

Raymond Arvidson

List of Publications by Year in descending order

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107
papers

17,254
citations

14655

66
h-index

30922

102
g-index

108
all docs

108
docs citations

108
times ranked

5371
citing authors

#	ARTICLE	IF	CITATIONS
1	Global Mineralogical and Aqueous Mars History Derived from OMEGA/Mars Express Data. <i>Science</i> , 2006, 312, 400-404.	12.6	1,395
2	In Situ Evidence for an Ancient Aqueous Environment at Meridiani Planum, Mars. <i>Science</i> , 2004, 306, 1709-1714.	12.6	845
3	Phyllosilicates on Mars and implications for early martian climate. <i>Nature</i> , 2005, 438, 623-627.	27.8	825
4	Jarosite and Hematite at Meridiani Planum from Opportunity's Mössbauer Spectrometer. <i>Science</i> , 2004, 306, 1740-1745.	12.6	733
5	H ₂ O at the Phoenix Landing Site. <i>Science</i> , 2009, 325, 58-61.	12.6	500
6	Stratigraphy and sedimentology of a dry to wet eolian depositional system, Burns formation, Meridiani Planum, Mars. <i>Earth and Planetary Science Letters</i> , 2005, 240, 11-72.	4.4	496
7	Deposition, exhumation, and paleoclimate of an ancient lake deposit, Gale crater, Mars. <i>Science</i> , 2015, 350, aac7575.	12.6	471
8	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
9	The Spirit Rover's Athena Science Investigation at Gusev Crater, Mars. <i>Science</i> , 2004, 305, 794-799.	12.6	404
10	Detection of Silica-Rich Deposits on Mars. <i>Science</i> , 2008, 320, 1063-1067.	12.6	399
11	Volatile, Isotope, and Organic Analysis of Martian Fines with the Mars Curiosity Rover. <i>Science</i> , 2013, 341, 1238937.	12.6	367
12	Identification of Carbonate-Rich Outcrops on Mars by the Spirit Rover. <i>Science</i> , 2010, 329, 421-424.	12.6	358
13	An integrated view of the chemistry and mineralogy of martian soils. <i>Nature</i> , 2005, 436, 49-54.	27.8	348
14	Martian Fluvial Conglomerates at Gale Crater. <i>Science</i> , 2013, 340, 1068-1072.	12.6	326
15	Volatile and Organic Compositions of Sedimentary Rocks in Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1245267.	12.6	323
16	Mössbauer mineralogy of rock, soil, and dust at Gusev crater, Mars: Spirit's journey through weakly altered olivine basalt on the plains and pervasively altered basalt in the Columbia Hills. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	314
17	Mineralogy at Gusev Crater from the Mossbauer Spectrometer on the Spirit Rover. <i>Science</i> , 2004, 305, 833-836.	12.6	279
18	Elemental Geochemistry of Sedimentary Rocks at Yellowknife Bay, Gale Crater, Mars. <i>Science</i> , 2014, 343, 1244734.	12.6	246

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19	Basaltic Rocks Analyzed by the Spirit Rover in Gusev Crater. <i>Science</i> , 2004, 305, 842-845.	12.6	244
20	Water alteration of rocks and soils on Mars at the Spirit rover site in Gusev crater. <i>Nature</i> , 2005, 436, 66-69.	27.8	240
21	Geochemical and mineralogical indicators for aqueous processes in the Columbia Hills of Gusev crater, Mars. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	234
22	Athena Mars rover science investigation. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	233
23	Characterization and petrologic interpretation of olivine-rich basalts at Gusev Crater, Mars. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	227
24	Mössbauer mineralogy of rock, soil, and dust at Meridiani Planum, Mars: Opportunity's journey across sulfate-rich outcrop, basaltic sand and dust, and hematite lag deposits. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	225
25	Erosion rates at the Mars Exploration Rover landing sites and long-term climate change on Mars. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	215
26	Soil Diversity and Hydration as Observed by ChemCam at Gale Crater, Mars. <i>Science</i> , 2013, 341, 1238670.	12.6	215
27	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
28	Ancient Impact and Aqueous Processes at Endeavour Crater, Mars. <i>Science</i> , 2012, 336, 570-576.	12.6	176
29	Ancient Aqueous Environments at Endeavour Crater, Mars. <i>Science</i> , 2014, 343, 1248097.	12.6	176
30	In situ and experimental evidence for acidic weathering of rocks and soils on Mars. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	169
31	Geologic setting and origin of Terra Meridiani hematite deposit on Mars. <i>Journal of Geophysical Research</i> , 2002, 107, 18-1.	3.3	168
32	Localization and Physical Properties Experiments Conducted by Spirit at Gusev Crater. <i>Science</i> , 2004, 305, 821-824.	12.6	166
33	Geochemical properties of rocks and soils in Gusev Crater, Mars: Results of the Alpha Particle X-Ray Spectrometer from Cumberland Ridge to Home Plate. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	162
34	Iron mineralogy and aqueous alteration from Husband Hill through Home Plate at Gusev Crater, Mars: Results from the Mössbauer instrument on the Spirit Mars Exploration Rover. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	162
35	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
36	Selection of the Mars Exploration Rover landing sites. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	155

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37	Characteristics, distribution, origin, and significance of opaline silica observed by the Spirit rover in Gusev crater, Mars. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	155
38	Soils of Eagle Crater and Meridiani Planum at the Opportunity Rover Landing Site. <i>Science</i> , 2004, 306, 1723-1726.	12.6	153
39	Pancam Multispectral Imaging Results from the Spirit Rover at Gusev Crater. <i>Science</i> , 2004, 305, 800-806.	12.6	153
40	Overview of the Opportunity Mars Exploration Rover Mission to Meridiani Planum: Eagle Crater to Purgatory Ripple. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	149
41	Early Mars hydrology: Meridiani playa deposits and the sedimentary record of Arabia Terra. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	148
42	Rocks of the Columbia Hills. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	146
43	Nature and origin of the hematite-bearing plains of Terra Meridiani based on analyses of orbital and Mars Exploration rover data sets. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	144
44	Exploration of Victoria Crater by the Mars Rover Opportunity. <i>Science</i> , 2009, 324, 1058-1061.	12.6	141
45	Gusev crater: Wind-related features and processes observed by the Mars Exploration Rover Spirit. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	140
46	Pancam Multispectral Imaging Results from the Opportunity Rover at Meridiani Planum. <i>Science</i> , 2004, 306, 1703-1709.	12.6	135
47	The Petrochemistry of Jake_M: A Martian Mugarite. <i>Science</i> , 2013, 341, 1239463.	12.6	134
48	Rock Abrasion Tool: Mars Exploration Rover mission. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	131
49	Localization and Physical Property Experiments Conducted by Opportunity at Meridiani Planum. <i>Science</i> , 2004, 306, 1730-1733.	12.6	130
50	Spirit Mars Rover Mission: Overview and selected results from the northern Home Plate Winter Haven to the side of Scamander crater. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	127
51	The stratigraphy and evolution of lower Mount Sharp from spectral, morphological, and thermophysical orbital data sets. <i>Journal of Geophysical Research E: Planets</i> , 2016, 121, 1713-1736.	3.6	123
52	A hematite-bearing layer in Gale Crater, Mars: Mapping and implications for past aqueous conditions. <i>Geology</i> , 2013, 41, 1103-1106.	4.4	113
53	Oxidation of manganese in an ancient aquifer, Kimberley formation, Gale crater, Mars. <i>Geophysical Research Letters</i> , 2016, 43, 7398-7407.	4.0	110
54	Light-toned salty soils and coexisting Si-rich species discovered by the Mars Exploration Rover Spirit in Columbia Hills. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	108

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55	Opportunity Mars Rover mission: Overview and selected results from Purgatory ripple to traverses to Endeavour crater. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	106
56	Overview of the Mars Science Laboratory mission: Bradbury Landing to Yellowknife Bay and beyond. <i>Journal of Geophysical Research E: Planets</i> , 2014, 119, 1134-1161.	3.6	104
57	Mars Exploration Rover mission. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	102
58	Spirit Mars Rover Mission to the Columbia Hills, Gusev Crater: Mission overview and selected results from the Cumberland Ridge to Home Plate. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	99
59	Chemistry, mineralogy, and grain properties at Namib and High dunes, Bagnold dune field, Gale crater, Mars: A synthesis of Curiosity rover observations. <i>Journal of Geophysical Research E: Planets</i> , 2017, 122, 2510-2543.	3.6	95
60	Phyllosilicates and sulfates at Endeavour Crater, Meridiani Planum, Mars. <i>Geophysical Research Letters</i> , 2009, 36, .	4.0	88
61	Mineralogy of Terra Meridiani and western Arabia Terra from OMEGA/MEx and implications for their formation. <i>Icarus</i> , 2008, 195, 106-130.	2.5	85
62	Mars Science Laboratory Curiosity Rover Megaripple Crossings up to Sol 710 in Gale Crater. <i>Journal of Field Robotics</i> , 2017, 34, 495-518.	6.0	82
63	Evidence for montmorillonite or its compositional equivalent in Columbia Hills, Mars. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	81
64	Stratigraphy of hydrated sulfates in the sedimentary deposits of Aram Chaos, Mars. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	74
65	Wind-blown streaks, splotches, and associated craters on Mars: Statistical analysis of Mariner 9 photographs. <i>Icarus</i> , 1974, 21, 12-27.	2.5	73
66	Spectral and stratigraphic mapping of hydrated sulfate and phyllosilicate-bearing deposits in northern Sinus Meridiani, Mars. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	73
67	Evidence for a Diagenetic Origin of Vera Rubin Ridge, Gale Crater, Mars: Summary and Synthesis of Curiosity's Exploration Campaign. <i>Journal of Geophysical Research E: Planets</i> , 2020, 125, e2020JE006527.	3.6	69
68	Overview of the Microscopic Imager Investigation during Spirit's first 450 sols in Gusev crater. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	64
69	Compositional variations in sands of the Bagnold Dunes, Gale crater, Mars, from visible-shortwave infrared spectroscopy and comparison with ground truth from the Curiosity rover. <i>Journal of Geophysical Research E: Planets</i> , 2017, 122, 2489-2509.	3.6	64
70	Phyllosilicate and sulfate-hematite deposits within Miyamoto crater in southern Sinus Meridiani, Mars. <i>Geophysical Research Letters</i> , 2008, 35, .	4.0	63
71	Mineralogy of the MSL Curiosity landing site in Gale crater as observed by MRO/CRISM. <i>Geophysical Research Letters</i> , 2014, 41, 4880-4887.	4.0	59
72	High concentrations of manganese and sulfur in deposits on Murray Ridge, Endeavour Crater, Mars. <i>American Mineralogist</i> , 2016, 101, 1389-1405.	1.9	55

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73	Sand Mineralogy Within the Bagnold Dunes, Gale Crater, as Observed In Situ and From Orbit. <i>Geophysical Research Letters</i> , 2018, 45, 9488-9497.	4.0	52
74	Spectrophotometric properties of materials observed by Pancam on the Mars Exploration Rovers: 1. Spirit. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	49
75	Columbia Hills, Mars: Aeolian features seen from the ground and orbit. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	46
76	Structure, stratigraphy, and origin of Husband Hill, Columbia Hills, Gusev Crater, Mars. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	44
77	Surface processes recorded by rocks and soils on Meridiani Planum, Mars: Microscopic Imager observations during Opportunity's first three extended missions. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	39
78	Smectite deposits in Marathon Valley, Endeavour Crater, Mars, identified using CRISM hyperspectral reflectance data. <i>Geophysical Research Letters</i> , 2016, 43, 4885-4892.	4.0	39
79	Microscopy analysis of soils at the Phoenix landing site, Mars: Classification of soil particles and description of their optical and magnetic properties. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	38
80	Rock spectral classes observed by the Spirit Rover's Pancam on the Gusev Crater Plains and in the Columbia Hills. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	37
81	Context of ancient aqueous environments on Mars from in situ geologic mapping at Endeavour Crater. <i>Journal of Geophysical Research E: Planets</i> , 2015, 120, 538-569.	3.6	37
82	Spectrophotometric properties of materials observed by Pancam on the Mars Exploration Rovers: 2. Opportunity. <i>Journal of Geophysical Research</i> , 2006, 111, n/a-n/a.	3.3	36
83	Geologic and spectral mapping of etched terrain deposits in northern Meridiani Planum. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	36
84	Martian surface properties from joint analysis of orbital, Earth-based, and surface observations. , 2008, , 468-498.		35
85	Mars Reconnaissance Orbiter and Opportunity observations of the Burns formation: Crater hopping at Meridiani Planum. <i>Journal of Geophysical Research E: Planets</i> , 2015, 120, 429-451.	3.6	30
86	Diverse Lithologies and Alteration Events on the Rim of Noachian Aged Endeavour Crater, Meridiani Planum, Mars: In Situ Compositional Evidence. <i>Journal of Geophysical Research E: Planets</i> , 2018, 123, 1255-1306.	3.6	28
87	Regularization of Mars Reconnaissance Orbiter CRISM along-track oversampled hyperspectral imaging observations of Mars. <i>Icarus</i> , 2017, 282, 136-151.	2.5	27
88	Synergistic Ground and Orbital Observations of Iron Oxides on Mt. Sharp and Vera Rubin Ridge. <i>Journal of Geophysical Research E: Planets</i> , 2020, 125, e2019JE006294.	3.6	27
89	Correspondence and least squares analyses of soil and rock compositions for the Viking Lander 1 and Pathfinder landing sites. <i>Journal of Geophysical Research</i> , 2000, 105, 29207-29221.	3.3	25
90	Field reconnaissance geologic mapping of the Columbia Hills, Mars, based on Mars Exploration Rover Spirit and MRO HiRISE observations. <i>Journal of Geophysical Research</i> , 2011, 116, .	3.3	24

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91	Sands at Gusev Crater, Mars. Journal of Geophysical Research E: Planets, 2014, 119, 941-967.	3.6	19
92	Esperance: Multiple episodes of aqueous alteration involving fracture fills and coatings at Matijevec Hill, Mars. American Mineralogist, 2016, 101, 1515-1526.	1.9	19
93	Orbital and In-situ Investigation of Periodic Bedrock Ridges in Glen Torridon, Gale Crater, Mars. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	18
94	Quantitative Reconstruction and Denoising Method HyBER for Hyperspectral Image Data and Its Application to CRISM. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2019, 12, 1219-1230.	4.9	14
95	Retrieval of Compositional End-members From Mars Exploration Rover Opportunity Observations in a Soil-Filled Fracture in Marathon Valley, Endeavour Crater Rim. Journal of Geophysical Research E: Planets, 2018, 123, 278-290.	3.6	11
96	CRISM-Based High Spatial Resolution Thermal Inertia Mapping Along Curiosity's Traverses in Gale Crater. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	11
97	Surface Kinetic Temperatures and Nontronite Single Scattering Albedo Spectra From Mars Reconnaissance Orbiter CRISM Hyperspectral Imaging Data Over Glen Torridon, Gale Crater, Mars. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	11
98	Visible to near-IR multispectral orbital observations of Mars. , 2008, , 169-192.		8
99	The structural, stratigraphic, and paleoenvironmental record exposed on the rim and walls of Iazu Crater, Mars. Journal of Geophysical Research E: Planets, 2017, 122, 1138-1156.	3.6	6
100	Visible to Short-Wave Infrared Spectral Analyses of Mars from Orbit Using CRISM and OMEGA. , 2019, , 453-483.		6
101	Geology and Geochemistry of Noachian Bedrock and Alteration Events, Meridiani Planum, Mars: MER Opportunity Observations. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006915.	3.6	6
102	Martian Habitability as Inferred From Landed Mission Observations. , 2018, , 77-126.		5
103	Orbital Observations of a Marker Horizon at Gale Crater. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	5
104	Overview of Spirit Microscopic Imager Results. Journal of Geophysical Research E: Planets, 2019, 124, 528-584.	3.6	4
105	Degradation of Endeavour Crater Based on Orbital and Rover-Based Observations in Combination With Landscape Evolution Modeling. Journal of Geophysical Research E: Planets, 2019, 124, 1472-1494.	3.6	3
106	LOCALIZED AND AREALLY EXTENSIVE ALTERATIONS IN MARATHON VALLEY, ENDEAVOUR CRATER RIM, MARS. , 2016, , .		3
107	Canyon Wall and Floor Debris Deposits in Aeolis Mons, Mars. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	2