

# Stephen Lewis

## List of Publications by Year in descending order

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134  
papers

5,768  
citations

81900

39  
h-index

82547

72  
g-index

162  
all docs

162  
docs citations

162  
times ranked

2433  
citing authors

#	ARTICLE	IF	CITATIONS
1	Martian Dust. , 2022, , 637-666.		6
2	Planetary polar explorer â€œ the case for a next-generation remote sensing mission to low Mars orbit. Experimental Astronomy, 2022, 54, 695-711.	3.7	6
3	The impact of a shadows scheme on a Mars mesoscale climate model. Icarus, 2022, 382, 115036.	2.5	0
4	Vertical Aerosol Distribution and Mesospheric Clouds From ExoMars UVIS. Journal of Geophysical Research E: Planets, 2022, 127, .	3.6	6
5	Pre- and Post-entry, Descent and Landing Assessment of the Martian Atmosphere for the Mars 2020 Rover. Planetary Science Journal, 2022, 3, 147.	3.6	4
6	Sinuuous ridges in Chukhung crater, Tempe Terra, Mars: Implications for fluvial, glacial, and glaciofluvial activity. Icarus, 2021, 357, 114131.	2.5	18
7	Regional heat flow and subsurface temperature patterns at Elysium Planitia and Oxia Planum areas, Mars. Icarus, 2021, 353, 113379.	2.5	7
8	Multi-model Meteorological and Aeolian Predictions for Mars 2020 and the Jezero Crater Region. Space Science Reviews, 2021, 217, 20.	8.1	35
9	The Aeolian Environment of the Landing Site for the ExoMars Rosalind Franklin Rover in Oxia Planum, Mars. Journal of Geophysical Research E: Planets, 2021, 126, 2020JE006723.	3.6	20
10	Asymmetric Impacts on Marsâ€™ Polar Vortices From an Equinoctial Global Dust Storm. Journal of Geophysical Research E: Planets, 2021, 126, e2020JE006774.	3.6	16
11	Enhanced Superâ€™Rotation Before and During the 2018 Martian Global Dust Storm. Geophysical Research Letters, 2021, 48, e2021GL094634.	4.0	8
12	Enhanced water loss from the martian atmosphere during a regional-scale dust storm and implications for long-term water loss. Earth and Planetary Science Letters, 2021, 571, 117109.	4.4	22
13	ExoMars TGO/NOMADâ€™UVIS Vertical Profiles of Ozone: 1. Seasonal Variation and Comparison to Water. Journal of Geophysical Research E: Planets, 2021, 126, e2021JE006837.	3.6	18
14	First Detection and Thermal Characterization of Terminator CO <sub>2</sub> Ice Clouds With ExoMars/NOMAD. Geophysical Research Letters, 2021, 48, .	4.0	12
15	Assimilation of Both Columnâ€™and Layerâ€™Integrated Dust Opacity Observations in the Martian Atmosphere. Earth and Space Science, 2021, 8, .	2.6	4
16	Surface Warming During the 2018/Mars Year 34 Global Dust Storm. Geophysical Research Letters, 2020, 47, e2019GL083936.	4.0	25
17	Evidence for thermal-stress-induced rockfalls on Mars impact crater slopes. Icarus, 2020, 342, 113503.	2.5	27
18	Quantifying the atmospheric impact of local dust storms using a martian global circulation model. Icarus, 2020, 336, 113470.	2.5	2

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19	Explanation for the Increase in High-Altitude Water on Mars Observed by NOMAD During the 2018 Global Dust Storm. <i>Geophysical Research Letters</i> , 2020, 47, e2019GL084354.	4.0	62
20	OpenMARS: A global record of martian weather from 1999 to 2015. <i>Planetary and Space Science</i> , 2020, 188, 104962.	1.7	37
21	The atmosphere of Mars as observed by InSight. <i>Nature Geoscience</i> , 2020, 13, 190-198.	12.9	161
22	The Penetration of Solar Radiation Into Granular Carbon Dioxide and Water Ices of Varying Grain Sizes on Mars. <i>Journal of Geophysical Research E: Planets</i> , 2020, 125, e2019JE006097.	3.6	6
23	Morphometry of a glacier-linked esker in NW Tempe Terra, Mars, and implications for sediment-discharge dynamics of subglacial drainage. <i>Earth and Planetary Science Letters</i> , 2020, 542, 116325.	4.4	12
24	Investigating the semiannual oscillation on Mars using data assimilation. <i>Icarus</i> , 2019, 333, 404-414.	2.5	7
25	The Penetration of Solar Radiation Into Water and Carbon Dioxide Snow, With Reference to Mars. <i>Journal of Geophysical Research E: Planets</i> , 2019, 124, 337-348.	3.6	5
26	The martian daytime convective boundary layer: Results from radio occultation measurements and a mesoscale model. <i>Icarus</i> , 2019, 326, 105-122.	2.5	15
27	Global analysis and forecasts of carbon monoxide on Mars. <i>Icarus</i> , 2019, 328, 232-245.	2.5	19
28	Martian dust storm impact on atmospheric H <sub>2</sub> O and D/H observed by ExoMars Trace Gas Orbiter. <i>Nature</i> , 2019, 568, 521-525.	27.8	107
29	ExoMars Atmospheric Mars Entry and Landing Investigations and Analysis (AMELIA). <i>Space Science Reviews</i> , 2019, 215, 1.	8.1	14
30	A reanalysis of ozone on Mars from assimilation of SPICAM observations. <i>Icarus</i> , 2018, 302, 308-318.	2.5	20
31	The Penetration of Solar Radiation Into Carbon Dioxide Ice. <i>Journal of Geophysical Research E: Planets</i> , 2018, 123, 864-871.	3.6	11
32	Atmospheric Dynamics of Terrestrial Planets. , 2018, , 1-31.		0
33	Atmospheric Dynamics of Terrestrial Planets. , 2018, , 285-315.		2
34	NOMAD, an Integrated Suite of Three Spectrometers for the ExoMars Trace Gas Mission: Technical Description, Science Objectives and Expected Performance. <i>Space Science Reviews</i> , 2018, 214, 1.	8.1	95
35	Atmospheric Dynamics of Terrestrial Planets. , 2018, , 1-31.		3
36	Martian Gullies and Their Connection With the Martian Climate. , 2018, , 87-119.		3

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37	Diurnal variation in martian dust devil activity. <i>Icarus</i> , 2017, 292, 154-167.	2.5	12
38	The water cycle and regolith-atmosphere interaction at Gale crater, Mars. <i>Icarus</i> , 2017, 289, 56-79.	2.5	33
39	Ertel potential vorticity versus Bernoulli streamfunction on Mars. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2017, 143, 37-52.	2.7	4
40	The Martian Planetary Boundary Layer. , 2017, , 172-202.		14
41	The Global Circulation. , 2017, , 229-294.		31
42	Recent Basal Melting of a Mid-Latitude Glacier on Mars. <i>Journal of Geophysical Research E: Planets</i> , 2017, 122, 2445-2468.	3.6	43
43	Modelled isotopic fractionation and transient diffusive release of methane from potential subsurface sources on Mars. <i>Icarus</i> , 2017, 281, 240-247.	2.5	12
44	On the link between martian total ozone and potential vorticity. <i>Icarus</i> , 2017, 282, 104-117.	2.5	11
45	Regolith-atmosphere exchange of water in Mars™ recent past. <i>Icarus</i> , 2017, 284, 233-248.	2.5	11
46	The vertical transport of methane from different potential emission types on Mars. <i>Geophysical Research Letters</i> , 2017, 44, 8611-8620.	4.0	8
47	NOMAD spectrometer on the ExoMars trace gas orbiter mission: part 2 design, manufacturing, and testing of the ultraviolet and visible channel. <i>Applied Optics</i> , 2017, 56, 2771.	2.1	40
48	Orbital Observations of Dust Lofted by Daytime Convective Turbulence. <i>Space Sciences Series of ISSI</i> , 2017, , 89-142.	0.0	0
49	Dust Devil Sediment Transport: From Lab to Field to Global Impact. <i>Space Sciences Series of ISSI</i> , 2017, , 377-426.	0.0	1
50	Global energy budgets and Trenberth diagrams™ for the climates of terrestrial and gas giant planets. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2016, 142, 703-720.	2.7	28
51	Optical and radiometric models of the NOMAD instrument part II: the infrared channels - SO and LNO. <i>Optics Express</i> , 2016, 24, 3790.	3.4	25
52	Dust Devil Sediment Transport: From Lab to Field to Global Impact. <i>Space Science Reviews</i> , 2016, 203, 377-426.	8.1	35
53	Orbital Observations of Dust Lofted by Daytime Convective Turbulence. <i>Space Science Reviews</i> , 2016, 203, 89-142.	8.1	35
54	The solstitial pause on Mars: 1. A planetary wave reanalysis. <i>Icarus</i> , 2016, 264, 456-464.	2.5	74

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55	The solsticial pause on Mars: 2 modelling and investigation of causes. <i>Icarus</i> , 2016, 264, 465-477.	2.5	48
56	Optical and radiometric models of the NOMAD instrument part I: the UVIS channel. <i>Optics Express</i> , 2015, 23, 30028.	3.4	26
57	A Lorenz/Boer energy budget for the atmosphere of Mars from a reanalysis of spacecraft observations. <i>Geophysical Research Letters</i> , 2015, 42, 8320-8327.	4.0	13
58	The physics of Martian weather and climate: a review. <i>Reports on Progress in Physics</i> , 2015, 78, 125901.	20.1	54
59	Numerical modelling of the transport of trace gases including methane in the subsurface of Mars. <i>Icarus</i> , 2015, 250, 587-594.	2.5	16
60	Eight-year climatology of dust optical depth on Mars. <i>Icarus</i> , 2015, 251, 65-95.	2.5	316
61	Analysing the consistency of martian methane observations by investigation of global methane transport. <i>Icarus</i> , 2015, 257, 23-32.	2.5	13
62	Science objectives and performances of NOMAD, a spectrometer suite for the ExoMars TGO mission. <i>Planetary and Space Science</i> , 2015, 119, 233-249.	1.7	77
63	The radiative impact of water ice clouds from a reanalysis of Mars Climate Sounder data. <i>Geophysical Research Letters</i> , 2014, 41, 4471-4478.	4.0	36
64	The Mars Analysis Correction Data Assimilation (MACDA) Dataset V1.0. <i>Geoscience Data Journal</i> , 2014, 1, 129-139.	4.4	61
65	The retrieval of optical properties from terrestrial dust devil vortices. <i>Icarus</i> , 2014, 231, 385-393.	2.5	16
66	Initial results from radio occultation measurements with the Mars Reconnaissance Orbiter: A nocturnal mixed layer in the tropics and comparisons with polar profiles from the Mars Climate Sounder. <i>Icarus</i> , 2014, 243, 91-103.	2.5	28
67	The seasonal cycle of water vapour on Mars from assimilation of Thermal Emission Spectrometer data. <i>Icarus</i> , 2014, 237, 97-115.	2.5	47
68	Radiative transfer modelling of dust devils. <i>Icarus</i> , 2013, 223, 1-10.	2.5	17
69	Simulating the interannual variability of major dust storms on Mars using variable lifting thresholds. <i>Icarus</i> , 2013, 223, 344-358.	2.5	45
70	Benchmark experiments with global climate models applicable to extrasolar gas giant planets in the shallow atmosphere approximation. <i>Monthly Notices of the Royal Astronomical Society</i> , 2013, 428, 2874-2884.	4.4	33
71	Modeling Efforts. , 2013, , 111-127.		5
72	Models of Venus Atmosphere. , 2013, , 129-156.		23

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73	Assimilating and Modeling Dust Transport in the Martian Climate System. Proceedings of the International Astronomical Union, 2012, 8, 326-328.	0.0	0
74	Assessment of Environments for Mars Science Laboratory Entry, Descent, and Surface Operations. Space Science Reviews, 2012, 170, 793-835.	8.1	58
75	Field measurements of horizontal forward motion velocities of terrestrial dust devils: Towards a proxy for ambient winds on Mars and Earth. Icarus, 2012, 221, 632-645.	2.5	51
76	Zonal winds at high latitudes on Venus: An improved application of cyclostrophic balance to Venus Express observations. Icarus, 2012, 217, 629-639.	2.5	9
77	Assessment of Environments for Mars Science Laboratory Entry, Descent, and Surface Operations. , 2012, , 793-835.		4
78	THE MARTIAN ATMOSPHERIC BOUNDARY LAYER. Reviews of Geophysics, 2011, 49, .	23.0	119
79	The impact of martian mesoscale winds on surface temperature and on the determination of thermal inertia. Icarus, 2011, 212, 504-519.	2.5	44
80	A bulk cloud parameterization in a Venus General Circulation Model. Icarus, 2010, 206, 662-668.	2.5	16
81	Structure and dynamics of the convective boundary layer on Mars as inferred from large-scale eddy simulations and remote sensing measurements. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 414-428.	2.7	49
82	Assessing atmospheric predictability on Mars using numerical weather prediction and data assimilation. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 1614-1635.	2.7	24
83	Structure and dynamics of the Martian lower and middle atmosphere as observed by the Mars Climate Sounder: Seasonal variations in zonal mean temperature, dust, and water ice aerosols. Journal of Geophysical Research, 2010, 115, .	3.3	183
84	Atmospheric risk assessment for the Mars Science Laboratory Entry, Descent, and Landing system. , 2010, , .		14
85	Data Assimilation for Other Planets. , 2010, , 681-699.		2
86	Transient teleconnection event at the onset of a planet-encircling dust storm on Mars. Annales Geophysicae, 2009, 27, 3663-3676.	1.6	20
87	QUAGMIRE v1.3: a quasi-geostrophic model for investigating rotating fluids experiments. Geoscientific Model Development, 2009, 2, 13-32.	3.6	9
88	Mars environment and magnetic orbiter model payload. Experimental Astronomy, 2009, 23, 761-783.	3.7	7
89	Low-order dynamical behavior in the martian atmosphere: Diagnosis of general circulation model results. Icarus, 2009, 204, 48-62.	2.5	2
90	Mars Environment and Magnetic Orbiter Scientific and Measurement Objectives. Astrobiology, 2009, 9, 71-89.	3.0	4

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91	Intense polar temperature inversion in the middle atmosphere on Mars. <i>Nature Geoscience</i> , 2008, 1, 745-749.	12.9	71
92	Influence of water ice clouds on Martian tropical atmospheric temperatures. <i>Geophysical Research Letters</i> , 2008, 35, .	4.0	84
93	Superrotation in a Venus general circulation model. <i>Journal of Geophysical Research</i> , 2007, 112, .	3.3	65
94	Dynamics of Convectively Driven Banded Jets in the Laboratory. <i>Journals of the Atmospheric Sciences</i> , 2007, 64, 4031-4052.	1.7	63
95	Assimilation of thermal emission spectrometer atmospheric data during the Mars Global Surveyor aerobraking period. <i>Icarus</i> , 2007, 192, 327-347.	2.5	91
96	Reconstructing the weather on Mars at the time of the MERs and Beagle 2 landings. <i>Geophysical Research Letters</i> , 2006, 33, .	4.0	11
97	Atmospheric temperature sounding on Mars, and the climate sounder on the 2005 reconnaissance orbiter. <i>Advances in Space Research</i> , 2006, 38, 713-717.	2.6	6
98	Validation of martian meteorological data assimilation for MGS/TES using radio occultation measurements. <i>Icarus</i> , 2006, 185, 113-132.	2.5	64
99	Evidence for Climate Change on Mars. , 2006, , 135-158.		1
100	Atmospheric tides in a Mars general circulation model with data assimilation. <i>Advances in Space Research</i> , 2005, 36, 2162-2168.	2.6	65
101	The effects of the martian regolith on GCM water cycle simulations. <i>Icarus</i> , 2005, 177, 174-189.	2.5	39
102	A numerical model of the atmosphere of Venus. <i>Advances in Space Research</i> , 2005, 36, 2142-2145.	2.6	49
103	Interannual variability of Martian dust storms in assimilation of several years of Mars global surveyor observations. <i>Advances in Space Research</i> , 2005, 36, 2146-2155.	2.6	51
104	The atmospheric circulation and dust activity in different orbital epochs on Mars. <i>Icarus</i> , 2005, 174, 135-160.	2.5	80
105	A simplified model of the Martian atmosphere - Part 1: a diagnostic analysis. <i>Nonlinear Processes in Geophysics</i> , 2005, 12, 603-623.	1.3	4
106	A simplified model of the Martian atmosphere - Part 2: a POD-Galerkin analysis. <i>Nonlinear Processes in Geophysics</i> , 2005, 12, 625-642.	1.3	2
107	Investigating atmospheric predictability on Mars using breeding vectors in a general-circulation model. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2004, 130, 2971-2989.	2.7	25
108	Environmental predictions for the Beagle 2 lander, based on GCM climate simulations. <i>Planetary and Space Science</i> , 2004, 52, 259-269.	1.7	0

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109	Upper atmosphere of Mars up to 120 km: Mars Global Surveyor accelerometer data analysis with the LMD general circulation model. <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	62
110	Jupiter's and Saturn's convectively driven banded jets in the laboratory. <i>Geophysical Research Letters</i> , 2004, 31, .	4.0	42
111	The effect of a global dust storm on simulations of the Martian water cycle. <i>Geophysical Research Letters</i> , 2004, 31, .	4.0	15
112	Modelling the martian atmosphere. <i>Astronomy and Geophysics</i> , 2003, 44, 4.06-4.14.	0.2	16
113	Selection of the landing site in Isidis Planitia of Mars probe Beagle 2. <i>Journal of Geophysical Research</i> , 2003, 108, 1-1.	3.3	65
114	Equatorial jets in the dusty Martian atmosphere. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	33
115	Modeling the Martian dust cycle, 1. Representations of dust transport processes. <i>Journal of Geophysical Research</i> , 2002, 107, 6-1-6-18.	3.3	194
116	Modeling the Martian dust cycle 2. Multiannual radiatively active dust transport simulations. <i>Journal of Geophysical Research</i> , 2002, 107, 7-1-7-15.	3.3	121
117	A climate database for Mars. <i>Journal of Geophysical Research</i> , 1999, 104, 24177-24194.	3.3	299
118	Improved general circulation models of the Martian atmosphere from the surface to above 80 km. <i>Journal of Geophysical Research</i> , 1999, 104, 24155-24175.	3.3	955
119	Wave interactions and baroclinic chaos: a paradigm for long timescale variability in planetary atmospheres. <i>Chaos, Solitons and Fractals</i> , 1998, 9, 231-249.	5.1	30
120	Laboratory and numerical studies of baroclinic waves in an internally heated rotating fluid annulus: a case of wave/vortex duality?. <i>Journal of Fluid Mechanics</i> , 1997, 337, 155-191.	3.4	16
121	Gravity wave drag in a global circulation model of the Martian atmosphere: Parameterisation and validation. <i>Advances in Space Research</i> , 1997, 19, 1245-1254.	2.6	27
122	A GCM climate database for Mars: For mission planning and for scientific studies. <i>Advances in Space Research</i> , 1997, 19, 1213-1222.	2.6	21
123	Data assimilation with a Martian atmospheric GCM: An example using thermal data. <i>Advances in Space Research</i> , 1997, 19, 1267-1270.	2.6	26
124	The effect of spatial variations in unresolved topography on gravity wave drag in the Martian atmosphere. <i>Geophysical Research Letters</i> , 1996, 23, 2927-2930.	4.0	7
125	Baroclinic Wave Transitions in the Martian Atmosphere. <i>Icarus</i> , 1996, 120, 344-357.	2.5	77
126	Martian atmospheric data assimilation with a simplified general circulation model: orbiter and lander networks. <i>Planetary and Space Science</i> , 1996, 44, 1395-1409.	1.7	31



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127	Regular and irregular baroclinic waves in a martian general circulation model: A role for diurnal forcing?. <i>Advances in Space Research</i> , 1995, 16, 3-7.	2.6	8
128	An operational data assimilation scheme for the martian atmosphere. <i>Advances in Space Research</i> , 1995, 16, 9-13.	2.6	37
129	Western boundary currents in the Martian atmosphere: Numerical simulations and observational evidence. <i>Journal of Geophysical Research</i> , 1995, 100, 5485.	3.3	81
130	Western boundary currents in the atmosphere of Mars. <i>Nature</i> , 1994, 367, 548-551.	27.8	23
131	Sloping convection: A paradigm for large-scale waves and eddies in planetary atmospheres?. <i>Chaos</i> , 1994, 4, 135-162.	2.5	25
132	A quasi-geostrophic numerical model of a rotating internally heated fluid. <i>Geophysical and Astrophysical Fluid Dynamics</i> , 1992, 65, 31-55.	1.2	9
133	THE VOYAGER ENCOUNTER WITH NEPTUNE. <i>Weather</i> , 1990, 45, 14-19.	0.7	1
134	The Mars Climate Database (version 4.3). , 0, , .		9