

Owen Toon

List of Publications by Year in descending order

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127
papers

9,406
citations

47409

49
h-index

48101

92
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127
all docs

127
docs citations

127
times ranked

7205
citing authors

#	ARTICLE	IF	CITATIONS
1	The Balance Between Heterogeneous and Homogeneous Nucleation of Ice Clouds Using CAM5/CARMA. <i>Journal of Geophysical Research D: Atmospheres</i> , 2022, 127, .	1.2	5
2	On the stratospheric chemistry of midlatitude wildfire smoke. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, e2117325119.	3.3	45
3	Mass balance of two perennial snowfields: Niwot Ridge, Colorado, and the Ulaan Taiga, Mongolia. <i>Arctic, Antarctic, and Alpine Research</i> , 2022, 54, 41-61.	0.4	1
4	A New Ocean State After Nuclear War. <i>AGU Advances</i> , 2022, 3, .	2.3	14
5	Nuclear Ni [±] o response observed in simulations of nuclear war scenarios. <i>Communications Earth & Environment</i> , 2021, 2, .	2.6	15
6	Persistent Stratospheric Warming Due to 2019â€“2020 Australian Wildfire Smoke. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL092609.	1.5	58
7	Toward practical stratospheric aerosol albedo modification: Solar-powered lofting. <i>Science Advances</i> , 2021, 7, .	4.7	6
8	Extreme Ozone Loss Following Nuclear War Results in Enhanced Surface Ultraviolet Radiation. <i>Journal of Geophysical Research D: Atmospheres</i> , 2021, 126, e2021JD035079.	1.2	13
9	Upper Troposphere Smoke Injection From Large Areal Fires. <i>Journal of Geophysical Research D: Atmospheres</i> , 2021, 126, e2020JD034332.	1.2	5
10	Marine wild-capture fisheries after nuclear war. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 29748-29758.	3.3	18
11	Persisting volcanic ash particles impact stratospheric SO ₂ lifetime and aerosol optical properties. <i>Nature Communications</i> , 2020, 11, 4526.	5.8	51
12	A regional nuclear conflict would compromise global food security. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 7071-7081.	3.3	63
13	Causes and Climatic Consequences of the Impact Winter at the Cretaceousâ€“Paleogene Boundary. <i>Geophysical Research Letters</i> , 2020, 47, e60121.	1.5	40
14	The Potential Impact of Nuclear Conflict on Ocean Acidification. <i>Geophysical Research Letters</i> , 2020, 47, e2019GL086246.	1.5	7
15	A Review of Ice Particle Shapes in Cirrus formed In Situ and in Anvils. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 10049-10090.	1.2	54
16	Black carbon lofts wildfire smoke high into the stratosphere to form a persistent plume. <i>Science</i> , 2019, 365, 587-590.	6.0	159
17	An Evaluation of the Representation of Tropical Tropopause Cirrus in the CESM/CARMA Model Using Satellite and Aircraft Observations. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 8659-8687.	1.2	4
18	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. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 8522-8543.	1.2	57

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19	How an India-Pakistan nuclear war could start—and have global consequences. <i>Bulletin of the Atomic Scientists</i> , 2019, 75, 273-279.	0.2	10
20	Rapidly expanding nuclear arsenals in Pakistan and India portend regional and global catastrophe. <i>Science Advances</i> , 2019, 5, eaay5478.	4.7	43
21	Efficient In-Cloud Removal of Aerosols by Deep Convection. <i>Geophysical Research Letters</i> , 2019, 46, 1061-1069.	1.5	48
22	High-altitude water ice cloud formation on Mars controlled by interplanetary dust particles. <i>Nature Geoscience</i> , 2019, 12, 516-521.	5.4	23
23	Comment on “Climate Impact of a Regional Nuclear Weapon Exchange: An Improved Assessment Based on Detailed Source Calculations” by Reisner et al.. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 12953-12958.	1.2	10
24	Stratospheric Aerosols, Polar Stratospheric Clouds, and Polar Ozone Depletion After the Mount Calbuco Eruption in 2015. <i>Journal of Geophysical Research D: Atmospheres</i> , 2018, 123, 12,308.	1.2	31
25	Evaluating Climate Sensitivity to CO ₂ Across Earth's History. <i>Journal of Geophysical Research D: Atmospheres</i> , 2018, 123, 11,861.	1.2	16
26	Volcanic Radiative Forcing From 1979 to 2015. <i>Journal of Geophysical Research D: Atmospheres</i> , 2018, 123, 12491-12508.	1.2	87
27	Ash Particles Detected in the Tropical Lower Stratosphere. <i>Geophysical Research Letters</i> , 2018, 45, 11,483.	1.5	4
28	Effects of Scavenging, Entrainment, and Aqueous Chemistry on Peroxides and Formaldehyde in Deep Convective Outflow Over the Central and Southeast United States. <i>Journal of Geophysical Research D: Atmospheres</i> , 2018, 123, 7594-7614.	1.2	15
29	The NASA Airborne Tropical Tropopause Experiment: High-Altitude Aircraft Measurements in the Tropical Western Pacific. <i>Bulletin of the American Meteorological Society</i> , 2017, 98, 129-143.	1.7	79
30	Efficient transport of tropospheric aerosol into the stratosphere via the Asian summer monsoon anticyclone. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 6972-6977.	3.3	106
31	Development of a Polar Stratospheric Cloud Model Within the Community Earth System Model: Assessment of 2010 Antarctic Winter. <i>Journal of Geophysical Research D: Atmospheres</i> , 2017, 122, 10,418.	1.2	11
32	On transient climate change at the Cretaceous~Paleogene boundary due to atmospheric soot injections. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, E7415-E7424.	3.3	69
33	Asia Treads the Nuclear Path, Unaware That Self-Assured Destruction Would Result from Nuclear War. <i>Journal of Asian Studies</i> , 2017, 76, 437-456.	0.0	9
34	Comparing simulated PSC optical properties with CALIPSO observations during the 2010 Antarctic winter. <i>Journal of Geophysical Research D: Atmospheres</i> , 2017, 122, 1175-1202.	1.2	14
35	Planning, implementation, and scientific goals of the Studies of Emissions and Atmospheric Composition, Clouds and Climate Coupling by Regional Surveys (SEAC ⁴ RS) field mission. <i>Journal of Geophysical Research D: Atmospheres</i> , 2016, 121, 4967-5009.	1.2	158
36	Radiative forcing from anthropogenic sulfur and organic emissions reaching the stratosphere. <i>Geophysical Research Letters</i> , 2016, 43, 9361-9367.	1.5	25

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37	Designing global climate and atmospheric chemistry simulations for 1 and 10 μ m diameter asteroid impacts using the properties of ejecta from the K-Pg impact. Atmospheric Chemistry and Physics, 2016, 16, 13185-13212.	1.9	24
38	Surface dimming by the 2013 Rim Fire simulated by a sectional aerosol model. Journal of Geophysical Research D: Atmospheres, 2016, 121, 7079-7087.	1.2	16
39	Wet scavenging of soluble gases in DC3 deep convective storms using WRF+Chem simulations and aircraft observations. Journal of Geophysical Research D: Atmospheres, 2016, 121, 4233-4257.	1.2	29
40	Composition and physical properties of the Asian Tropopause Aerosol Layer and the North American Tropospheric Aerosol Layer. Geophysical Research Letters, 2015, 42, 2540-2546.	1.5	55
41	The evolution of habitable climates under the brightening Sun. Journal of Geophysical Research D: Atmospheres, 2015, 120, 5775-5794.	1.2	130
42	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.	1.3	33
43	Development of a Polar Stratospheric Cloud Model within the Community Earth System Model using constraints on Type I PSCs from the 2010-2011 Arctic winter. Journal of Advances in Modeling Earth Systems, 2015, 7, 551-585.	1.3	18
44	The contribution of anthropogenic SO ₂ emissions to the Asian tropopause aerosol layer. Journal of Geophysical Research D: Atmospheres, 2014, 119, 1571-1579.	1.2	30
45	Multidecadal global cooling and unprecedented ozone loss following a regional nuclear conflict. Earth's Future, 2014, 2, 161-176.	2.4	74
46	Delayed onset of runaway and moist greenhouse climates for Earth. Geophysical Research Letters, 2014, 41, 167-172.	1.5	90
47	Hospitable Archean Climates Simulated by a General Circulation Model. Astrobiology, 2013, 13, 656-673.	1.5	112
48	K μ Pg extinction patterns in marine and freshwater environments: The impact winter model. Journal of Geophysical Research G: Biogeosciences, 2013, 118, 1006-1014.	1.3	38
49	Recent anthropogenic increases in SO ₂ from Asia have minimal impact on stratospheric aerosol. Geophysical Research Letters, 2013, 40, 999-1004.	1.5	89
50	K μ Pg extinction: Reevaluation of the heat-fire hypothesis. Journal of Geophysical Research G: Biogeosciences, 2013, 118, 329-336.	1.3	39
51	Building a sectional aerosol model in CAM5. , 2013, , .		0
52	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.	3.3	113
53	Microphysical simulations of large volcanic eruptions: Pinatubo and Toba. Journal of Geophysical Research D: Atmospheres, 2013, 118, 1880-1895.	1.2	80
54	Improved cirrus simulations in a general circulation model using CARMA sectional microphysics. Journal of Geophysical Research D: Atmospheres, 2013, 118, 11,679.	1.2	20

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55	Physics of a Thick Seasonal Snowpack with Possible Implications for Snow Algae. Arctic, Antarctic, and Alpine Research, 2012, 44, 36-49.	0.4	6
56	Self-assured destruction: The climate impacts of nuclear war. Bulletin of the Atomic Scientists, 2012, 68, 66-74.	0.2	42
57	Modeled optical thickness of sea-salt aerosol. Journal of Geophysical Research, 2011, 116, .	3.3	14
58	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
59	Implications of extinction due to meteoritic smoke in the upper stratosphere. Geophysical Research Letters, 2011, 38, .	1.5	49
60	Microphysical simulations of new particle formation in the upper troposphere and lower stratosphere. Atmospheric Chemistry and Physics, 2011, 11, 9303-9322.	1.9	70
61	Numerical simulations of the three-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
62	Planning, implementation, and first results of the Tropical Composition, Cloud and Climate Coupling Experiment (TC4). Journal of Geophysical Research, 2010, 115, .	3.3	120
63	Fractal Organic Hazes Provided an Ultraviolet Shield for Early Earth. Science, 2010, 328, 1266-1268.	6.0	139
64	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.	1.5	26
65	Numerical simulations of Asian dust storms using a coupled climate-aerosol microphysical model. Journal of Geophysical Research, 2009, 114, .	3.3	17
66	Modeling the transport and optical properties of smoke plumes from South American biomass burning. Journal of Geophysical Research, 2008, 113, .	3.3	16
67	Numerical simulations of the three-dimensional distribution of meteoric dust in the mesosphere and upper stratosphere. Journal of Geophysical Research, 2008, 113, .	3.3	159
68	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.	3.3	114
69	Environmental consequences of nuclear war. Physics Today, 2008, 61, 37-42.	0.3	63
70	Formation of large ($\approx 100 \mu\text{m}$) ice crystals near the tropical tropopause. Atmospheric Chemistry and Physics, 2008, 8, 1621-1633.	1.9	69
71	Consequences of Regional-Scale Nuclear Conflicts. Science, 2007, 315, 1224-1225.	6.0	51
72	Atmospheric effects and societal consequences of regional scale nuclear conflicts and acts of individual nuclear terrorism. Atmospheric Chemistry and Physics, 2007, 7, 1973-2002.	1.9	82

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73	Climatic consequences of regional nuclear conflicts. Atmospheric Chemistry and Physics, 2007, 7, 2003-2012.	1.9	124
74	Nitric acid condensation on ice: 2. Kinetic limitations, a possible "cloud clock" for determining cloud parcel lifetime. Journal of Geophysical Research, 2007, 112, .	3.3	3
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	The Continuing Environmental Threat of Nuclear Weapons: Integrated Policy Responses. Eos, 2007, 88, 228.	0.1	4
77	Modeling water ice lifetimes at recent Martian gully locations. Geophysical Research Letters, 2007, 34, .	1.5	6
78	Role of deep convection in establishing the isotopic composition of water vapor in the tropical transition layer. Geophysical Research Letters, 2006, 33, .	1.5	37
79	Nitric acid condensation on ice: 1. Non-HNO ₃ constituent of NO _y condensing cirrus particles on upper tropospheric. Journal of Geophysical Research, 2006, 111, .	3.3	3
80	Measurements of the vapor pressure of cubic ice and their implications for atmospheric ice clouds. Geophysical Research Letters, 2006, 33, .	1.5	93
81	Response to Comment on "A Hydrogen-Rich Early Earth Atmosphere". Science, 2006, 311, 38b-38b.	6.0	28
82	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.	0.4	17
83	Catastrophic ozone loss during passage of the Solar system through an interstellar cloud. Geophysical Research Letters, 2005, 32, .	1.5	17
84	Passing through a giant molecular cloud: "Snowball" glaciations produced by interstellar dust. Geophysical Research Letters, 2005, 32, .	1.5	42
85	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
86	Infrared characterization of water uptake by low-temperature Na-montmorillonite: Implications for Earth and Mars. Journal of Geophysical Research, 2005, 110, .	3.3	49
87	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
88	Mystery of the volcanic mass-independent sulfur isotope fractionation signature in the Antarctic ice core. Geophysical Research Letters, 2005, 32, n/a-n/a.	1.5	33
89	Hydrodynamic escape of nitrogen from Pluto. Geophysical Research Letters, 2005, 32, n/a-n/a.	1.5	56
90	Mesospheric sulfate aerosol layer. Journal of Geophysical Research, 2005, 110, .	3.3	33

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91	Polar stratospheric clouds during SOLVE/THESEO: Comparison of lidar observations with in situ measurements. <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	11
92	Properties of methane clouds on Titan: Results from microphysical modeling. <i>Geophysical Research Letters</i> , 2004, 31, n/a-n/a.	1.5	22
93	Chemical composition of Titan's haze: Are PAHs present?. <i>Geophysical Research Letters</i> , 2004, 31, n/a-n/a.	1.5	30
94	Uptake of reactive nitrogen on cirrus cloud particles in the upper troposphere and lowermost stratosphere. <i>Geophysical Research Letters</i> , 2003, 30, .	1.5	32
95	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. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	49
96	Saharan dust transport to the Caribbean during PRIDE: 2. Transport, vertical profiles, and deposition in simulations of in situ and remote sensing observations. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	71
97	Measurements of large stratospheric particles in the Arctic polar vortex. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	15
98	Carbon dioxide clouds in an early dense Martian atmosphere. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	92
99	Formation of convective carbon dioxide clouds near the south pole of Mars. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	42
100	Impact of polar stratospheric cloud particle composition, number density, and lifetime on denitrification. <i>Journal of Geophysical Research</i> , 2002, 107, SOL 27-1.	3.3	28
101	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. <i>Journal of Geophysical Research</i> , 2002, 107, AAC 4-1.	3.3	84
102	Carbon dioxide snow storms during the polar night on Mars. <i>Journal of Geophysical Research</i> , 2002, 107, 5-1.	3.3	47
103	Aircraft observations of thin cirrus clouds near the tropical tropopause. <i>Journal of Geophysical Research</i> , 2001, 106, 9765-9786.	3.3	122
104	Mineral aerosol production, transport, and removal during ACE-2: Comparisons of an event model to satellite. <i>AIP Conference Proceedings</i> , 2000, , .	0.3	0
105	ATMOSPHERIC SCIENCE:How Pollution Suppresses Rain. <i>Science</i> , 2000, 287, 1763-1765.	6.0	46
106	Influence of the aerosol vertical distribution on the retrievals of aerosol optical depth from satellite radiance measurements. <i>Geophysical Research Letters</i> , 2000, 27, 3457-3460.	1.5	28
107	Meteoric smoke production in the atmosphere. <i>Geophysical Research Letters</i> , 2000, 27, 3293-3296.	1.5	65
108	A surface chemistry model for nonreactive trace gas adsorption on ice: Implications for nitric acid scavenging by cirrus. <i>Geophysical Research Letters</i> , 1999, 26, 2211-2214.	1.5	45

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109	Nitric acid scavenging by mineral and biomass burning aerosols. <i>Geophysical Research Letters</i> , 1998, 25, 4185-4188.	1.5	97
110	Ice nucleation processes in upper tropospheric wave-clouds observed during SUCCESS. <i>Geophysical Research Letters</i> , 1998, 25, 1363-1366.	1.5	116
111	Subsonic aircraft: Contrail and cloud effects special study (SUCCESS). <i>Geophysical Research Letters</i> , 1998, 25, 1109-1112.	1.5	64
112	A new parameterization of H ₂ SO ₄ /H ₂ O aerosol composition: Atmospheric implications. <i>Geophysical Research Letters</i> , 1997, 24, 1931-1934.	1.5	99
113	Formation and implications of ice particle nucleation in the stratosphere. <i>Geophysical Research Letters</i> , 1997, 24, 2007-2010.	1.5	48
114	Dehydration of the upper troposphere and lower stratosphere by subvisible cirrus clouds near the tropical tropopause. <i>Geophysical Research Letters</i> , 1996, 23, 825-828.	1.5	141
115	The potential effects of volcanic aerosols on cirrus cloud microphysics. <i>Geophysical Research Letters</i> , 1992, 19, 1759-1762.	1.5	61
116	Climate and smoke: an appraisal of nuclear winter. <i>Science</i> , 1990, 247, 166-176.	6.0	122
117	Self-limiting physical and chemical effects in volcanic eruption clouds. <i>Journal of Geophysical Research</i> , 1989, 94, 11165-11174.	3.3	261
118	Physical processes in polar stratospheric ice clouds. <i>Journal of Geophysical Research</i> , 1989, 94, 11359-11380.	3.3	208
119	Rapid calculation of radiative heating rates and photodissociation rates in inhomogeneous multiple scattering atmospheres. <i>Journal of Geophysical Research</i> , 1989, 94, 16287-16301.	3.3	790
120	A Multidimensional Model for Aerosols: Description of Computational Analogs. <i>Journals of the Atmospheric Sciences</i> , 1988, 45, 2123-2144.	0.6	307
121	Nuclear winter: Three-dimensional simulations including interactive transport, scavenging, and solar heating of smoke. <i>Journal of Geophysical Research</i> , 1986, 91, 1039-1053.	3.3	92
122	Condensation of HNO ₃ and HCl in the winter polar stratospheres. <i>Geophysical Research Letters</i> , 1986, 13, 1284-1287.	1.5	488
123	Influence of Solar Heating and Precipitation Scavenging on the Simulated Lifetime of Post-Nuclear War Smoke. <i>Science</i> , 1985, 230, 317-319.	6.0	31
124	The 1980 eruptions of Mount St. Helens: Physical and chemical processes in the stratospheric clouds. <i>Journal of Geophysical Research</i> , 1983, 88, 5299-5319.	3.3	49
125	Nuclear Winter: Global Consequences of Multiple Nuclear Explosions. <i>Science</i> , 1983, 222, 1283-1292.	6.0	705
126	Absorption of visible radiation in atmosphere containing mixtures of absorbing and nonabsorbing particles. <i>Applied Optics</i> , 1981, 20, 3661.	2.1	365

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127	A One-Dimensional Model Describing Aerosol Formation and Evolution in the Stratosphere: I. Physical Processes and Mathematical Analogs. <i>Journals of the Atmospheric Sciences</i> , 1979, 36, 699-717.	0.6	274