

# Stephen Lewis

## List of Publications by Citations

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131  
papers

4,455  
citations

36  
h-index

63  
g-index

162  
ext. papers

5,139  
ext. citations

5.1  
avg, IF

5.2  
L-index

#	Paper	IF	Citations
131	Improved general circulation models of the Martian atmosphere from the surface to above 80 km. <i>Journal of Geophysical Research</i> , <b>1999</b> , 104, 24155-24175		762
130	A climate database for Mars. <i>Journal of Geophysical Research</i> , <b>1999</b> , 104, 24177-24194		264
129	Eight-year climatology of dust optical depth on Mars. <i>Icarus</i> , <b>2015</b> , 251, 65-95	3.8	211
128	Modeling the Martian dust cycle, 1. Representations of dust transport processes. <i>Journal of Geophysical Research</i> , <b>2002</b> , 107, 6-1-6-18		168
127	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. <i>Journal of Geophysical Research</i> , <b>2010</b> , 115,		153
126	Modeling the Martian dust cycle 2. Multiannual radiatively active dust transport simulations. <i>Journal of Geophysical Research</i> , <b>2002</b> , 107, 7-1-7-15		100
125	The atmosphere of Mars as observed by InSight. <i>Nature Geoscience</i> , <b>2020</b> , 13, 190-198	18.3	93
124	THE MARTIAN ATMOSPHERIC BOUNDARY LAYER. <i>Reviews of Geophysics</i> , <b>2011</b> , 49,	23.1	90
123	Influence of water ice clouds on Martian tropical atmospheric temperatures. <i>Geophysical Research Letters</i> , <b>2008</b> , 35, n/a-n/a	4.9	74
122	Martian dust storm impact on atmospheric HO and D/H observed by ExoMars Trace Gas Orbiter. <i>Nature</i> , <b>2019</b> , 568, 521-525	50.4	72
121	Assimilation of thermal emission spectrometer atmospheric data during the Mars Global Surveyor aerobraking period. <i>Icarus</i> , <b>2007</b> , 192, 327-347	3.8	71
120	Western boundary currents in the Martian atmosphere: Numerical simulations and observational evidence. <i>Journal of Geophysical Research</i> , <b>1995</b> , 100, 5485		71
119	The atmospheric circulation and dust activity in different orbital epochs on Mars. <i>Icarus</i> , <b>2005</b> , 174, 135-160	3.8	70
118	Baroclinic Wave Transitions in the Martian Atmosphere. <i>Icarus</i> , <b>1996</b> , 120, 344-357	3.8	68
117	Intense polar temperature inversion in the middle atmosphere on Mars. <i>Nature Geoscience</i> , <b>2008</b> , 1, 745-749	18.9	64
116	Science objectives and performances of NOMAD, a spectrometer suite for the ExoMars TGO mission. <i>Planetary and Space Science</i> , <b>2015</b> , 119, 233-249	2	63
115	The solstitial pause on Mars: 1. A planetary wave reanalysis. <i>Icarus</i> , <b>2016</b> , 264, 456-464	3.8	59

114	Validation of martian meteorological data assimilation for MGS/TES using radio occultation measurements. <i>Icarus</i> , <b>2006</b> , 185, 113-132	3.8	58
113	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> , <b>2018</b> , 214, 1	7.5	57
112	Superrotation in a Venus general circulation model. <i>Journal of Geophysical Research</i> , <b>2007</b> , 112,		56
111	Atmospheric tides in a Mars general circulation model with data assimilation. <i>Advances in Space Research</i> , <b>2005</b> , 36, 2162-2168	2.4	56
110	Assessment of Environments for Mars Science Laboratory Entry, Descent, and Surface Operations. <i>Space Science Reviews</i> , <b>2012</b> , 170, 793-835	7.5	55
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> , <b>2004</b> , 109,		55
108	Dynamics of Convectively Driven Banded Jets in the Laboratory. <i>Journals of the Atmospheric Sciences</i> , <b>2007</b> , 64, 4031-4052	2.1	52
107	The Mars Analysis Correction Data Assimilation (MACDA) Dataset V1.0. <i>Geoscience Data Journal</i> , <b>2014</b> , 1, 129-139	2.5	47
106	Interannual variability of Martian dust storms in assimilation of several years of Mars global surveyor observations. <i>Advances in Space Research</i> , <b>2005</b> , 36, 2146-2155	2.4	47
105	Selection of the landing site in Isidis Planitia of Mars probe Beagle 2. <i>Journal of Geophysical Research</i> , <b>2003</b> , 108, 1-1		45
104	A numerical model of the atmosphere of Venus. <i>Advances in Space Research</i> , <b>2005</b> , 36, 2142-2145	2.4	44
103	Field measurements of horizontal forward motion velocities of terrestrial dust devils: Towards a proxy for ambient winds on Mars and Earth. <i>Icarus</i> , <b>2012</b> , 221, 632-645	3.8	43
102	The seasonal cycle of water vapour on Mars from assimilation of Thermal Emission Spectrometer data. <i>Icarus</i> , <b>2014</b> , 237, 97-115	3.8	40
101	Simulating the interannual variability of major dust storms on Mars using variable lifting thresholds. <i>Icarus</i> , <b>2013</b> , 223, 344-358	3.8	39
100	The impact of martian mesoscale winds on surface temperature and on the determination of thermal inertia. <i>Icarus</i> , <b>2011</b> , 212, 504-519	3.8	39
99	Structure and dynamics of the convective boundary layer on Mars as inferred from large-eddy simulations and remote-sensing measurements. <i>Quarterly Journal of the Royal Meteorological Society</i> , <b>2010</b> , 136, 414-428	6.4	39
98	The solstitial pause on Mars: 2 modelling and investigation of causes. <i>Icarus</i> , <b>2016</b> , 264, 465-477	3.8	38
97	The effects of the martian regolith on GCM water cycle simulations. <i>Icarus</i> , <b>2005</b> , 177, 174-189	3.8	38

96	Explanation for the Increase in High-Altitude Water on Mars Observed by NOMAD During the 2018 Global Dust Storm. <i>Geophysical Research Letters</i> , <b>2020</b> , 47, e2019GL084354	4.9	38
95	The physics of Martian weather and climate: a review. <i>Reports on Progress in Physics</i> , <b>2015</b> , 78, 125901	14.4	34
94	Jupiter's and Saturn's convectively driven banded jets in the laboratory. <i>Geophysical Research Letters</i> , <b>2004</b> , 31,	4.9	34
93	The radiative impact of water ice clouds from a reanalysis of Mars Climate Sounder data. <i>Geophysical Research Letters</i> , <b>2014</b> , 41, 4471-4478	4.9	33
92	The water cycle and regolith-atmosphere interaction at Gale crater, Mars. <i>Icarus</i> , <b>2017</b> , 289, 56-79	3.8	30
91	Dust Devil Sediment Transport: From Lab to Field to Global Impact. <i>Space Science Reviews</i> , <b>2016</b> , 203, 377-426	7.5	30
90	Martian atmospheric data assimilation with a simplified general circulation model: orbiter and lander networks. <i>Planetary and Space Science</i> , <b>1996</b> , 44, 1395-1409	2	30
89	An operational data assimilation scheme for the martian atmosphere. <i>Advances in Space Research</i> , <b>1995</b> , 16, 9-13	2.4	29
88	Orbital Observations of Dust Lofted by Daytime Convective Turbulence. <i>Space Science Reviews</i> , <b>2016</b> , 203, 89-142	7.5	28
87	Recent Basal Melting of a Mid-Latitude Glacier on Mars. <i>Journal of Geophysical Research E: Planets</i> , <b>2017</b> , 122, 2445-2468	4.1	28
86	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> , <b>2013</b> , 428, 2874-2884	4.3	27
85	Equatorial jets in the dusty Martian atmosphere. <i>Journal of Geophysical Research</i> , <b>2003</b> , 108,		27
84	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> , <b>2017</b> , 56, 2771-2782	0.2	26
83	Gravity wave drag in a global circulation model of the Martian atmosphere: Parameterisation and validation. <i>Advances in Space Research</i> , <b>1997</b> , 19, 1245-1254	2.4	23
82	Wave interactions and baroclinic chaos: a paradigm for long timescale variability in planetary atmospheres. <i>Chaos, Solitons and Fractals</i> , <b>1998</b> , 9, 231-249	9.3	23
81	Global energy budgets and Trenberth diagrams for the climates of terrestrial and gas giant planets. <i>Quarterly Journal of the Royal Meteorological Society</i> , <b>2016</b> , 142, 703-720	6.4	23
80	Sloping convection: A paradigm for large-scale waves and eddies in planetary atmospheres?. <i>Chaos</i> , <b>1994</b> , 4, 135-162	3.3	22
79	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> , <b>2014</b> , 243, 91-103	3.8	20

78	Data assimilation with a Martian atmospheric GCM: An example using thermal data. <i>Advances in Space Research</i> , <b>1997</b> , 19, 1267-1270	2.4	20
77	Investigating atmospheric predictability on Mars using breeding vectors in a general-circulation model. <i>Quarterly Journal of the Royal Meteorological Society</i> , <b>2004</b> , 130, 2971-2989	6.4	20
76	Western boundary currents in the atmosphere of Mars. <i>Nature</i> , <b>1994</b> , 367, 548-551	50.4	20
75	Models of Venus Atmosphere <b>2013</b> , 129-156		20
74	OpenMARS: A global record of martian weather from 1999 to 2015. <i>Planetary and Space Science</i> , <b>2020</b> , 188, 104962	2	19
73	Optical and radiometric models of the NOMAD instrument part I: the UVIS channel. <i>Optics Express</i> , <b>2015</b> , 23, 30028-42	3.3	18
72	Assessing atmospheric predictability on Mars using numerical weather prediction and data assimilation. <i>Quarterly Journal of the Royal Meteorological Society</i> , <b>2010</b> , 136, 1614-1635	6.4	18
71	A GCM climate database for Mars: For mission planning and for scientific studies. <i>Advances in Space Research</i> , <b>1997</b> , 19, 1213-1222	2.4	17
70	Transient teleconnection event at the onset of a planet-encircling dust storm on Mars. <i>Annales Geophysicae</i> , <b>2009</b> , 27, 3663-3676	2	17
69	Optical and radiometric models of the NOMAD instrument part II: the infrared channels - SO and LNO. <i>Optics Express</i> , <b>2016</b> , 24, 3790-805	3.3	16
68	Evidence for thermal-stress-induced rockfalls on Mars impact crater slopes. <i>Icarus</i> , <b>2020</b> , 342, 113503	3.8	16
67	Global analysis and forecasts of carbon monoxide on Mars. <i>Icarus</i> , <b>2019</b> , 328, 232-245	3.8	15
66	A reanalysis of ozone on Mars from assimilation of SPICAM observations. <i>Icarus</i> , <b>2018</b> , 302, 308-318	3.8	15
65	Radiative transfer modelling of dust devils. <i>Icarus</i> , <b>2013</b> , 223, 1-10	3.8	15
64	The Global Circulation 229-294		15
63	A bulk cloud parameterization in a Venus General Circulation Model. <i>Icarus</i> , <b>2010</b> , 206, 662-668	3.8	14
62	The effect of a global dust storm on simulations of the Martian water cycle. <i>Geophysical Research Letters</i> , <b>2004</b> , 31,	4.9	14
61	The retrieval of optical properties from terrestrial dust devil vortices. <i>Icarus</i> , <b>2014</b> , 231, 385-393	3.8	13

60	Modelling the martian atmosphere. <i>Astronomy and Geophysics</i> , <b>2003</b> , 44, 4.06-4.14	0.2	13
59	Analysing the consistency of martian methane observations by investigation of global methane transport. <i>Icarus</i> , <b>2015</b> , 257, 23-32	3.8	12
58	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> , <b>1997</b> , 337, 155-191	3.7	12
57	Surface Warming During the 2018/Mars Year 34 Global Dust Storm. <i>Geophysical Research Letters</i> , <b>2020</b> , 47, e2019GL083936	4.9	12
56	Multi-model Meteorological and Aeolian Predictions for Mars 2020 and the Jezero Crater Region. <i>Space Science Reviews</i> , <b>2021</b> , 217, 20	7.5	12
55	Numerical modelling of the transport of trace gases including methane in the subsurface of Mars. <i>Icarus</i> , <b>2015</b> , 250, 587-594	3.8	11
54	Modelled isotopic fractionation and transient diffusive release of methane from potential subsurface sources on Mars. <i>Icarus</i> , <b>2017</b> , 281, 240-247	3.8	10
53	Atmospheric risk assessment for the Mars Science Laboratory Entry, Descent, and Landing system <b>2010</b> ,		10
52	The martian daytime convective boundary layer: Results from radio occultation measurements and a mesoscale model. <i>Icarus</i> , <b>2019</b> , 326, 105-122	3.8	9
51	The Penetration of Solar Radiation Into Carbon Dioxide Ice. <i>Journal of Geophysical Research E: Planets</i> , <b>2018</b> , 123, 864-871	4.1	9
50	Regolith-atmosphere exchange of water in Mars's recent past. <i>Icarus</i> , <b>2017</b> , 284, 233-248	3.8	9
49	A Lorenz/Boer energy budget for the atmosphere of Mars from a reanalysis of spacecraft observations. <i>Geophysical Research Letters</i> , <b>2015</b> , 42, 8320-8327	4.9	9
48	Zonal winds at high latitudes on Venus: An improved application of cyclostrophic balance to Venus Express observations. <i>Icarus</i> , <b>2012</b> , 217, 629-639	3.8	9
47	The vertical transport of methane from different potential emission types on Mars. <i>Geophysical Research Letters</i> , <b>2017</b> , 44, 8611-8620	4.9	8
46	QUAGMIRE v1.3: a quasi-geostrophic model for investigating rotating fluids experiments. <i>Geoscientific Model Development</i> , <b>2009</b> , 2, 13-32	6.3	8
45	Reconstructing the weather on Mars at the time of the MERs and Beagle 2 landings. <i>Geophysical Research Letters</i> , <b>2006</b> , 33,	4.9	8
44	Asymmetric Impacts on Mars's Polar Vortices From an Equinoctial Global Dust Storm. <i>Journal of Geophysical Research E: Planets</i> , <b>2021</b> , 126, e2020JE006774	4.1	8
43	Diurnal variation in martian dust devil activity. <i>Icarus</i> , <b>2017</b> , 292, 154-167	3.8	7

42	On the link between martian total ozone and potential vorticity. <i>Icarus</i> , <b>2017</b> , 282, 104-117	3.8	7
41	The Mars Climate Database (version 4.3) <b>2009</b> ,		7
40	The effect of spatial variations in unresolved topography on gravity wave drag in the Martian atmosphere. <i>Geophysical Research Letters</i> , <b>1996</b> , 23, 2927-2930	4.9	7
39	A quasi-geostrophic numerical model of a rotating internally heated fluid. <i>Geophysical and Astrophysical Fluid Dynamics</i> , <b>1992</b> , 65, 31-55	1.4	7
38	ExoMars TGO/NOMAD-UVIS Vertical Profiles of Ozone: 1. Seasonal Variation and Comparison to Water. <i>Journal of Geophysical Research E: Planets</i> , <b>2021</b> , 126, e2021JE006837	4.1	7
37	ExoMars Atmospheric Mars Entry and Landing Investigations and Analysis (AMELIA). <i>Space Science Reviews</i> , <b>2019</b> , 215, 1	7.5	7
36	Investigating the semiannual oscillation on Mars using data assimilation. <i>Icarus</i> , <b>2019</b> , 333, 404-414	3.8	6
35	Regular and irregular baroclinic waves in a martian general circulation model: A role for diurnal forcing?. <i>Advances in Space Research</i> , <b>1995</b> , 16, 3-7	2.4	6
34	First Detection and Thermal Characterization of Terminator CO <sub>2</sub> Ice Clouds with ExoMars/NOMAD. <i>Geophysical Research Letters</i> ,	4.9	6
33	Sinuuous ridges in Chukhung crater, Tempe Terra, Mars: Implications for fluvial, glacial, and glaciofluvial activity. <i>Icarus</i> , <b>2021</b> , 357, 114131	3.8	6
32	Mars environment and magnetic orbiter model payload. <i>Experimental Astronomy</i> , <b>2009</b> , 23, 761-783	1.3	5
31	Atmospheric temperature sounding on Mars, and the climate sounder on the 2005 reconnaissance orbiter. <i>Advances in Space Research</i> , <b>2006</b> , 38, 713-717	2.4	5
30	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> , <b>2020</b> , 542, 116325	5.3	5
29	Enhanced water loss from the martian atmosphere during a regional-scale dust storm and implications for long-term water loss. <i>Earth and Planetary Science Letters</i> , <b>2021</b> , 571, 117109	5.3	5
28	The Penetration of Solar Radiation Into Water and Carbon Dioxide Snow, With Reference to Mars. <i>Journal of Geophysical Research E: Planets</i> , <b>2019</b> , 124, 337-348	4.1	4
27	Mars environment and magnetic orbiter scientific and measurement objectives. <i>Astrobiology</i> , <b>2009</b> , 9, 71-89	3.7	4
26	A simplified model of the Martian atmosphere - Part 1: a diagnostic analysis. <i>Nonlinear Processes in Geophysics</i> , <b>2005</b> , 12, 603-623	2.9	4
25	The Aeolian Environment of the Landing Site for the ExoMars Rosalind Franklin Rover in Oxia Planum, Mars. <i>Journal of Geophysical Research E: Planets</i> , <b>2021</b> , 126, 2020JE006723	4.1	4

24	Enhanced Super-Rotation Before and During the 2018 Martian Global Dust Storm. <i>Geophysical Research Letters</i> , <b>2021</b> , 48, e2021GL094634	4.9	4
23	Modeling Efforts <b>2013</b> , 111-127		4
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> , <b>2020</b> , 125, e2019JE006097	4.1	3
21	Martian Gullies and Their Connection With the Martian Climate <b>2018</b> , 87-119		3
20	Assessment of Environments for Mars Science Laboratory Entry, Descent, and Surface Operations <b>2012</b> , 793-835		3
19	Ertel potential vorticity versus Bernoulli streamfunction on Mars. <i>Quarterly Journal of the Royal Meteorological Society</i> , <b>2017</b> , 143, 37-52	6.4	2
18	The Martian Planetary Boundary Layer 172-202		2
17	A simplified model of the Martian atmosphere - Part 2: a POD-Galerkin analysis. <i>Nonlinear Processes in Geophysics</i> , <b>2005</b> , 12, 625-642	2.9	2
16	Planetary Aeolian Geomorphology <b>2019</b> , 261-286		2
15	Regional heat flow and subsurface temperature patterns at Elysium Planitia and Oxia Planum areas, Mars. <i>Icarus</i> , <b>2021</b> , 353, 113379	3.8	2
14	Atmospheric Dynamics of Terrestrial Planets <b>2018</b> , 1-31		1
13	Low-order dynamical behavior in the martian atmosphere: Diagnosis of general circulation model results. <i>Icarus</i> , <b>2009</b> , 204, 48-62	3.8	1
12	THE VOYAGER ENCOUNTER WITH NEPTUNE. <i>Weather</i> , <b>1990</b> , 45, 14-19	0.9	1
11	Evidence for Climate Change on Mars <b>2006</b> , 135-158		1
10	Planetary polar explorer The case for a next-generation remote sensing mission to low Mars orbit. <i>Experimental Astronomy</i> , 1	1.3	1
9	Data Assimilation for Other Planets <b>2010</b> , 681-699		1
8	Quantifying the atmospheric impact of local dust storms using a martian global circulation model. <i>Icarus</i> , <b>2020</b> , 336, 113470	3.8	0
7	Atmospheric Dynamics of Terrestrial Planets <b>2018</b> , 1-31		



- 6 Assimilating and Modeling Dust Transport in the Martian Climate System. *Proceedings of the International Astronomical Union*, **2012**, 8, 326-328 0.1
- 5 Environmental predictions for the Beagle 2 lander, based on GCM climate simulations. *Planetary and Space Science*, **2004**, 52, 259-269 2
- 4 Orbital Observations of Dust Lofted by Daytime Convective Turbulence. *Space Sciences Series of ISSI*, **2017**, 89-142 0.1
- 3 Dust Devil Sediment Transport: From Lab to Field to Global Impact. *Space Sciences Series of ISSI*, **2017**, 377-426 0.1
- 2 Atmospheric Dynamics of Terrestrial Planets **2018**, 285-315
- 1 The impact of a shadows scheme on a Mars mesoscale climate model. *Icarus*, **2022**, 382, 115036 3.8