene exposures as observed by the Moon Mineralogy Mapper (M <sup>3</sup> ). <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	80
43	Compositional diversity and geologic insights of the Aristarchus crater from Moon Mineralogy Mapper data. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	83
44	Remote compositional analysis of lunar olivine-rich lithologies with Moon Mineralogy Mapper (M <sup>3</sup> ) spectra. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	73
45	Dikes of distinct composition intruded into Noachian-aged crust exposed in the walls of Valles Marineris. <i>Geophysical Research Letters</i> , 2011, 38, .	1.5	40
46	Subsurface water and clay mineral formation during the early history of Mars. <i>Nature</i> , 2011, 479, 53-60.	18.7	651
47	Evidence for low-grade metamorphism, hydrothermal alteration, and diagenesis on Mars from phyllosilicate mineral assemblages. <i>Clays and Clay Minerals</i> , 2011, 59, 359-377.	0.6	107
48	Robust unmixing of hyperspectral images: Application to Mars. , 2011, , .		6
49	Hydrated mineral stratigraphy of Ius Chasma, Valles Marineris. <i>Icarus</i> , 2010, 206, 253-268.	1.1	119
50	Diagenetic haematite and sulfate assemblages in Valles Marineris. <i>Icarus</i> , 2010, 207, 659-674.	1.1	63
51	Identification of the Ca-sulfate bassanite in Mawrth Vallis, Mars. <i>Icarus</i> , 2010, 209, 416-421.	1.1	114
52	Silica deposits in the Nili Patera caldera on the Syrtis Major volcanic complex on Mars. <i>Nature Geoscience</i> , 2010, 3, 838-841.	5.4	173
53	Near-tropical subsurface ice on Mars. <i>Geophysical Research Letters</i> , 2010, 37, .	1.5	79
54	Spectrally distinct ejecta in Syrtis Major, Mars: Evidence for environmental change at the Hesperian-Amazonian boundary. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	23

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55	Stratigraphy of hydrated sulfates in the sedimentary deposits of Aram Chaos, Mars. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	74
56	Definitive evidence of Hesperian basalt in Acidalia and Chryse planitiae. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	73
57	Geologic setting of serpentine deposits on Mars. <i>Geophysical Research Letters</i> , 2010, 37, .	1.5	299
58	Water ice at low to midlatitudes on Mars. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	78
59	An improvement to the volcano-scan algorithm for atmospheric correction of CRISM and OMEGA spectral data. <i>Planetary and Space Science</i> , 2009, 57, 809-815.	0.9	166
60	Phyllosilicates and sulfates at Endeavour Crater, Meridiani Planum, Mars. <i>Geophysical Research Letters</i> , 2009, 36, .	1.5	88
61	Identification of hydrated silicate minerals on Mars using MRO's CRISM: Geologic context near Nili Fossae and implications for aqueous alteration. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	483
62	A synthesis of Martian aqueous mineralogy after 1 Mars year of observations from the Mars Reconnaissance Orbiter. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	445
63	Evidence for the origin of layered deposits in Candor Chasma, Mars, from mineral composition and hydrologic modeling. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	159
64	Compact Reconnaissance Imaging Spectrometer for Mars investigation and data set from the Mars Reconnaissance Orbiter's primary science phase. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	178
65	Composition, Morphology, and Stratigraphy of Noachian Crust around the Isidis basin. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	144
66	Characterization of phyllosilicates observed in the central Mawrth Vallis region, Mars, their potential formational processes, and implications for past climate. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	117
67	Wavelet analysis of MODIS time series to detect expansion and intensification of row-crop agriculture in Brazil. <i>Remote Sensing of Environment</i> , 2008, 112, 576-587.	4.6	338
68	Hydrated silicate minerals on Mars observed by the Mars Reconnaissance Orbiter CRISM instrument. <i>Nature</i> , 2008, 454, 305-309.	13.7	630
69	Clay minerals in delta deposits and organic preservation potential on Mars. <i>Nature Geoscience</i> , 2008, 1, 355-358.	5.4	293
70	MRO/CRISM Retrieval of Surface Lambert Albedos for Multispectral Mapping of Mars With DISORT-Based Radiative Transfer Modeling: Phase 1—Using Historical Climatology for Temperatures, Aerosol Optical Depths, and Atmospheric Pressures. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2008, 46, 4020-4040.	2.7	41
71	Compositional stratigraphy of clay-bearing layered deposits at Mawrth Vallis, Mars. <i>Geophysical Research Letters</i> , 2008, 35, .	1.5	165
72	Orbital Identification of Carbonate-Bearing Rocks on Mars. <i>Science</i> , 2008, 322, 1828-1832.	6.0	560

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73	Phyllosilicate Diversity and Past Aqueous Activity Revealed at Mawrth Vallis, Mars. <i>Science</i> , 2008, 321, 830-833.	6.0	328
74	Hydration state of the Martian surface as seen by Mars Express OMEGA: 2. H <sub>2</sub> O content of the surface. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	98
75	Mineralogy of the Nili Fossae region with OMEGA/Mars Express data: 1. Ancient impact melt in the Isidis Basin and implications for the transition from the Noachian to Hesperian. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	130
76	Hydration state of the Martian surface as seen by Mars Express OMEGA: 1. Analysis of the 3 $\mu$ m hydration feature. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	83
77	Mineralogy of the Nili Fossae region with OMEGA/Mars Express data: 2. Aqueous alteration of the crust. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	154
78	CRISM multispectral summary products: Parameterizing mineral diversity on Mars from reflectance. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	304
79	Assessing the limits of the Modified Gaussian Model for remote spectroscopic studies of pyroxenes on Mars. <i>Icarus</i> , 2007, 187, 442-456.	1.1	49
80	A curve fitting procedure to derive inter-annual phenologies from time series of noisy satellite NDVI data. <i>Remote Sensing of Environment</i> , 2007, 106, 137-145.	4.6	308
81	Breccia dikes and crater-related faults in impact craters on Mars: Erosion and exposure on the floor of a crater 75 km in diameter at the dichotomy boundary. <i>Meteoritics and Planetary Science</i> , 2006, 41, 1675-1690.	0.7	21
82	Global Mineralogical and Aqueous Mars History Derived from OMEGA/Mars Express Data. <i>Science</i> , 2006, 312, 400-404.	6.0	1,395
83	Phyllosilicates on Mars and implications for early martian climate. <i>Nature</i> , 2005, 438, 623-627.	13.7	825
84	Mars Surface Diversity as Revealed by the OMEGA/Mars Express Observations. <i>Science</i> , 2005, 307, 1576-1581.	6.0	842
85	Olivine and Pyroxene Diversity in the Crust of Mars. <i>Science</i> , 2005, 307, 1594-1597.	6.0	348
86	Sulfates in Martian Layered Terrains: The OMEGA/Mars Express View. <i>Science</i> , 2005, 307, 1587-1591.	6.0	867
87	Joint analysis of ISM and TES spectra: The utility of multiple wavelength regimes for Martian surface studies. <i>Journal of Geophysical Research</i> , 2005, 110, .	3.3	11
88	Quantifying absolute water content of minerals using near-infrared reflectance spectroscopy. <i>Journal of Geophysical Research</i> , 2005, 110, .	3.3	103
89	Impact melts and glasses on Mars. <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	63
90	Recent ice ages on Mars. <i>Nature</i> , 2003, 426, 797-802.	13.7	705

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91	Viscous flow features on the surface of Mars: Observations from high-resolution Mars Orbiter Camera (MOC) images. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	254
92	Effects of glass content and oxidation on the spectra of SNC-like basalts: Applications to Mars remote sensing. <i>Journal of Geophysical Research</i> , 2002, 107, 6-1.	3.3	65
93	Ice concentration and distribution near the south pole of Mars: Synthesis of odyssey and global surveyor analyses. <i>Geophysical Research Letters</i> , 2002, 29, 10-1-10-4.	1.5	38
94	A wet and altered Mars. <i>Nature</i> , 2002, 417, 234-235.	13.7	4
95	A Semianalytical Approach to the Calibration of AVIRIS Data to Reflectance over Water. <i>Remote Sensing of Environment</i> , 2001, 75, 335-349.	4.6	30
96	Evidence for recent climate change on Mars from the identification of youthful near-surface ground ice. <i>Nature</i> , 2001, 412, 411-414.	13.7	514
97	Quantifying Vegetation Change in Semiarid Environments. <i>Remote Sensing of Environment</i> , 2000, 73, 87-102.	4.6	413
98	Recognition of minor constituents in reflectance spectra of Allan Hills 84001 chips and the importance for remote sensing on Mars. <i>Meteoritics and Planetary Science</i> , 1998, 33, 693-698.	0.7	25
99	Spectroscopic analysis of Martian meteorite Allan Hills 84001 powder and applications for spectral identification of minerals and other soil components on Mars. <i>Meteoritics and Planetary Science</i> , 1998, 33, 699-707.	0.7	42
100	In situ compositions of Martian volcanics: Implications for the mantle. <i>Journal of Geophysical Research</i> , 1997, 102, 25605-25615.	3.3	97
101	Seeing through the dust: martian crustal heterogeneity and links to the SNC meteorites. <i>Science</i> , 1995, 267, 1623-1626.	6.0	106
102	Martian Aerosols: Near-Infrared Spectral Properties and Effects on the Observation of the Surface. <i>Icarus</i> , 1994, 111, 317-337.	1.1	55
103	New composite reflectance spectra of Mars from 0.4 to 3.14 $\mu$ m. <i>Geophysical Research Letters</i> , 1994, 21, 353-356.	1.5	69
104	Spatial Variations in the Spectral Properties of Bright Regions on Mars. <i>Icarus</i> , 1993, 105, 454-468.	1.1	89
105	The surface of Syrtis Major: Composition of the volcanic substrate and mixing with altered dust and soil. <i>Journal of Geophysical Research</i> , 1993, 98, 3387-3400.	3.3	112
106	Lunar impact basins: New data for the western limb and far side (Orientale and South Pole-Aitken) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 5	3.3	131
107	Quantitative abundance estimates from bidirectional reflectance measurements. <i>Journal of Geophysical Research</i> , 1987, 92, E617.	3.3	140
108	Abundance and distribution of ultramafic microbreccia in moses rock dike: Quantitative application of mapping spectroscopy. <i>Journal of Geophysical Research</i> , 1987, 92, 10376-10390.	3.3	51