Stephen Lewis

List of Publications by Year in Descending Order

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	The impact of a shadows scheme on a Mars mesoscale climate model. *Icarus*, **2022**, 382, 115036	3.8	
130	ExoMars TGO/NOMAD-UVIS Vertical Profiles of Ozone: 1. Seasonal Variation and Comparison to Water. *Journal of Geophysical Research E: Planets*, **2021**, 126, e2021JE006837	4.1	7
129	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	4.1	4
128	Asymmetric Impacts on Mars Polar Vortices From an Equinoctial Global Dust Storm. *Journal of Geophysical Research E: Planets*, **2021**, 126, e2020JE006774	4.1	8
127	Sinuous ridges in Chukhung crater, Tempe Terra, Mars: Implications for fluvial, glacial, and glaciofluvial activity. *Icarus*, **2021**, 357, 114131	3.8	6
126	Regional heat flow and subsurface temperature patterns at Elysium Planitia and Oxia Planum areas, Mars. *Icarus*, **2021**, 353, 113379	3.8	2
125	Multi-model Meteorological and Aeolian Predictions for Mars 2020 and the Jezero Crater Region. *Space Science Reviews*, **2021**, 217, 20	7.5	12
124	Enhanced Super-Rotation Before and During the 2018 Martian Global Dust Storm. *Geophysical Research Letters*, **2021**, 48, e2021GL094634	4.9	4
123	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	5.3	5
122	OpenMARS: A global record of martian weather from 1999 to 2015. *Planetary and Space Science*, **2020**, 188, 104962	2	19
121	The atmosphere of Mars as observed by InSight. *Nature Geoscience*, **2020**, 13, 190-198	18.3	93
120	The Penetration of Solar Radiation Into Granular Carbon Dioxide and Water Ices of Varying Grain Sizes on Mars. *Journal of Geophysical Research E: Planets*, **2020**, 125, e2019JE006097	4.1	3
119	Morphometry of a glacier-linked esker in NW Tempe Terra, Mars, and implications for sediment-discharge dynamics of subglacial drainage. *Earth and Planetary Science Letters*, **2020**, 542, 116325	5.3	5
118	Quantifying the atmospheric impact of local dust storms using a martian global circulation model. *Icarus*, **2020**, 336, 113470	3.8	0
117	Explanation for the Increase in High-Altitude Water on Mars Observed by NOMAD During the 2018 Global Dust Storm. *Geophysical Research Letters*, **2020**, 47, e2019GL084354	4.9	38
116	Surface Warming During the 2018/Mars Year 34 Global Dust Storm. *Geophysical Research Letters*, **2020**, 47, e2019GL083936	4.9	12
115	Evidence for thermal-stress-induced rockfalls on Mars impact crater slopes. *Icarus*, **2020**, 342, 113503	3.8	16

114	The Penetration of Solar Radiation Into Water and Carbon Dioxide Snow, With Reference to Mars. *Journal of Geophysical Research E: Planets*, **2019**, 124, 337-348	4.1	4
113	The martian daytime convective boundary layer: Results from radio occultation measurements and a mesoscale model. *Icarus*, **2019**, 326, 105-122	3.8	9
112	Global analysis and forecasts of carbon monoxide on Mars. *Icarus*, **2019**, 328, 232-245	3.8	15
111	Martian dust storm impact on atmospheric HO and D/H observed by ExoMars Trace Gas Orbiter. *Nature*, **2019**, 568, 521-525	50.4	72
110	Investigating the semiannual oscillation on Mars using data assimilation. *Icarus*, **2019**, 333, 404-414	3.8	6
109	ExoMars Atmospheric Mars Entry and Landing Investigations and Analysis (AMELIA). *Space Science Reviews*, **2019**, 215, 1	7.5	7
108	Planetary Aeolian Geomorphology **2019**, 261-286		2
107	A reanalysis of ozone on Mars from assimilation of SPICAM observations. *Icarus*, **2018**, 302, 308-318	3.8	15
106	The Penetration of Solar Radiation Into Carbon Dioxide Ice. *Journal of Geophysical Research E: Planets*, **2018**, 123, 864-871	4.1	9
105	Atmospheric Dynamics of Terrestrial Planets **2018**, 1-31		
104	Atmospheric Dynamics of Terrestrial Planets **2018**, 1-31		1
103	Martian Gullies and Their Connection With the Martian Climate **2018**, 87-119		3
102	Atmospheric Dynamics of Terrestrial Planets **2018**, 285-315		
101	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	7.5	57
100	Diurnal variation in martian dust devil activity. *Icarus*, **2017**, 292, 154-167	3.8	7
99	The water cycle and regolith–atmosphere interaction at Gale crater, Mars. *Icarus*, **2017**, 289, 56-79	3.8	30
98	Ertel potential vorticity versus Bernoulli streamfunction on Mars. *Quarterly Journal of the Royal Meteorological Society*, **2017**, 143, 37-52	6.4	2
97	Recent Basal Melting of a Mid-Latitude Glacier on Mars. *Journal of Geophysical Research E: Planets*, **2017**, 122, 2445-2468	4.1	28

96	Modelled isotopic fractionation and transient diffusive release of methane from potential subsurface sources on Mars. *Icarus*, **2017**, 281, 240-247	3.8	10
95	On the link between martian total ozone and potential vorticity. *Icarus*, **2017**, 282, 104-117	3.8	7
94	Regolith-atmosphere exchange of water in Mars' recent past. *Icarus*, **2017**, 284, 233-248	3.8	9
93	The vertical transport of methane from different potential emission types on Mars. *Geophysical Research Letters*, **2017**, 44, 8611-8620	4.9	8
92	NOMAD spectrometer on the ExoMars trace gas orbiter mission: part 2-design, manufacturing, and testing of the ultraviolet and visible channel. *Applied Optics*, **2017**, 56, 2771-2782	0.2	26
91	Orbital Observations of Dust Lofted by Daytime Convective Turbulence. *Space Sciences Series of ISSI*, **2017**, 89-142	0.1	
90	Dust Devil Sediment Transport: From Lab to Field to Global Impact. *Space Sciences Series of ISSI*, **2017**, 377-426	0.1	
89	Optical and radiometric models of the NOMAD instrument part II: the infrared channels - SO and LNO. *Optics Express*, **2016**, 24, 3790-805	3.3	16
88	Dust Devil Sediment Transport: From Lab to Field to Global Impact. *Space Science Reviews*, **2016**, 203, 377-426	7.5	30
87	Orbital Observations of Dust Lofted by Daytime Convective Turbulence. *Space Science Reviews*, **2016**, 203, 89-142	7.5	28
86	The solsticial pause on Mars: 1. A planetary wave reanalysis. *Icarus*, **2016**, 264, 456-464	3.8	59
85	The solsticial pause on Mars: 2 modelling and investigation of causes. *Icarus*, **2016**, 264, 465-477	3.8	38
84	Global energy budgets and Trenberth diagrams for the climates of terrestrial and gas giant planets. *Quarterly Journal of the Royal Meteorological Society*, **2016**, 142, 703-720	6.4	23
83	Numerical modelling of the transport of trace gases including methane in the subsurface of Mars. *Icarus*, **2015**, 250, 587-594	3.8	11
82	Eight-year climatology of dust optical depth on Mars. *Icarus*, **2015**, 251, 65-95	3.8	211
81	Analysing the consistency of martian methane observations by investigation of global methane transport. *Icarus*, **2015**, 257, 23-32	3.8	12
80	Science objectives and performances of NOMAD, a spectrometer suite for the ExoMars TGO mission. *Planetary and Space Science*, **2015**, 119, 233-249	2	63
79	Optical and radiometric models of the NOMAD instrument part I: the UVIS channel. *Optics Express*, **2015**, 23, 30028-42	3.3	18

78	A Lorenz/Boer energy budget for the atmosphere of Mars from a reanalysis of spacecraft observations. *Geophysical Research Letters*, **2015**, 42, 8320-8327	4.9	9
77	The physics of Martian weather and climate: a review. *Reports on Progress in Physics*, **2015**, 78, 125901	14.4	34
76	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. *Icarus*, **2014**, 243, 91-103	3.8	20
75	The seasonal cycle of water vapour on Mars from assimilation of Thermal Emission Spectrometer data. *Icarus*, **2014**, 237, 97-115	3.8	40
74	The radiative impact of water ice clouds from a reanalysis of Mars Climate Sounder data. *Geophysical Research Letters*, **2014**, 41, 4471-4478	4.9	33
73	The Mars Analysis Correction Data Assimilation (MACDA) Dataset V1.0. *Geoscience Data Journal*, **2014**, 1, 129-139	2.5	47
72	The retrieval of optical properties from terrestrial dust devil vortices. *Icarus*, **2014**, 231, 385-393	3.8	13
71	Radiative transfer modelling of dust devils. *Icarus*, **2013**, 223, 1-10	3.8	15
70	Simulating the interannual variability of major dust storms on Mars using variable lifting thresholds. *Icarus*, **2013**, 223, 344-358	3.8	39
69	Benchmark experiments with global climate models applicable to extrasolar gas giant planets in the shallow atmosphere approximation. *Monthly Notices of the Royal Astronomical Society*, **2013**, 428, 2874-2884	4.3	27
68	Modeling Efforts **2013**, 111-127		4
67	Models of Venus Atmosphere **2013**, 129-156		20
66	Assessment of Environments for Mars Science Laboratory Entry, Descent, and Surface Operations. *Space Science Reviews*, **2012**, 170, 793-835	7.5	55
65	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	3.8	43
64	Zonal winds at high latitudes on Venus: An improved application of cyclostrophic balance to Venus Express observations. *Icarus*, **2012**, 217, 629-639	3.8	9
63	Assimilating and Modeling Dust Transport in the Martian Climate System. *Proceedings of the International Astronomical Union*, **2012**, 8, 326-328	0.1	
62	Assessment of Environments for Mars Science Laboratory Entry, Descent, and Surface Operations **2012**, 793-835		3
61	THE MARTIAN ATMOSPHERIC BOUNDARY LAYER. *Reviews of Geophysics*, **2011**, 49,	23.1	90

60	The impact of martian mesoscale winds on surface temperature and on the determination of thermal inertia. *Icarus*, **2011**, 212, 504-519	3.8	39
59	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,		153
58	Atmospheric risk assessment for the Mars Science Laboratory Entry, Descent, and Landing system **2010**,		10
57	A bulk cloud parameterization in a Venus General Circulation Model. *Icarus*, **2010**, 206, 662-668	3.8	14
56	Structure and dynamics of the convective boundary layer on Mars as inferred from large-eddy simulations and remote-sensing measurements. *Quarterly Journal of the Royal Meteorological Society*, **2010**, 136, 414-428	6.4	39
55	Assessing atmospheric predictability on Mars using numerical weather prediction and data assimilation. *Quarterly Journal of the Royal Meteorological Society*, **2010**, 136, 1614-1635	6.4	18
54	Data Assimilation for Other Planets **2010**, 681-699		1
53	The Mars Climate Database (version 4.3) **2009**,		7
52	QUAGMIRE v1.3: a quasi-geostrophic model for investigating rotating fluids experiments. *Geoscientific Model Development*, **2009**, 2, 13-32	6.3	8
51	Mars environment and magnetic orbiter model payload. *Experimental Astronomy*, **2009**, 23, 761-783	1.3	5
50	Low-order dynamical behavior in the martian atmosphere: Diagnosis of general circulation model results. *Icarus*, **2009**, 204, 48-62	3.8	1
49	Mars environment and magnetic orbiter scientific and measurement objectives. *Astrobiology*, **2009**, 9, 71-89	3.7	4
48	Transient teleconnection event at the onset of a planet-encircling dust storm on Mars. *Annales Geophysicae*, **2009**, 27, 3663-3676	2	17
47	Intense polar temperature inversion in the middle atmosphere on Mars. *Nature Geoscience*, **2008**, 1, 745-749	18.3	64
46	Influence of water ice clouds on Martian tropical atmospheric temperatures. *Geophysical Research Letters*, **2008**, 35, n/a-n/a	4.9	74
45	Assimilation of thermal emission spectrometer atmospheric data during the Mars Global Surveyor aerobraking period. *Icarus*, **2007**, 192, 327-347	3.8	71
44	Superrotation in a Venus general circulation model. *Journal of Geophysical Research*, **2007**, 112,		56
43	Dynamics of Convectively Driven Banded Jets in the Laboratory. *Journals of the Atmospheric Sciences*, **2007**, 64, 4031-4052	2.1	52

42	Reconstructing the weather on Mars at the time of the MERs and Beagle 2 landings. *Geophysical Research Letters*, **2006**, 33,	4.9	8
41	Atmospheric temperature sounding on Mars, and the climate sounder on the 2005 reconnaissance orbiter. *Advances in Space Research*, **2006**, 38, 713-717	2.4	5
40	Validation of martian meteorological data assimilation for MGS/TES using radio occultation measurements. *Icarus*, **2006**, 185, 113-132	3.8	58
39	Evidence for Climate Change on Mars **2006**, 135-158		1
38	Atmospheric tides in a Mars general circulation model with data assimilation. *Advances in Space Research*, **2005**, 36, 2162-2168	2.4	56
37	The effects of the martian regolith on GCM water cycle simulations. *Icarus*, **2005**, 177, 174-189	3.8	38
36	A numerical model of the atmosphere of Venus. *Advances in Space Research*, **2005**, 36, 2142-2145	2.4	44
35	Interannual variability of Martian dust storms in assimilation of several years of Mars global surveyor observations. *Advances in Space Research*, **2005**, 36, 2146-2155	2.4	47
34	The atmospheric circulation and dust activity in different orbital epochs on Mars. *Icarus*, **2005**, 174, 135-160	3.8	70
33	A simplified model of the Martian atmosphere - Part 1: a diagnostic analysis. *Nonlinear Processes in Geophysics*, **2005**, 12, 603-623	2.9	4
32	A simplified model of the Martian atmosphere - Part 2: a POD-Galerkin analysis. *Nonlinear Processes in Geophysics*, **2005**, 12, 625-642	2.9	2
31	Investigating atmospheric predictability on Mars using breeding vectors in a general-circulation model. *Quarterly Journal of the Royal Meteorological Society*, **2004**, 130, 2971-2989	6.4	20
30	Environmental predictions for the Beagle 2 lander, based on GCM climate simulations. *Planetary and Space Science*, **2004**, 52, 259-269	2	
29	Upper atmosphere of Mars up to 120 km: Mars Global Surveyor accelerometer data analysis with the LMD general circulation model. *Journal of Geophysical Research*, **2004**, 109,		55
28	Jupiter's and Saturn's convectively driven banded jets in the laboratory. *Geophysical Research Letters*, **2004**, 31,	4.9	34
27	The effect of a global dust storm on simulations of the Martian water cycle. *Geophysical Research Letters*, **2004**, 31,	4.9	14
26	Modelling the martian atmosphere. *Astronomy and Geophysics*, **2003**, 44, 4.06-4.14	0.2	13
25	Selection of the landing site in Isidis Planitia of Mars probe Beagle 2. *Journal of Geophysical Research*, **2003**, 108, 1-1		45

24	Equatorial jets in the dusty Martian atmosphere. *Journal of Geophysical Research*, **2003**, 108,		27
23	Modeling the Martian dust cycle, 1. Representations of dust transport processes. *Journal of Geophysical Research*, **2002**, 107, 6-1-6-18		168
22	Modeling the Martian dust cycle 2. Multiannual radiatively active dust transport simulations. *Journal of Geophysical Research*, **2002**, 107, 7-1-7-15		100
21	A climate database for Mars. *Journal of Geophysical Research*, **1999**, 104, 24177-24194		264
20	Improved general circulation models of the Martian atmosphere from the surface to above 80 km. *Journal of Geophysical Research*, **1999**, 104, 24155-24175		762
19	Wave interactions and baroclinic chaos: a paradigm for long timescale variability in planetary atmospheres. *Chaos, Solitons and Fractals*, **1998**, 9, 231-249	9.3	23
18	Laboratory and numerical studies of baroclinic waves in an internally heated rotating fluid annulus: a case of wave/vortex duality?. *Journal of Fluid Mechanics*, **1997**, 337, 155-191	3.7	12
17	Gravity wave drag in a global circulation model of the Martian atmosphere: Parameterisation and validation. *Advances in Space Research*, **1997**, 19, 1245-1254	2.4	23
16	A GCM climate database for Mars: For mission planning and for scientific studies. *Advances in Space Research*, **1997**, 19, 1213-1222	2.4	17
15	Data assimilation with a Martian atmospheric GCM: An example using thermal data. *Advances in Space Research*, **1997**, 19, 1267-1270	2.4	20
14	The effect of spatial variations in unresolved topography on gravity wave drag in the Martian atmosphere. *Geophysical Research Letters*, **1996**, 23, 2927-2930	4.9	7
13	Baroclinic Wave Transitions in the Martian Atmosphere. *Icarus*, **1996**, 120, 344-357	3.8	68
12	Martian atmospheric data assimilation with a simplified general circulation model: orbiter and lander networks. *Planetary and Space Science*, **1996**, 44, 1395-1409	2	30
11	Regular and irregular baroclinic waves in a martian general circulation model: A role for diurnal forcing?. *Advances in Space Research*, **1995**, 16, 3-7	2.4	6
10	An operational data assimilation scheme for the martian atmosphere. *Advances in Space Research*, **1995**, 16, 9-13	2.4	29
9	Western boundary currents in the Martian atmosphere: Numerical simulations and observational evidence. *Journal of Geophysical Research*, **1995**, 100, 5485		71
8	Western boundary currents in the atmosphere of Mars. *Nature*, **1994**, 367, 548-551	50.4	20
7	Sloping convection: A paradigm for large-scale waves and eddies in planetary atmospheres?. *Chaos*, **1994**, 4, 135-162	3.3	22

6	A quasi-geostrophic numerical model of a rotating internally heated fluid. *Geophysical and Astrophysical Fluid Dynamics*, **1992**, 65, 31-55	1.4	7
5	THE VOYAGER ENCOUNTER WITH NEPTUNE. *Weather*, **1990**, 45, 14-19	0.9	1
4	The Martian Planetary Boundary Layer172-202		2
3	The Global Circulation229-294		15
2	First Detection and Thermal Characterization of Terminator CO 2 Ice Clouds with ExoMars/NOMAD. *Geophysical Research Letters*,	4.9	6
1	Planetary polar explorer the case for a next-generation remote sensing mission to low Mars orbit. *Experimental Astronomy*,1	1.3	1