Owen Toon

List of Publications by Year
in descending order

127 papers	9,406 citations	41344 49 h-index	42399 92 g-index
127 all docs	127 docs citations	127 times ranked	6466 citing authors

#	Article	IF	Citations
1	Rapid calculation of radiative heating rates and photodissociation rates in inhomogeneous multiple scattering atmospheres. Journal of Geophysical Research, 1989, 94, 16287-16301.	3.3	790
2	Nuclear Winter: Global Consequences of Multiple Nuclear Explosions. Science, 1983, 222, 1283-1292.	12.6	705
3	Condensation of HNO₃ and HCl in the winter polar stratospheres. Geophysical Research Letters, 1986, 13, 1284-1287.	4.0	488
4	Absorption of visible radiation in atmosphere containing mixtures of absorbing and nonabsorbing particles. Applied Optics, 1981, 20, 3661.	2.1	365
5	A Multidimensional Model for Aerosols: Description of Computational Analogs. Journals of the Atmospheric Sciences, 1988, 45, 2123-2144.	1.7	307
6	A One-Dimensional Model Describing Aerosol Formation and Evolution in the Stratosphere: I. Physical Processes and Mathematical Analogs. Journals of the Atmospheric Sciences, 1979, 36, 699-717.	1.7	274
7	Selfâ€limiting physical and chemical effects in volcanic eruption clouds. Journal of Geophysical Research, 1989, 94, 11165-11174.	3.3	261
8	Physical processes in polar stratospheric ice clouds. Journal of Geophysical Research, 1989, 94, 11359-11380.	3.3	208
9	Numerical simulations of the threeâ€dimensional distribution of meteoric dust in the mesosphere and upper stratosphere. Journal of Geophysical Research, 2008, 113, .	3.3	159
10	Black carbon lofts wildfire smoke high into the stratosphere to form a persistent plume. Science, 2019, 365, 587-590.	12.6	159
11	Planning, implementation, and scientific goals of the Studies of Emissions and Atmospheric Composition, Clouds and Climate Coupling by Regional Surveys (SEAC⁴RS) field mission. Journal of Geophysical Research D: Atmospheres, 2016, 121, 4967-5009.	3.3	158
12	Formation of Martian gullies by the action of liquid water flowing under current Martian environmental conditions. Journal of Geophysical Research, 2005, 110, .	3.3	143
13	Dehydration of the upper troposphere and lower stratosphere by subvisible cirrus clouds near the tropical tropopause. Geophysical Research Letters, 1996, 23, 825-828.	4.0	141
14	Fractal Organic Hazes Provided an Ultraviolet Shield for Early Earth. Science, 2010, 328, 1266-1268.	12.6	139
15	The evolution of habitable climates under the brightening Sun. Journal of Geophysical Research D: Atmospheres, 2015, 120, 5775-5794.	3.3	130
16	Climatic consequences of regional nuclear conflicts. Atmospheric Chemistry and Physics, 2007, 7, 2003-2012.	4.9	124
17	Climate and smoke: an appraisal of nuclear winter. Science, 1990, 247, 166-176.	12.6	122
18	Aircraft observations of thin cirrus clouds near the tropical tropopause. Journal of Geophysical Research, 2001, 106, 9765-9786.	3.3	122

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19	Planning, implementation, and first results of the Tropical Composition, Cloud and Climate Coupling Experiment (TC4). Journal of Geophysical Research, 2010, 115, .	3.3	120
20	Ice nucleation processes in upper tropospheric wave-clouds observed during SUCCESS. Geophysical Research Letters, 1998, 25, 1363-1366.	4.0	116
21	Massive global ozone loss predicted following regional nuclear conflict. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 5307-5312.	7.1	114
22	Ice nucleation and dehydration in the Tropical Tropopause Layer. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 2041-2046.	7.1	113
23	Hospitable Archean Climates Simulated by a General Circulation Model. Astrobiology, 2013, 13, 656-673.	3.0	112
24	Efficient transport of tropospheric aerosol into the stratosphere via the Asian summer monsoon anticyclone. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 6972-6977.	7.1	106
25	A new parameterization of H2SO4/H2O aerosol composition: Atmospheric implications. Geophysical Research Letters, 1997, 24, 1931-1934.	4.0	99
26	Nitric acid scavenging by mineral and biomass burning aerosols. Geophysical Research Letters, 1998, 25, 4185-4188.	4.0	97
27	Measurements of the vapor pressure of cubic ice and their implications for atmospheric ice clouds. Geophysical Research Letters, 2006, 33, .	4.0	93
28	Nuclear winter: Threeâ€dimensional simulations including interactive transport, scavenging, and solar heating of smoke. Journal of Geophysical Research, 1986, 91, 1039-1053.	3.3	92
29	Carbon dioxide clouds in an early dense Martian atmosphere. Journal of Geophysical Research, 2003, 108, .	3.3	92
30	Delayed onset of runaway and moist greenhouse climates for Earth. Geophysical Research Letters, 2014, 41, 167-172.	4.0	90
31	Recent anthropogenic increases in SO₂ from Asia have minimal impact on stratospheric aerosol. Geophysical Research Letters, 2013, 40, 999-1004.	4.0	89
32	Volcanic Radiative Forcing From 1979 to 2015. Journal of Geophysical Research D: Atmospheres, 2018, 123, 12491-12508.	3.3	87
33	Determining the UV imaginary index of refraction of Saharan dust particles from Total Ozone Mapping Spectrometer data using a three-dimensional model of dust transport. Journal of Geophysical Research, 2002, 107, AAC 4-1.	3.3	84
34	Atmospheric effects and societal consequences of regional scale nuclear conflicts and acts of individual nuclear terrorism. Atmospheric Chemistry and Physics, 2007, 7, 1973-2002.	4.9	82
35	Microphysical simulations of large volcanic eruptions: Pinatubo and Toba. Journal of Geophysical Research D: Atmospheres, 2013, 118, 1880-1895.	3.3	80
36	The NASA Airborne Tropical Tropopause Experiment: High-Altitude Aircraft Measurements in the Tropical Western Pacific. Bulletin of the American Meteorological Society, 2017, 98, 129-143.	3.3	79

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37	Multidecadal global cooling and unprecedented ozone loss following a regional nuclear conflict. Earth's Future, 2014, 2, 161-176.	6.3	74
38	Saharan dust transport to the Caribbean during PRIDE: 2. Transport, vertical profiles, and deposition in simulations of in situ and remote sensing observations. Journal of Geophysical Research, 2003, 108, .	3.3	71
39	Microphysical simulations of new particle formation in the upper troposphere and lower stratosphere. Atmospheric Chemistry and Physics, 2011, 11, 9303-9322.	4.9	70
40	Formation of large (â‰ƒ100 Î¼m) ice crystals near the tropical tropopause. Atmospheric Chemistry and Physics, 2008, 8, 1621-1633.	4.9	69
41	On transient climate change at the Cretaceousâ^'Paleogene boundary due to atmospheric soot injections. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E7415-E7424.	7.1	69
42	Meteoric smoke production in the atmosphere. Geophysical Research Letters, 2000, 27, 3293-3296.	4.0	65
43	Subsonic aircraft: Contrail and cloud effects special study (SUCCESS). Geophysical Research Letters, 1998, 25, 1109-1112.	4.0	64
44	Environmental consequences of nuclear war. Physics Today, 2008, 61, 37-42.	0.3	63
45	A regional nuclear conflict would compromise global food security. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 7071-7081.	7.1	63
46	The potential effects of volcanic aerosols on cirrus cloud microphysics. Geophysical Research Letters, 1992, 19, 1759-1762.	4.0	61
47	Persistent Stratospheric Warming Due to 2019â€“2020 Australian Wildfire Smoke. Geophysical Research Letters, 2021, 48, e2021GL092609.	4.0	58
48	Nuclear Winter Responses to Nuclear War Between the United States and Russia in the Whole Atmosphere Community Climate Model Version 4 and the Goddard Institute for Space Studies ModelE. Journal of Geophysical Research D: Atmospheres, 2019, 124, 8522-8543.	3.3	57
49	Hydrodynamic escape of nitrogen from Pluto. Geophysical Research Letters, 2005, 32, n/a-n/a.	4.0	56
50	Composition and physical properties of the Asian Tropopause Aerosol Layer and the North American Tropospheric Aerosol Layer. Geophysical Research Letters, 2015, 42, 2540-2546.	4.0	55
51	A Review of Ice Particle Shapes in Cirrus formed In Situ and in Anvils. Journal of Geophysical Research D: Atmospheres, 2019, 124, 10049-10090.	3.3	54
52	Consequences of Regional-Scale Nuclear Conflicts. Science, 2007, 315, 1224-1225.	12.6	51
53	Persisting volcanic ash particles impact stratospheric SO2 lifetime and aerosol optical properties. Nature Communications, 2020, 11, 4526.	12.8	51
54	Numerical simulations of the threeâ€dimensional distribution of polar mesospheric clouds and comparisons with Cloud Imaging and Particle Size (CIPS) experiment and the Solar Occultation For Ice Experiment (SOFIE) observations. Journal of Geophysical Research, 2010, 115, .	3.3	50

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55	The 1980 eruptions of Mount St. Helens: Physical and chemical processes in the stratospheric clouds. Journal of Geophysical Research, 1983, 88, 5299-5319.	3.3	49
56	Saharan dust transport to the Caribbean during PRIDE: 1. Influence of dust sources and removal mechanisms on the timing and magnitude of downwind aerosol optical depth events from simulations of in situ and remote sensing observations. Journal of Geophysical Research, 2003, 108, .	3.3	49
57	Infrared characterization of water uptake by low-temperature Na-montmorillonite: Implications for Earth and Mars. Journal of Geophysical Research, 2005, 110, .	3.3	49
58	Implications of extinction due to meteoritic smoke in the upper stratosphere. Geophysical Research Letters, 2011, 38, .	4.0	49
59	Formation and implications of ice particle nucleation in the stratosphere. Geophysical Research Letters, 1997, 24, 2007-2010.	4.0	48
60	Efficient Inâ€Cloud Removal of Aerosols by Deep Convection. Geophysical Research Letters, 2019, 46, 1061-1069.	4.0	48
61	Carbon dioxide snow storms during the polar night on Mars. Journal of Geophysical Research, 2002, 107, 5-1.	3.3	47
62	ATMOSPHERIC SCIENCE:How Pollution Suppresses Rain. Science, 2000, 287, 1763-1765.	12.6	46
63	A surface chemistry model for nonreactive trace gas adsorption on ice: Implications for nitric acid scavenging by cirrus. Geophysical Research Letters, 1999, 26, 2211-2214.	4.0	45
64	On the stratospheric chemistry of midlatitude wildfire smoke. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2117325119.	7.1	45
65	Rapidly expanding nuclear arsenals in Pakistan and India portend regional and global catastrophe. Science Advances, 2019, 5, eaay5478.	10.3	43
66	Formation of convective carbon dioxide clouds near the south pole of Mars. Journal of Geophysical Research, 2003, 108, .	3.3	42
67	Passing through a giant molecular cloud: â€œSnowballâ€•glaciations produced by interstellar dust. Geophysical Research Letters, 2005, 32, .	4.0	42
68	Photolysis of sulfuric acid vapor by visible light as a source of the polar stratospheric CN layer. Journal of Geophysical Research, 2005, 110, .	3.3	42
69	Impact of radiative heating, wind shear, temperature variability, and microphysical processes on the structure and evolution of thin cirrus in the tropical tropopause layer. Journal of Geophysical Research, 2011, 116, .	3.3	42
70	Self-assured destruction: The climate impacts of nuclear war. Bulletin of the Atomic Scientists, 2012, 68, 66-74.	0.6	42
71	Causes and Climatic Consequences of the Impact Winter at the Cretaceousâ€Paleogene Boundary. Geophysical Research Letters, 2020, 47, e60121.	4.0	40
72	Kâ€Pg extinction: Reevaluation of the heatâ€fire hypothesis. Journal of Geophysical Research G: Biogeosciences, 2013, 118, 329-336.	3.0	39

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73	Kâ€Pg extinction patterns in marine and freshwater environments: The impact winter model. Journal of Geophysical Research G: Biogeosciences, 2013, 118, 1006-1014.	3.0	38
74	Role of deep convection in establishing the isotopic composition of water vapor in the tropical transition layer. Geophysical Research Letters, 2006, 33, .	4.0	37
75	Modeling the transport and optical properties of smoke aerosols from African savanna fires during the Southern African Regional Science Initiative campaign (SAFARI 2000). Journal of Geophysical Research, 2007, 112, .	3.3	37
76	Mystery of the volcanic mass-independent sulfur isotope fractionation signature in the Antarctic ice core. Geophysical Research Letters, 2005, 32, n/a-n/a.	4.0	33
77	Mesospheric sulfate aerosol layer. Journal of Geophysical Research, 2005, 110, .	3.3	33
78	Evaluations of tropospheric aerosol properties simulated by the community earth system model with a sectional aerosol microphysics scheme. Journal of Advances in Modeling Earth Systems, 2015, 7, 865-914.	3.8	33
79	Uptake of reactive nitrogen on cirrus cloud particles in the upper troposphere and lowermost stratosphere. Geophysical Research Letters, 2003, 30, .	4.0	32
80	Influence of Solar Heating and Precipitation Scavenging on the Simulated Lifetime of Post--Nuclear War Smoke. Science, 1985, 230, 317-319.	12.6	31
81	Stratospheric Aerosols, Polar Stratospheric Clouds, and Polar Ozone Depletion After the Mount Calbuco Eruption in 2015. Journal of Geophysical Research D: Atmospheres, 2018, 123, 12,308.	3.3	31
82	Chemical composition of Titan's haze: Are PAHs present?. Geophysical Research Letters, 2004, 31, n/a-n/a.	4.0	30
83	The contribution of anthropogenic SO₂ emissions to the Asian tropopause aerosol layer. Journal of Geophysical Research D: Atmospheres, 2014, 119, 1571-1579.	3.3	30
84	Wet scavenging of soluble gases in DC3 deep convective storms using WRFâ€Chem simulations and aircraft observations. Journal of Geophysical Research D: Atmospheres, 2016, 121, 4233-4257.	3.3	29
85	Influence of the aerosol vertical distribution on the retrievals of aerosol optical depth from satellite radiance measurements. Geophysical Research Letters, 2000, 27, 3457-3460.	4.0	28
86	Impact of polar stratospheric cloud particle composition, number density, and lifetime on denitrification. Journal of Geophysical Research, 2002, 107, SOL 27-1.	3.3	28
87	Response to Comment on "A Hydrogen-Rich Early Earth Atmosphere". Science, 2006, 311, 38b-38b.	12.6	28
88	Measurements of Depositional Ice Nucleation on Insoluble Substrates at Low Temperatures: Implications for Earth and Mars. Journal of Physical Chemistry C, 2009, 113, 2036-2040.	3.1	26
89	Radiative forcing from anthropogenic sulfur and organic emissions reaching the stratosphere. Geophysical Research Letters, 2016, 43, 9361-9367.	4.0	25
90	Designing global climate and atmospheric chemistry simulations for 1 and 10â€¯km diameter asteroid impacts using the properties of ejecta from the K-Pg impact. Atmospheric Chemistry and Physics, 2016, 16, 13185-13212.	4.9	24

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91	High-altitude water ice cloud formation on Mars controlled by interplanetary dust particles. Nature Geoscience, 2019, 12, 516-521.	12.9	23
92	Properties of methane clouds on Titan: Results from microphysical modeling. Geophysical Research Letters, 2004, 31, n/a-n/a.	4.0	22
93	Improved cirrus simulations in a general circulation model using CARMA sectional microphysics. Journal of Geophysical Research D: Atmospheres, 2013, 118, 11,679.	3.3	20
94	Development of a Polar Stratospheric Cloud Model within the Community Earth System Model using constraints on Type I PSCs from the 2010â€“2011 Arctic winter. Journal of Advances in Modeling Earth Systems, 2015, 7, 551-585.	3.8	18
95	Marine wild-capture fisheries after nuclear war. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 29748-29758.	7.1	18
96	Annual Development Cycle of an Icing Deposit and Associated Perennial Spring Activity on Axel Heiberg Island, Canadian High Arctic. Arctic, Antarctic, and Alpine Research, 2005, 37, 127-135.	1.1	17
97	Catastrophic ozone loss during passage of the Solar system through an interstellar cloud. Geophysical Research Letters, 2005, 32, .	4.0	17
98	Numerical simulations of Asian dust storms using a coupled climateâ€aerosol microphysical model. Journal of Geophysical Research, 2009, 114, .	3.3	17
99	Modeling the transport and optical properties of smoke plumes from South American biomass burning. Journal of Geophysical Research, 2008, 113, .	3.3	16
100	Surface dimming by the 2013 Rim Fire simulated by a sectional aerosol model. Journal of Geophysical Research D: Atmospheres, 2016, 121, 7079-7087.	3.3	16
101	Evaluating Climate Sensitivity to CO₂ Across Earth's History. Journal of Geophysical Research D: Atmospheres, 2018, 123, 11,861.	3.3	16
102	Measurements of large stratospheric particles in the Arctic polar vortex. Journal of Geophysical Research, 2003, 108, .	3.3	15
103	Effects of Scavenging, Entrainment, and Aqueous Chemistry on Peroxides and Formaldehyde in Deep Convective Outflow Over the Central and Southeast United States. Journal of Geophysical Research D: Atmospheres, 2018, 123, 7594-7614.	3.3	15
104	Nuclear NiÃ±o response observed in simulations of nuclear war scenarios. Communications Earth & Environment, 2021, 2, .	6.8	15
105	Modeled optical thickness of sea-salt aerosol. Journal of Geophysical Research, 2011, 116, .	3.3	14
106	Comparing simulated PSC optical properties with CALIPSO observations during the 2010 Antarctic winter. Journal of Geophysical Research D: Atmospheres, 2017, 122, 1175-1202.	3.3	14
107	A New Ocean State After Nuclear War. AGU Advances, 2022, 3, .	5.4	14
108	Extreme Ozone Loss Following Nuclear War Results in Enhanced Surface Ultraviolet Radiation. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2021JD035079.	3.3	13

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109	Polar stratospheric clouds during SOLVE/THESEO: Comparison of lidar observations with in situ measurements. Journal of Geophysical Research, 2004, 109, .	3.3	11
110	Development of a Polar Stratospheric Cloud Model Within the Community Earth System Model: Assessment of 2010 Antarctic Winter. Journal of Geophysical Research D: Atmospheres, 2017, 122, 10,418.	3.3	11
111	How an India-Pakistan nuclear war could startâ€"and have global consequences. Bulletin of the Atomic Scientists, 2019, 75, 273-279.	0.6	10
112	Comment on â€œClimate Impact of a Regional Nuclear Weapon Exchange: An Improved Assessment Based on Detailed Source Calculationsâ€•by Reisner et al.. Journal of Geophysical Research D: Atmospheres, 2019, 124, 12953-12958.	3.3	10
113	Asia Treads the Nuclear Path, Unaware That Self-Assured Destruction Would Result from Nuclear War. Journal of Asian Studies, 2017, 76, 437-456.	0.1	9
114	The Potential Impact of Nuclear Conflict on Ocean Acidification. Geophysical Research Letters, 2020, 47, e2019GL086246.	4.0	7
115	Modeling water ice lifetimes at recent Martian gully locations. Geophysical Research Letters, 2007, 34, .	4.0	6
116	Physics of a Thick Seasonal Snowpack with Possible Implications for Snow Algae. Arctic, Antarctic, and Alpine Research, 2012, 44, 36-49.	1.1	6
117	Toward practical stratospheric aerosol albedo modification: Solar-powered lofting. Science Advances, 2021, 7, .	10.3	6
118	Upper Troposphere Smoke Injection From Large Areal Fires. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2020JD034332.	3.3	5
119	The Balance Between Heterogeneous and Homogeneous Nucleation of Ice Clouds Using CAM5/CARMA. Journal of Geophysical Research D: Atmospheres, 2022, 127, .	3.3	5
120	The Continuing Environmental Threat of Nuclear Weapons: Integrated Policy Responses. Eos, 2007, 88, 228.	0.1	4
121	Ash Particles Detected in the Tropical Lower Stratosphere. Geophysical Research Letters, 2018, 45, 11,483.	4.0	4
122	An Evaluation of the Representation of Tropical Tropopause Cirrus in the CESM/CARMA Model Using Satellite and Aircraft Observations. Journal of Geophysical Research D: Atmospheres, 2019, 124, 8659-8687.	3.3	4
123	Nitric acid condensation on ice: 1. Non-HNO3constituent of NOYcondensing cirrus particles on upper tropospheric. Journal of Geophysical Research, 2006, 111, .	3.3	3
124	Nitric acid condensation on ice: 2. Kinetic limitations, a possible â€œcloud clockâ€•for determining cloud parcel lifetime. Journal of Geophysical Research, 2007, 112, .	3.3	3
125	Mass balance of two perennial snowfields: Niwot Ridge, Colorado, and the Ulaan Taiga, Mongolia. Arctic, Antarctic, and Alpine Research, 2022, 54, 41-61.	1.1	1
126	Mineral aerosol production, transport, and removal during ACE-2: Comparisons of an event model to satellite. AIP Conference Proceedings, 2000, , .	0.4	0

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127	Building a sectional aerosol model in CAM5. , 2013, , .		0