Michael D Smith

List of Publications by Year
in descending order

144 papers	15,561 citations	17429 63 h-index	16636 123 g-index
149 all docs	149 docs citations	149 times ranked	5333 citing authors

#	Article	IF	Citations
1	Mars Global Surveyor Thermal Emission Spectrometer experiment: Investigation description and surface science results. Journal of Geophysical Research, 2001, 106, 23823-23871.	3.3	903
2	Compact Reconnaissance Imaging Spectrometer for Mars (CRISM) on Mars Reconnaissance Orbiter (MRO). Journal of Geophysical Research, 2007, 112, .	3.3	796
3	Interannual variability in TES atmospheric observations of Mars during 1999â€“2003. Icarus, 2004, 167, 148-165.	1.1	669
4	Strong Release of Methane on Mars in Northern Summer 2003. Science, 2009, 323, 1041-1045.	6.0	516
5	The Opportunity Rover's Athena Science Investigation at Meridiani Planum, Mars. Science, 2004, 306, 1698-1703.	6.0	507
6	Marsâ€™ Surface Radiation Environment Measured with the Mars Science Laboratoryâ€™s Curiosity Rover. Science, 2014, 343, 1244797.	6.0	475
7	Detection of crystalline hematite mineralization on Mars by the Thermal Emission Spectrometer: Evidence for near-surface water. Journal of Geophysical Research, 2000, 105, 9623-9642.	3.3	427
8	The Spirit Rover's Athena Science Investigation at Gusev Crater, Mars. Science, 2004, 305, 794-799.	6.0	404
9	Mineralogy at Meridiani Planum from the Mini-TES Experiment on the Opportunity Rover. Science, 2004, 306, 1733-1739.	6.0	370
10	Morphology and Composition of the Surface of Mars: Mars Odyssey THEMIS Results. Science, 2003, 300, 2056-2061.	6.0	368
11	An intercomparison of ground-based millimeter, MGS TES, and Viking atmospheric temperature measurements: Seasonal and interannual variability of temperatures and dust loading in the global Mars atmosphere. Journal of Geophysical Research, 2000, 105, 9553-9571.	3.3	340
12	Abundance and Isotopic Composition of Gases in the Martian Atmosphere from the Curiosity Rover. Science, 2013, 341, 263-266.	6.0	327
13	CRISM multispectral summary products: Parameterizing mineral diversity on Mars from reflectance. Journal of Geophysical Research, 2007, 112, .	3.3	304
14	Curiosity at Gale Crater, Mars: Characterization and Analysis of the Rocknest Sand Shadow. Science, 2013, 341, 1239505.	6.0	280
15	The annual cycle of water vapor on Mars as observed by the Thermal Emission Spectrometer. Journal of Geophysical Research, 2002, 107, 25-1-25-19.	3.3	272
16	Strong water isotopic anomalies in the martian atmosphere: Probing current and ancient reservoirs. Science, 2015, 348, 218-221.	6.0	245
17	Overview of the Spirit Mars Exploration Rover Mission to Gusev Crater: Landing site to Backstay Rock in the Columbia Hills. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	238
18	The Structure of the Upper Atmosphere of Mars: In Situ Accelerometer Measurements from Mars Global Surveyor. Science, 1998, 279, 1672-1676.	6.0	234

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19	Thermal Emission Spectrometer results: Mars atmospheric thermal structure and aerosol distribution. Journal of Geophysical Research, 2001, 106, 23929-23945.	3.3	225
20	Background levels of methane in Marsâ€™ atmosphere show strong seasonal variations. Science, 2018, 360, 1093-1096.	6.0	224
21	Atmospheric Imaging Results from the Mars Exploration Rovers: Spirit and Opportunity. Science, 2004, 306, 1753-1756.	6.0	219
22	Mars Global Surveyor Thermal Emission Spectrometer (TES) observations: Atmospheric temperatures during aerobraking and science phasing. Journal of Geophysical Research, 2000, 105, 9509-9519.	3.3	198
23	Wavelength dependence of dust aerosol single scattering albedo as observed by the Compact Reconnaissance Imaging Spectrometer. Journal of Geophysical Research, 2009, 114, .	3.3	196
24	THEMIS observations of Mars aerosol optical depth from 2002â€“2008. Icarus, 2009, 202, 444-452.	1.1	178
25	Compact Reconnaissance Imaging Spectrometer for Mars investigation and data set from the Mars Reconnaissance Orbiter's primary science phase. Journal of Geophysical Research, 2009, 114, .	3.3	178
26	Initial Results from the Mini-TES Experiment in Gusev Crater from the Spirit Rover. Science, 2004, 305, 837-842.	6.0	168
27	Planetary Spectrum Generator: An accurate online radiative transfer suite for atmospheres, comets, small bodies and exoplanets. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 217, 86-104.	1.1	167
28	An improvement to the volcano-scan algorithm for atmospheric correction of CRISM and OMEGA spectral data. Planetary and Space Science, 2009, 57, 809-815.	0.9	166
29	Spacecraft Observations of the Martian Atmosphere. Annual Review of Earth and Planetary Sciences, 2008, 36, 191-219.	4.6	162
30	Constraints on dust aerosols from the Mars Exploration Rovers using MGS overflights and Mini-TES. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	159
31	Dust aerosol, clouds, and the atmospheric optical depth record over 5 Mars years of the Mars Exploration Rover mission. Icarus, 2015, 251, 96-111.	1.1	158
32	The Modern Near-Surface Martian Climate: A Review of In-situ Meteorological Data from Viking to Curiosity. Space Science Reviews, 2017, 212, 295-338.	3.7	153
33	Overview of the Opportunity Mars Exploration Rover Mission to Meridiani Planum: Eagle Crater to Purgatory Ripple. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	149
34	Separation of atmospheric and surface spectral features in Mars Global Surveyor Thermal Emission Spectrometer (TES) spectra. Journal of Geophysical Research, 2000, 105, 9589-9607.	3.3	148
35	One Martian year of atmospheric observations using MER Mini-TES. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	147
36	Mars Global Surveyor Thermal Emission Spectrometer (TES) observations of dust opacity during aerobraking and science phasing. Journal of Geophysical Research, 2000, 105, 9539-9552.	3.3	144

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37	Thermal Emission Spectrometer Observations of Martian Planet-Encircling Dust Storm 2001A. Icarus, 2002, 157, 259-263.	1.1	139
38	Mars Science Laboratory Observations of the 2018/Mars Year 34 Global Dust Storm. Geophysical Research Letters, 2019, 46, 71-79.	1.5	138
39	Compact Reconnaissance Imaging Spectrometer observations of water vapor and carbon monoxide. Journal of Geophysical Research, 2009, 114, .	3.3	137
40	Spectral data set factor analysis and end-member recovery: Application to analysis of Martian atmospheric particulates. Journal of Geophysical Research, 2000, 105, 9573-9587.	3.3	132
41	Interannual similarity in the Martian atmosphere during the dust storm season. Geophysical Research Letters, 2016, 43, 6111-6118.	1.5	121
42	Observations of Martian ice clouds by the Mars Global Surveyor Thermal Emission Spectrometer: The first Martian year. Journal of Geophysical Research, 2001, 106, 12325-12338.	3.3	114
43	Multiple emission angle surfaceâ€“atmosphere separations of thermal emission spectrometer data. Icarus, 2003, 161, 47-65.	1.1	110
44	Martian dust storm impact on atmospheric H2O and D/H observed by ExoMars Trace Gas Orbiter. Nature, 2019, 568, 521-525.	13.7	107
45	Low Upper Limit to Methane Abundance on Mars. Science, 2013, 342, 355-357.	6.0	103
46	First Atmospheric Science Results from the Mars Exploration Rovers Mini-TES. Science, 2004, 306, 1750-1753.	6.0	102
47	NOMAD, an Integrated Suite of Three Spectrometers for the ExoMars Trace Gas Mission: Technical Description, Science Objectives and Expected Performance. Space Science Reviews, 2018, 214, 1.	3.7	95
48	Atmospheric correction and surface spectral unit mapping using Thermal Emission Imaging System data. Journal of Geophysical Research, 2004, 109, .	3.3	91
49	Assimilation of thermal emission spectrometer atmospheric data during the Mars Global Surveyor aerobraking period. Icarus, 2007, 192, 327-347.	1.1	91
50	Marsâ€™ water vapor mapping by the SPICAM IR spectrometer: Five martian years of observations. Icarus, 2015, 251, 50-64.	1.1	90
51	Water Vapor Vertical Profiles on Mars in Dust Storms Observed by TGO/NOMAD. Journal of Geophysical Research E: Planets, 2019, 124, 3482-3497.	1.5	88
52	Extension of atmospheric dust loading to high altitudes during the 2001 Mars dust storm: MGS TES limb observations. Icarus, 2010, 207, 98-109.	1.1	87
53	Influence of water ice clouds on Martian tropical atmospheric temperatures. Geophysical Research Letters, 2008, 35, .	1.5	84
54	Diurnal variation and radiative influence of Martian water ice clouds. Geophysical Research Letters, 2007, 34, .	1.5	82

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55	Science objectives and performances of NOMAD, a spectrometer suite for the ExoMars TGO mission. Planetary and Space Science, 2015, 119, 233-249.	0.9	77
56	One Martian year of atmospheric observations by the thermal emission spectrometer. Geophysical Research Letters, 2001, 28, 4263-4266.	1.5	74
57	Vertical distribution of dust and water ice aerosols from CRISM limbâ€geometry observations. Journal of Geophysical Research E: Planets, 2013, 118, 321-334.	1.5	74
58	The solsticial pause on Mars: 1. A planetary wave reanalysis. Icarus, 2016, 264, 456-464.	1.1	74
59	Thermophysical properties along Curiosity's traverse in Gale crater, Mars, derived from the REMS ground temperature sensor. Icarus, 2017, 284, 372-386.	1.1	74
60	The climatology of carbon monoxide and water vapor on Mars as observed by CRISM and modeled by the GEM-Mars general circulation model. Icarus, 2018, 301, 117-131.	1.1	74
61	Traveling waves in the Northern Hemisphere of Mars. Geophysical Research Letters, 2002, 29, 29-1-29-4.	1.5	72
62	The Mars Dust Cycle. , 2017, , 295-337.		70
63	Mars equatorial mesospheric clouds: Global occurrence and physical properties from Mars Global Surveyor Thermal Emission Spectrometer and Mars Orbiter Camera limb observations. Journal of Geophysical Research, 2007, 112, .	3.3	66
64	Observational evidence of a suppressed planetary boundary layer in northern Gale Crater, Mars as seen by the Navcam instrument onboard the Mars Science Laboratory rover. Icarus, 2015, 249, 129-142.	1.1	66
65	Explanation for the Increase in Highâ€Altitude Water on Mars Observed by NOMAD During the 2018 Global Dust Storm. Geophysical Research Letters, 2020, 47, e2019GL084354.	1.5	62
66	The Mars Analysis Correction Data Assimilation (<scp>MACDA</scp>) Dataset V1.0. Geoscience Data Journal, 2014, 1, 129-139.	1.8	61
67	Vertical profiles of Mars 1.27ÂÂµm O 2 dayglow from MRO CRISM limb spectra: Seasonal/global behaviors, comparisons to LMDGCM simulations, and a global definition for Mars water vapor profiles. Icarus, 2017, 293, 132-156.	1.1	58
68	Large Dust Aerosol Sizes Seen During the 2018 Martian Global Dust Event by the Curiosity Rover. Geophysical Research Letters, 2019, 46, 9448-9456.	1.5	58
69	The Mars Environmental Dynamics Analyzer, MEDA. A Suite of Environmental Sensors for the Mars 2020 Mission. Space Science Reviews, 2021, 217, 48.	3.7	57
70	Thermal Emission Imaging System (THEMIS) infrared observations of atmospheric dust and water ice cloud optical depth. Journal of Geophysical Research, 2003, 108, .	3.3	55
71	First detection of Mars atmospheric hydroxyl: CRISM Near-IR measurement versus LMD GCM simulation of OH Meinel band emission in the Mars polar winter atmosphere. Icarus, 2013, 226, 272-281.	1.1	54
72	Extensive MRO CRISM observations of 1.27 Î¼m O₂ airglow in Mars polar night and their comparison to MRO MCS temperature profiles and LMD GCM simulations. Journal of Geophysical Research, 2012, 117, .	3.3	51

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73	Daily global mapping of Mars ozone column abundances with MARCI UV band imaging. Icarus, 2016, 266, 112-133.	1.1	50
74	Aerosol optical depth as observed by the Mars Science Laboratory REMS UV photodiodes. Icarus, 2016, 280, 234-248.	1.1	48
75	The seasonal cycle of water vapour on Mars from assimilation of Thermal Emission Spectrometer data. Icarus, 2014, 237, 97-115.	1.1	47
76	THEMIS Observations of the 2018 Mars Global Dust Storm. Journal of Geophysical Research E: Planets, 2019, 124, 2929-2944.	1.5	46
77	Stationary planetary waves in the atmosphere of Mars during southern winter. Journal of Geophysical Research, 2003, 108, .	3.3	44
78	The vertical distribution of Martian aerosol particle size. Journal of Geophysical Research E: Planets, 2014, 119, 2694-2708.	1.5	42
79	Thermal tides during the 2001 Martian globalâ€scale dust storm. Journal of Geophysical Research E: Planets, 2014, 119, 506-519.	1.5	42
80	MRO/CRISM Retrieval of Surface Lambert Albedos for Multispectral Mapping of Mars With DISORT-Based Radiative Transfer Modeling: Phase 1â€"Using Historical Climatology for Temperatures, Aerosol Optical Depths, and Atmospheric Pressures. IEEE Transactions on Geoscience and Remote Sensing, 2008, 46, 4020-4040.	2.7	41
81	Retrievals of martian atmospheric opacities from MGS TES nighttime data. Icarus, 2013, 226, 708-722.	1.1	41
82	Phoenix and MRO coordinated atmospheric measurements. Journal of Geophysical Research, 2010, 115, .	3.3	40
83	Effects of the MY34/2018 Global Dust Storm as Measured by MSL REMS in Gale Crater. Journal of Geophysical Research E: Planets, 2019, 124, 1899-1912.	1.5	40
84	The distribution, composition, and particle properties of Mars mesospheric aerosols: An analysis of CRISM visible/near-IR limb spectra with context from near-coincident MCS and MARCI observations. Icarus, 2019, 328, 246-273.	1.1	40
85	Comparison of atmospheric temperatures obtained through infrared sounding and radio occultation by Mars Global Surveyor. Journal of Geophysical Research, 2004, 109, .	3.3	39
86	Retrieval of water vapor column abundance and aerosol properties from ChemCam passive sky spectroscopy. Icarus, 2018, 307, 294-326.	1.1	39
87	Strong Variability of Martian Water Ice Clouds During Dust Storms Revealed From ExoMars Trace Gas Orbiter/NOMAD. Journal of Geophysical Research E: Planets, 2020, 125, e2019JE006250.	1.5	39
88	A solar escalator on Mars: Selfâ€lifting of dust layers by radiative heating. Geophysical Research Letters, 2015, 42, 7319-7326.	1.5	38
89	High spatial and temporal resolution sampling of Martian gas abundances from CRISM spectra. Journal of Geophysical Research E: Planets, 2013, 118, 89-104.	1.5	36
90	Endâ€member identification and spectral mixture analysis of CRISM hyperspectral data: A case study on southwest Melas Chasma, Mars. Journal of Geophysical Research E: Planets, 2016, 121, 2004-2036.	1.5	34

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91	The Thermophysical Properties of the Bagnold Dunes, Mars: Groundâ€Truthing Orbital Data. Journal of Geophysical Research E: Planets, 2018, 123, 1307-1326.	1.5	34
92	Upper Neutral Atmosphere and Ionosphere. , 2017, , 433-463.		33
93	Saltation under Martian gravity and its influence on the global dust distribution. Icarus, 2018, 306, 25-31.	1.1	33
94	MGS TES observations of the water vapor above the seasonal and perennial ice caps during northern spring and summer. Icarus, 2010, 210, 58-71.	1.1	32
95	Methane on Mars: New insights into the sensitivity of CH4 with the NOMAD/ExoMars spectrometer through its first in-flight calibration. Icarus, 2019, 321, 671-690.	1.1	32
96	The Global Circulation. , 2017, , 229-294.		31
97	Water heavily fractionated as it ascends on Mars as revealed by ExoMars/NOMAD. Science Advances, 2021, 7, .	4.7	31
98	Mars Reconnaissance Orbiter and Opportunity observations of the Burns formation: Crater hopping at Meridiani Planum. Journal of Geophysical Research E: Planets, 2015, 120, 429-451.	1.5	30
99	The Emirates Mars Mission. Space Science Reviews, 2022, 218, 4.	3.7	29
100	Atmospheric movies acquired at the Mars Science Laboratory landing site: Cloud morphology, frequency and significance to the Gale Crater water cycle and Phoenix mission results. Advances in Space Research, 2015, 55, 2217-2238.	1.2	28
101	Comprehensive investigation of Mars methane and organics with ExoMars/NOMAD. Icarus, 2021, 357, 114266.	1.1	27
102	Expected atmospheric environment for the Phoenix landing season and location. Journal of Geophysical Research, 2008, 113, .	3.3	25
103	Mars Clouds. , 2017, , 76-105.		24
104	The Water Cycle. , 2017, , 338-373.		24
105	Emirates Mars Mission Characterization of Mars Atmosphere Dynamics and Processes. Space Science Reviews, 2021, 217, .	3.7	23
106	The Vertical Dust Profile Over Gale Crater, Mars. Journal of Geophysical Research E: Planets, 2017, 122, 2779-2792.	1.5	22
107	MAVEN ROSE Observations of the Response of the Martian Ionosphere to Dust Storms. Journal of Geophysical Research: Space Physics, 2020, 125, e2019JA027083.	0.8	22
108	Seasonal Variation in Martian Water Ice Cloud Particle Size. Journal of Geophysical Research E: Planets, 2019, 124, 636-643.	1.5	21

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109	The Emirates Mars Mission (EMM) Emirates Mars InfraRed Spectrometer (EMIRS) Instrument. Space Science Reviews, 2021, 217, 77.	3.7	21
110	Thermal Structure and Composition. , 2017, , 42-75.		19
111	Global analysis and forecasts of carbon monoxide on Mars. Icarus, 2019, 328, 232-245.	1.1	19
112	Atmospheric Photochemistry. , 2017, , 405-432.		18
113	ExoMars TGO/NOMADâ€UVIS Vertical Profiles of Ozone: 1. Seasonal Variation and Comparison to Water. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006837.	1.5	18
114	Radiation and Dust Sensor for Mars Environmental Dynamic Analyzer Onboard M2020 Rover. Sensors, 2022, 22, 2907.	2.1	18
115	Water vapor variability in the north polar region of Mars from Viking MAWD and MGS TES datasets. Icarus, 2009, 204, 87-102.	1.1	17
116	Time-history influence of global dust storms on the upper atmosphere at Mars. Geophysical Research Letters, 2012, 39, n/a-n/a.	1.5	16
117	The Deuterium Isotopic Ratio of Water Released From the Martian Caps as Measured With TGO/NOMAD. Geophysical Research Letters, 2022, 49, .	1.5	15
118	Thermal structure of the atmospheric boundary layer on Mars based on Miniâ€TES observations. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 1776-1787.	1.0	14
119	Seasonal Slumps in Juventae Chasma, Mars. Journal of Geophysical Research E: Planets, 2017, 122, 2193-2214.	1.5	14
120	The Martian Planetary Boundary Layer. , 2017, , 172-202.		14
121	Local time variation of water ice clouds on Mars as observed by THEMIS. Icarus, 2019, 333, 273-282.	1.1	14
122	ExoMars TGO/NOMADâ€UVIS Vertical Profiles of Ozone: 2. The Highâ€Altitude Layers of Atmospheric Ozone. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006834.	1.5	14
123	Mars photoelectron energy and pitch angle dependence on intense lower atmospheric dust storms. Journal of Geophysical Research E: Planets, 2014, 119, 1689-1706.	1.5	13
124	Understanding the water cycle above the north polar cap on Mars using MRO CRISM retrievals of water vapor. Icarus, 2019, 321, 722-735.	1.1	13
125	Retrieval of Atmospheric Temperatures in the Martian Planetary Boundary Layer Using Upward-Looking Infrared Spectra. Icarus, 1996, 124, 586-597.	1.1	12
126	Design of a direct-detection wind and aerosol lidar for mars orbit. CEAS Space Journal, 2020, 12, 149-162.	1.1	12

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127	First Detection and Thermal Characterization of Terminator CO₂Ice Clouds With ExoMars/NOMAD. Geophysical Research Letters, 2021, 48, .	1.5	12
128	Global seasonal variations of the near-surface relative humidity levels on present-day Mars. Icarus, 2019, 333, 481-495.	1.1	11
129	Gravity Wave Observations by the Mars Science Laboratory REMS Pressure Sensor and Comparison With Mesoscale Atmospheric Modeling With MarsWRF. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006907.	1.5	11
130	The climatology of carbon monoxide on Mars as observed by NOMAD nadir-geometry observations. Icarus, 2021, 362, 114404.	1.1	11
131	Explaining NOMAD D/H Observations by Cloudâ€Induced Fractionation of Water Vapor on Mars. Journal of Geophysical Research E: Planets, 2022, 127, .	1.5	11
132	IRTF/CSHELL mapping of atmospheric HDO, H2O and D/H on Mars during northern summer. Icarus, 2019, 330, 204-216.	1.1	8
133	Temperature fluctuations and boundary layer turbulence as seen by Mars Exploration Rovers Miniature Thermal Emission Spectrometer. Icarus, 2021, 360, 114350.	1.1	8
134	A Global and Seasonal Perspective of Martian Water Vapor From ExoMars/NOMAD. Journal of Geophysical Research E: Planets, 2021, 126, .	1.5	8
135	Simultaneous observations of the Martian atmosphere by Planetary Fourier Spectrometer on Mars Express and Miniature Thermal Emission Spectrometer on Mars Exploration Rover. Journal of Geophysical Research, 2009, 114, .	3.3	7
136	Probing the Atmospheric Cl Isotopic Ratio on Mars: Implications for Planetary Evolution and Atmospheric Chemistry. Geophysical Research Letters, 2021, 48, e2021GL092650.	1.5	7
137	Planetâ€Wide Ozone Destruction in the Middle Atmosphere on Mars During Global Dust Storm. Geophysical Research Letters, 2022, 49, .	1.5	7
138	MOSAIC: A Satellite Constellation to Enable Groundbreaking Mars Climate System Science and Prepare for Human Exploration. Planetary Science Journal, 2021, 2, 211.	1.5	6
139	Unique Spectroscopy and Imaging of Mars with the James Webb Space Telescope. Publications of the Astronomical Society of the Pacific, 2016, 128, 018004.	1.0	5
140	Mesoscale Meteorology. , 2017, , 203-228.		5
141	History of Mars Atmosphere Observations. , 2017, , 20-41.		4
142	Detections of Water Vapor Increase Over the North Polar Troughs on Mars as Observed by CRISM. Geophysical Research Letters, 2020, 47, e2019GL086195.	1.5	3
143	Marsâ€™ emitted energy and seasonal energy imbalance. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2121084119.	3.3	2
144	The annual cycle of water vapor above gale crater as retrieved by CRISM and compared to ChemCam passive sky spectroscopy. Icarus, 2022, 385, 115136.	1.1	1