Michael J Prather

List of Publications by Year
in descending order

110 papers	12,696 citations	47006 47 h-index	27406 106 g-index
144 all docs	144 docs citations	144 times ranked	9472 citing authors

#	ARTICLE	IF	CITATIONS
1	Tropospheric chemistry: A global perspective. Journal of Geophysical Research, 1981, 86, 7210-7254.	3.3	1,715
2	Towards robust regional estimates of CO2 sources and sinks using atmospheric transport models. Nature, 2002, 415, 626-630.	27.8	1,157
3	A comprehensive quantification of global nitrous oxide sources and sinks. Nature, 2020, 586, 248-256.	27.8	814
4	Numerical advection by conservation of secondâ€order moments. Journal of Geophysical Research, 1986, 91, 6671-6681.	3.3	756
5	Fast-J: Accurate Simulation of In- and Below-Cloud Photolysis in Tropospheric Chemical Models. Journal of Atmospheric Chemistry, 2000, 37, 245-282.	3.2	537
6	Global air quality and climate. Chemical Society Reviews, 2012, 41, 6663.	38.1	428
7	Reactive greenhouse gas scenarios: Systematic exploration of uncertainties and the role of atmospheric chemistry. Geophysical Research Letters, 2012, 39, .	4.0	406
8	Preindustrial to present-day changes in tropospheric hydroxyl radical and methane lifetime from the Atmospheric Chemistry and Climate Model Intercomparison Project (ACCMIP). Atmospheric Chemistry and Physics, 2013, 13, 5277-5298.	4.9	288
9	Chemistry of the global troposphere: Fluorocarbons as tracers of air motion. Journal of Geophysical Research, 1987, 92, 6579-6613.	3.3	287
10	Analysis of present day and future OH and methane lifetime in the ACCMIP simulations. Atmospheric Chemistry and Physics, 2013, 13, 2563-2587.	4.9	257
11	TransCom 3 CO2 inversion intercomparison: 1. Annual mean control results and sensitivity to transport and prior flux information. Tellus, Series B: Chemical and Physical Meteorology, 2003, 55, 555-579.	1.6	235
12	Fast-J2: Accurate Simulation of Stratospheric Photolysis in Global Chemical Models. Journal of Atmospheric Chemistry, 2002, 41, 281-296.	3.2	213
13	AerChemMIP: quantifying the effects of chemistry and aerosols in CMIP6. Geoscientific Model Development, 2017, 10, 585-607.	3.6	202
14	Fresh air in the 21st century?. Geophysical Research Letters, 2003, 30, .	4.0	192
15	Young people's burden: requirement of negative CO₂ emissions. Earth System Dynamics, 2017, 8, 577-616.	7.1	189
16	Stratospheric ozone depletion and future levels of atmospheric chlorine and bromine. Nature, 1990, 344, 729-734.	27.8	179
17	Indirect long-term global radiative cooling from NOxEmissions. Geophysical Research Letters, 2001, 28, 1719-1722.	4.0	178
18	Future methane, hydroxyl, and their uncertainties: key climate and emission parameters for future predictions. Atmospheric Chemistry and Physics, 2013, 13, 285-302.	4.9	171

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19	Reductions in ozone at high concentrations of stratospheric halogens. Nature, 1984, 312, 227-231.	27.8	166
20	A persistent imbalance in HOxand NOxphotochemistry of the upper troposphere driven by deep tropical convection. Geophysical Research Letters, 1997, 24, 3189-3192.	4.0	165
21	Recent decreases in fossil-fuel emissions of ethane and methane derived from firn air. Nature, 2011, 476, 198-201.	27.8	156
22	Time scales in atmospheric chemistry: Theory, GWPs for CH4and CO, and runaway growth. Geophysical Research Letters, 1996, 23, 2597-2600.	4.0	153
23	Measuring and modeling the lifetime of nitrous oxide including its variability. Journal of Geophysical Research D: Atmospheres, 2015, 120, 5693-5705.	3.3	151
24	Global tropospheric ozone modeling: Quantifying errors due to grid resolution. Journal of Geophysical Research, 2006, 111, .	3.3	135
25	Co-occurrence of extremes in surface ozone, particulate matter, and temperature over eastern North America. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 2854-2859.	7.1	131
26	Intercontinental Impacts of Ozone Pollution on Human Mortality. Environmental Science & Technology, 2009, 43, 6482-6487.	10.0	126
27	Lifetimes and eigenstates in atmospheric chemistry. Geophysical Research Letters, 1994, 21, 801-804.	4.0	119
28	Tropospheric OH and the lifetimes of hydrochlorofluorocarbons. Journal of Geophysical Research, 1990, 95, 18723-18729.	3.3	116
29	Stratospheric variability and tropospheric ozone. Journal of Geophysical Research, 2009, 114, .	3.3	114
30	Global impact of the Antarctic ozone hole: Chemical propagation. Journal of Geophysical Research, 1990, 95, 3473-3492.	3.3	113
31	TransCom 3 CO₂ inversion intercomparison: 1. Annual mean control results and sensitivity to transport and prior flux information. Tellus, Series B: Chemical and Physical Meteorology, 2022, 55, 555.	1.6	105
32	Time Scales in Atmospheric Chemistry: Coupled Perturbations to N2O, NOy, and O3. Science, 1998, 279, 1339-1341.	12.6	102
33	Excitation of the primary tropospheric chemical mode in a global three-dimensional model. Journal of Geophysical Research, 2000, 105, 24647-24660.	3.3	98
34	Diagnosing the stratosphere-to-troposphere flux of ozone in a chemistry transport model. Journal of Geophysical Research, 2005, 110, .	3.3	95
35	Multi-model simulations of aerosol and ozone radiative forcing due to anthropogenic emission changes during the periodÂ1990â€“2015. Atmospheric Chemistry and Physics, 2017, 17, 2709-2720.	4.9	87
36	Radon-222 as a test of convective transport in a general circulation model. Tellus, Series B: Chemical and Physical Meteorology, 1990, 42, 118-134.	1.6	82

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37	An atmospheric chemist in search of the tropopause. Journal of Geophysical Research, 2011, 116, .	3.3	82
38	Oxidation of CS2 and COS: sources for atmospheric SO2. Nature, 1979, 281, 185-188.	27.8	79
39	Global atmospheric chemistry: Integrating over fractional cloud cover. Journal of Geophysical Research, 2007, 112, .	3.3	76
40	NF₃, the greenhouse gas missing from Kyoto. Geophysical Research Letters, 2008, 35, .	4.0	76
41	Coupling of Nitrous Oxide and Methane by Global Atmospheric Chemistry. Science, 2010, 330, 952-954.	12.6	73
42	More rapid polar ozone depletion through the reaction of HOCl with HCl on polar stratospheric clouds. Nature, 1992, 355, 534-537.	27.8	69
43	Results from the Intergovernmental Panel on Climatic Change Photochemical Model Intercomparison (PhotoComp). Journal of Geophysical Research, 1997, 102, 5979-5991.	3.3	68
44	Uncertainties in climate assessment for the case of aviation NO. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 10997-11002.	7.1	67
45	ATMOSPHERIC SCIENCE: An Environmental Experiment with H2?. Science, 2003, 302, 581-582.	12.6	65
46	The ozone layer: the road not taken. Nature, 1996, 381, 551-554.	27.8	64
47	Chemical transport model ozone simulations for spring 2001 over the western Pacific: Comparisons with TRACE-P lidar, ozonesondes, and Total Ozone Mapping Spectrometer columns. Journal of Geophysical Research, 2003, 108, .	3.3	64
48	Noble gases in the terrestrial planets. Nature, 1981, 293, 535-539.	27.8	60
49	Quantifying errors in trace species transport modeling. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 19617-19621.	7.1	59
50	Tropospheric aerosol impacts on trace gas budgets through photolysis. Journal of Geophysical Research, 2003, 108, .	3.3	55
51	Tracer-tracer correlations: Three-dimensional model simulations and comparisons to observations. Journal of Geophysical Research, 1997, 102, 19233-19246.	3.3	51
52	Lifetimes and time scales in atmospheric chemistry. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2007, 365, 1705-1726.	3.4	50
53	Use of North American and European air quality networks to evaluate global chemistryâ€“climate modeling of surface ozone. Atmospheric Chemistry and Physics, 2015, 15, 10581-10596.	4.9	50
54	Simulations of the trend and annual cycle in stratospheric CO₂. Journal of Geophysical Research, 1993, 98, 10573-10581.	3.3	49

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55	The climate impact of ship NO_x emissions: an improved estimate accounting for plume chemistry. Atmospheric Chemistry and Physics, 2014, 14, 6801-6812.	4.9	47
56	A standard test case suite for two-dimensional linear transport on the sphere: results from a collection of state-of-the-art schemes. Geoscientific Model Development, 2014, 7, 105-145.	3.6	46
57	Skill in forecasting extreme ozone pollution episodes with a global atmospheric chemistry model. Atmospheric Chemistry and Physics, 2014, 14, 7721-7739.	4.9	46
58	Effect of climate change on surface ozone over North America, Europe, and East Asia. Geophysical Research Letters, 2016, 43, 3509-3518.	4.0	46
59	CO2source inversions using satellite observations of the upper troposphere. Geophysical Research Letters, 2001, 28, 4571-4574.	4.0	43
60	Seasonal evolutions of N2O, O3, and CO2: Three-dimensional simulations of stratospheric correlations. Journal of Geophysical Research, 1995, 100, 16699.	3.3	42
61	Short-lived uncertainty?. Nature Geoscience, 2010, 3, 587-588.	12.9	42
62	The NASA Atmospheric Tomography (ATom) Mission: Imaging the Chemistry of the Global Atmosphere. Bulletin of the American Meteorological Society, 2022, 103, E761-E790.	3.3	39
63	Continental sources of halocarbons and nitrous oxide. Nature, 1985, 317, 221-225.	27.8	38
64	Global longâ€lived chemical modes excited in a 3â€D chemistry transport model: Stratospheric N₂O, NO_{<i>y</i>}, O₃ and CH₄ chemistry. Geophysical Research Letters, 2010, 37, .	4.0	34
65	Cloud impacts on photochemistry: building a climatology of photolysis rates from the Atmospheric Tomography mission. Atmospheric Chemistry and Physics, 2018, 18, 16809-16828.	4.9	34
66	Antarctic ozone: Meteoric control of HNO₃. Geophysical Research Letters, 1988, 15, 1-4.	4.0	32
67	Global atmospheric chemistry â€" which air matters. Atmospheric Chemistry and Physics, 2017, 17, 9081-9102.	4.9	32
68	Overexplaining or underexplaining methaneâ€™s role in climate change. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 5324-5326.	7.1	31
69	Bromine-chlorine coupling in the Antarctic Ozone Hole. Geophysical Research Letters, 1996, 23, 153-156.	4.0	27
70	Aerosol data assimilation in the chemical transport model MOCAGE during the TRAQA/ChArMEx campaign: aerosol optical depth. Atmospheric Measurement Techniques, 2016, 9, 5535-5554.	3.1	27
71	Oceanic alkyl nitrates as a natural source of tropospheric ozone. Geophysical Research Letters, 2008, 35, .	4.0	26
72	Evaluating ozone depletion from very short-lived halocarbons. Geophysical Research Letters, 2000, 27, 1475-1478.	4.0	25

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73	Tracking uncertainties in the causal chain from human activities to climate. Geophysical Research Letters, 2009, 36, .	4.0	25
74	European sources of halocarbons and nitrous oxide: Update 1986. Journal of Atmospheric Chemistry, 1988, 6, 375-406.	3.2	24
75	Better protection of the ozone layer. Nature, 1994, 367, 505-508.	27.8	23
76	The seasonality and geographic dependence of ENSO impacts on U.S. surface ozone variability. Geophysical Research Letters, 2017, 44, 3420-3428.	4.0	21
77	Are the TRACE-P measurements representative of the western Pacific during March 2001?. Journal of Geophysical Research, 2004, 109, .	3.3	20
78	Photolysis rates in correlated overlapping cloud fields: Cloud-J 7.3c. Geoscientific Model Development, 2015, 8, 2587-2595.	3.6	20
79	Large changes in biomass burning over the last millennium inferred from paleoatmospheric ethane in polar ice cores. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12413-12418.	7.1	20
80	Is the residual vertical velocity a good proxy for stratosphereâ€troposphere exchange of ozone?. Geophysical Research Letters, 2014, 41, 9024-9032.	4.0	19
81	Global warming from chlorofluorocarbons and their alternatives: Time scales of chemistry and climate. Atmospheric Environment Part A General Topics, 1993, 27, 581-587.	1.3	18
82	Timescales in atmospheric chemistry: CH3Br, the ocean, and ozone depletion potentials. Global Biogeochemical Cycles, 1997, 11, 393-400.	4.9	17
83	Effects of Chemical Feedbacks on Decadal Methane Emissions Estimates. Geophysical Research Letters, 2020, 47, e2019GL085706.	4.0	17
84	Photoelectrons in the upper atmosphere: A formulation incorporating effects of transport. Planetary and Space Science, 1978, 26, 131-138.	1.7	15
85	Iconic CO ₂ Time Series at Risk. Science, 2012, 337, 1038-1040.	12.6	15
86	How well can global chemistry models calculate the reactivity of short-lived greenhouse gases in the remote troposphere, knowing the chemical composition. Atmospheric Measurement Techniques, 2018, 11, 2653-2668.	3.1	15
87	Uncertain road to ozone recovery. Nature, 1999, 398, 663-664.	27.8	14
88	Multi-model impacts of climate change on pollution transport from global emission source regions. Atmospheric Chemistry and Physics, 2017, 17, 14219-14237.	4.9	14
89	Tropospheric O₃ from photolysis of O₂. Geophysical Research Letters, 2009, 36, .	4.0	13
90	Future impact of traffic emissions on atmospheric ozone and OH based on two scenarios. Atmospheric Chemistry and Physics, 2012, 12, 12211-12225.	4.9	13

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91	Lifetimes of atmospheric species: Integrating environmental impacts. Geophysical Research Letters, 2002, 29, 20-1-20-3.	4.0	12
92	How Atmospheric Chemistry and Transport Drive Surface Variability of N 2 O and CFCâ€11. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2020JD033979.	3.3	11
93	Forecasting carbon monoxide on a global scale for the ATom-1 aircraft mission: insights from airborne and satellite observations and modeling. Atmospheric Chemistry and Physics, 2018, 18, 10955-10971.	4.9	10
94	Reconstruction of Paleofire Emissions Over the Past Millennium From Measurements of Ice Core Acetylene. Geophysical Research Letters, 2020, 47, e2019GL085101.	4.0	9
95	Evaluation of the interactive stratospheric ozone (O3v2) module in the E3SM version 1 Earth system model. Geoscientific Model Development, 2021, 14, 1219-1236.	3.6	9
96	From the middle stratosphere to the surface, using nitrous oxide to constrain the stratosphereâ€“troposphere exchange of ozone. Atmospheric Chemistry and Physics, 2022, 22, 2079-2093.	4.9	9
97	Reply [to â€œComment on â€˜The space shuttle's impact on the stratosphereâ€™ by Michael J. Prather et al.â€]. Journal of Geophysical Research, 1991, 96, 17379-17381.	3.3	8
98	Data-rate-aware FPGA-based acceleration framework for streaming applications. , 2016, , .		7
99	Correction to â€œNF₃, the greenhouse gas missing from Kyotoâ€ Geophysical Research Letters, 2010, 37, .	4.0	6
100	Extracting a History of Global Fire Emissions for the Past Millennium From Ice Core Records of Acetylene, Ethane, and Methane. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2020JD032932.	3.3	5
101	A round Earth for climate models. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 19330-19335.	7.1	4
102	Heterogeneity and chemical reactivity of the remote troposphere defined by aircraft measurements. Atmospheric Chemistry and Physics, 2021, 21, 13729-13746.	4.9	4
103	A perspective on time: loss frequencies, time scales and lifetimes. Environmental Chemistry, 2013, 10, 73.	1.5	4
104	Stratospheric ozone, global warming, and the principle of unintended consequencesâ€”An ongoing science and policy story. Journal of the Air and Waste Management Association, 2013, 63, 1235-1244.	1.9	3
105	Sensitivity of stratospheric dynamics to uncertainty in O₃ production. Journal of Geophysical Research D: Atmospheres, 2013, 118, 8984-8999.	3.3	3
106	A radiative transfer module for calculating photolysis rates and solar heating in climate models: Solar-J v7.5. Geoscientific Model Development, 2017, 10, 2525-2545.	3.6	3
107	F. Sherwood Rowland (1927â€“2012). Nature, 2012, 484, 168-168.	27.8	2
108	CO₂ surface variability: from the stratosphere or not?. Earth System Dynamics, 2022, 13, 703-709.	7.1	1

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109	GEMS, goals, thanks, and farewell. Geophysical Research Letters, 2001, 28, 4515-4516.	4.0	0
110	Assessing Uncertainties and Approximations in Solar Heating of the Climate System. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002131.	3.8	0