Michael J Prather

List of Publications by Year in Descending Order

109 papers	10,047 citations	49 h-index	100 g-index
144 ext. papers	11,348 ext. citations	13.7 avg, IF	6.07 L-index

#	Paper	IF	Citations
109	From the middle stratosphere to the surface, using nitrous oxide to constrain the stratosphere□troposphere exchange of ozone. *Atmospheric Chemistry and Physics*, **2022**, 22, 2079-2093	6.8	1
108	CO₂ surface variability: from the stratosphere or not?. *Earth System Dynamics*, **2022**, 13, 703-709	4.8	
107	THE NASA ATMOSPHERIC TOMOGRAPHY (ATom) MISSION: Imaging the Chemistry of the Global Atmosphere. *Bulletin of the American Meteorological Society*, **2021**, 1-53	6.1	6
106	Evaluation of the interactive stratospheric ozone (O3v2) module in the E3SM version 1 Earth system model. *Geoscientific Model Development*, **2021**, 14, 1219-1236	6.3	2
105	How Atmospheric Chemistry and Transport Drive Surface Variability of N2O and CFC-11. *Journal of Geophysical Research D: Atmospheres*, **2021**, 126, e2020JD033979	4.4	5
104	Assessing Uncertainties and Approximations in Solar Heating of the Climate System. *Journal of Advances in Modeling Earth Systems*, **2021**, 13, e2020MS002131	7.1	
103	Heterogeneity and chemical reactivity of the remote troposphere defined by aircraft measurements. *Atmospheric Chemistry and Physics*, **2021**, 21, 13729-13746	6.8	1
102	Reconstruction of Paleofire Emissions Over the Past Millennium From Measurements of Ice Core Acetylene. *Geophysical Research Letters*, **2020**, 47, e2019GL085101	4.9	5
101	Effects of Chemical Feedbacks on Decadal Methane Emissions Estimates. *Geophysical Research Letters*, **2020**, 47, e2019GL085706	4.9	10
100	A comprehensive quantification of global nitrous oxide sources and sinks. *Nature*, **2020**, 586, 248-256	50.4	270
99	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	4.4	2
98	A round Earth for climate models. *Proceedings of the National Academy of Sciences of the United States of America*, **2019**, 116, 19330-19335	11.5	2
97	Cloud impacts on photochemistry: building a climatology of photolysis rates from the Atmospheric Tomography mission. *Atmospheric Chemistry and Physics*, **2018**, 18, 16809-16828	6.8	18
96	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	11.5	14
95	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	6.8	4
94	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	4	9
93	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	11.5	83

92	Overexplaining or underexplaining methane's role in climate change. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, 5324-5326	11.5	25
91	The seasonality and geographic dependence of ENSO impacts on U.S. surface ozone variability. *Geophysical Research Letters*, **2017**, 44, 3420-3428	4.9	15
90	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	6.3	3
89	Global atmospheric chemistry – which air matters. *Atmospheric Chemistry and Physics*, **2017**, 17, 9081-9102	6.8	22
88	Multi-model simulations of aerosol and ozone radiative forcing due to anthropogenic emission changes during the period 1990–2015. *Atmospheric Chemistry and Physics*, **2017**, 17, 2709-2720	6.8	55
87	Multi-model impacts of climate change on pollution transport from global emission source regions. *Atmospheric Chemistry and Physics*, **2017**, 17, 14219-14237	6.8	9
86	AerChemMIP: quantifying the effects of chemistry and aerosols in CMIP6. *Geoscientific Model Development*, **2017**, 10, 585-607	6.3	119
85	Young people's burden: requirement of negative CO₂ emissions. *Earth System Dynamics*, **2017**, 8, 577-616	4.8	127
84	Multi-model simulations of aerosol and ozone radiative forcing for the period 1990–2015 **2016**,		1
83	Effect of climate change on surface ozone over North America, Europe, and East Asia. *Geophysical Research Letters*, **2016**, 43, 3509-3518	4.9	31
82	Young People's Burden: Requirement of Negative CO₂ Emissions **2016**,		10
81	Aerosol data assimilation in the chemical transport model MOCAGE during the TRAQA/ChArMEx campaign: aerosol optical depth. *Atmospheric Measurement Techniques*, **2016**, 9, 5535-5554	4	19
80	Data-rate-aware FPGA-based acceleration framework for streaming applications **2016**,		6
79	Measuring and modeling the lifetime of nitrous oxide including its variability. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 5693-5705	4.4	90
78	Use of North American and European air quality networks to evaluate global chemistry–climate modeling of surface ozone. *Atmospheric Chemistry and Physics*, **2015**, 15, 10581-10596	6.8	35
77	Photolysis rates in correlated overlapping cloud fields: Cloud-J 7.3c. *Geoscientific Model Development*, **2015**, 8, 2587-2595	6.3	16
76	Is the residual vertical velocity a good proxy for stratosphere-troposphere exchange of ozone?. *Geophysical Research Letters*, **2014**, 41, 9024-9032	4.9	13
75	The climate impact of ship NO_x emissions: an improved estimate accounting for plume chemistry. *Atmospheric Chemistry and Physics*, **2014**, 14, 6801-6812	6.8	30

74	Skill in forecasting extreme ozone pollution episodes with a global atmospheric chemistry model. *Atmospheric Chemistry and Physics*, **2014**, 14, 7721-7739	6.8	37
73	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	6.3	35
72	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	6.8	234
71	Stratospheric ozone, global warming, and the principle of unintended consequences--an ongoing science and policy story. *Journal of the Air and Waste Management Association*, **2013**, 63, 1235-44	2.4	3
70	Analysis of present day and future OH and methane lifetime in the ACCMIP simulations. *Atmospheric Chemistry and Physics*, **2013**, 13, 2563-2587	6.8	209
69	Future methane, hydroxyl, and their uncertainties: key climate and emission parameters for future predictions. *Atmospheric Chemistry and Physics*, **2013**, 13, 285-302	6.8	132
68	Sensitivity of stratospheric dynamics to uncertainty in O3 production. *Journal of Geophysical Research D: Atmospheres*, **2013**, 118, 8984-8999	4.4	3
67	A perspective on time: loss frequencies, time scales and lifetimes. *Environmental Chemistry*, **2013**, 10, 73	3.2	3
66	Iconic CO2 time series at risk. *Science*, **2012**, 337, 1038-40	33.3	13
65	Reactive greenhouse gas scenarios: Systematic exploration of uncertainties and the role of atmospheric chemistry. *Geophysical Research Letters*, **2012**, 39, n/a-n/a	4.9	313
64	Global air quality and climate. *Chemical Society Reviews*, **2012**, 41, 6663-83	58.5	334
63	F. Sherwood Rowland (1927-2012). *Nature*, **2012**, 484, 168	50.4	2
62	Future impact of traffic emissions on atmospheric ozone and OH based on two scenarios. *Atmospheric Chemistry and Physics*, **2012**, 12, 12211-12225	6.8	11
61	An atmospheric chemist in search of the tropopause. *Journal of Geophysical Research*, **2011**, 116,		70
60	Recent decreases in fossil-fuel emissions of ethane and methane derived from firn air. *Nature*, **2011** , 476, 198-201	50.4	140
59	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, 10997-1002	11.5	56
58	Coupling of nitrous oxide and methane by global atmospheric chemistry. *Science*, **2010**, 330, 952-4	33.3	58
57	Global long-lived chemical modes excited in a 3-D chemistry transport model: Stratospheric N2O, NOy, O3 and CH4 chemistry. *Geophysical Research Letters*, **2010**, 37, n/a-n/a	4.9	28

56	Correction to NF3, the greenhouse gas missing from Kyoto *Geophysical Research Letters*, **2010**, 37, n/a-n/a	4.9	6
55	Intercontinental impacts of ozone pollution on human mortality. *Environmental Science & Technology*, **2009**, 43, 6482-7	10.3	109
54	Stratospheric variability and tropospheric ozone. *Journal of Geophysical Research*, **2009**, 114,		89
53	Tracking uncertainties in the causal chain from human activities to climate. *Geophysical Research Letters*, **2009**, 36,	4.9	22
52	Tropospheric O3 from photolysis of O2. *Geophysical Research Letters*, **2009**, 36, n/a-n/a	4.9	10
51	Oceanic alkyl nitrates as a natural source of tropospheric ozone. *Geophysical Research Letters*, **2008**, 35,	4.9	23
50	NF3, the greenhouse gas missing from Kyoto. *Geophysical Research Letters*, **2008**, 35, n/a-n/a	4.9	60
49	Quantifying errors in trace species transport modeling. *Proceedings of the National Academy of Sciences of the United States of America*, **2008**, 105, 19617-21	11.5	52
48	Global atmospheric chemistry: Integrating over fractional cloud cover. *Journal of Geophysical Research*, **2007**, 112,		64
47	Lifetimes and time scales in atmospheric chemistry. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2007**, 365, 1705-26	3	38
46	Global tropospheric ozone modeling: Quantifying errors due to grid resolution. *Journal of Geophysical Research*, **2006**, 111,		116
45	Diagnosing the stratosphere-to-troposphere flux of ozone in a chemistry transport model. *Journal of Geophysical Research*, **2005**, 110,		82
44	Are the TRACE-P measurements representative of the western Pacific during March 2001?. *Journal of Geophysical Research*, **2004**, 109,		19
43	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	3.3	68
42	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	3.3	205
41	Fresh air in the 21st century?. *Geophysical Research Letters*, **2003**, 30,	4.9	152
40	Tropospheric aerosol impacts on trace gas budgets through photolysis. *Journal of Geophysical Research*, **2003**, 108,		48
39	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,		60

38	Atmospheric science. An environmental experiment with H2?. *Science*, **2003**, 302, 581-2	33.3	50
37	Towards robust regional estimates of CO2 sources and sinks using atmospheric transport models. *Nature*, **2002**, 415, 626-30	50.4	998
36	Fast-J2: Accurate Simulation of Stratospheric Photolysis in Global Chemical Models. *Journal of Atmospheric Chemistry*, **2002**, 41, 281-296	3.2	173
35	Lifetimes of atmospheric species: Integrating environmental impacts. *Geophysical Research Letters*, **2002**, 29, 20-1-20-3	4.9	7
34	Indirect long-term global radiative cooling from NOx Emissions. *Geophysical Research Letters*, **2001**, 28, 1719-1722	4.9	151
33	CO2 source inversions using satellite observations of the upper troposphere. *Geophysical Research Letters*, **2001**, 28, 4571-4574	4.9	39
32	GEMS, goals, thanks, and farewell. *Geophysical Research Letters*, **2001**, 28, 4515-4516	4.9	
31	Fast-J: Accurate Simulation of In- and Below-Cloud Photolysis in Tropospheric Chemical Models. *Journal of Atmospheric Chemistry*, **2000**, 37, 245-282	3.2	450
30	Excitation of the primary tropospheric chemical mode in a global three-dimensional model. *Journal of Geophysical Research*, **2000**, 105, 24647-24660		81
29	Evaluating ozone depletion from very short-lived halocarbons. *Geophysical Research Letters*, **2000**, 27, 1475-1478	4.9	23
28	Time scales in atmospheric chemistry: coupled perturbations to N2O, NOy, and O3. *Science*, **1998**, 279, 1339-41	33.3	87
27	Tracer-tracer correlations: Three-dimensional model simulations and comparisons to observations. *Journal of Geophysical Research*, **1997**, 102, 19233-19246		44
26	Timescales in atmospheric chemistry: CH3Br, the ocean, and ozone depletion potentials. *Global Biogeochemical Cycles*, **1997**, 11, 393-400	5.9	16
25	A persistent imbalance in HOx and NOx photochemistry of the upper troposphere driven by deep tropical convection. *Geophysical Research Letters*, **1997**, 24, 3189-3192	4.9	146
24	Results from the Intergovernmental Panel on Climatic Change Photochemical Model Intercomparison (PhotoComp). *Journal of Geophysical Research*, **1997**, 102, 5979-5991		53
23	Bromine-chlorine coupling in the Antarctic Ozone Hole. *Geophysical Research Letters*, **1996**, 23, 153-156	4.9	26
22	Time scales in atmospheric chemistry: Theory, GWPs for CH4 and CO, and runaway growth. *Geophysical Research Letters*, **1996**, 23, 2597-2600	4.9	124
21	Seasonal evolutions of N2O, O3, and CO2: Three-dimensional simulations of stratospheric correlations. *Journal of Geophysical Research*, **1995**, 100, 16699		39

20	Lifetimes and eigenstates in atmospheric chemistry. *Geophysical Research Letters*, **1994**, 21, 801-804	4.9	88
19	Global warming from chlorofluorocarbons and their alternatives: Time scales of chemistry and climate. *Atmospheric Environment Part A General Topics*, **1993**, 27, 581-587		14
18	Simulations of the trend and annual cycle in stratospheric CO_2. *Journal of Geophysical Research*, **1993**, 98, 10573		47
17	More rapid polar ozone depletion through the reaction of HOCl with HCl on polar stratospheric clouds. *Nature*, **1992**, 355, 534-537	50.4	59
16	Reply [to Comment on The space shuttle’s impact on the stratosphere by Michael J. Prather et al.] *Journal of Geophysical Research*, **1991**, 96, 17379		7
15	Stratospheric ozone depletion and future levels of atmospheric chlorine and bromine. *Nature*, **1990**, 344, 729-734	50.4	143
14	. *Tellus, Series B: Chemical and Physical Meteorology*, **1990**, 42, 118-134	3.3	77
13	Global impact of the Antarctic ozone hole: Chemical propagation. *Journal of Geophysical Research*, **1990**, 95, 3473		97
12	Tropospheric OH and the lifetimes of hydrochlorofluorocarbons. *Journal of Geophysical Research*, **1990**, 95, 18723		103
11	European sources of halocarbons and nitrous oxide: Update 1986. *Journal of Atmospheric Chemistry*, **1988**, 6, 375-406	3.2	23
10	Antarctic ozone: Meteoric control of HNO_3. *Geophysical Research Letters*, **1988**, 15, 1-4	4.9	27
9	Chemistry of the global troposphere: Fluorocarbons as tracers of air motion. *Journal of Geophysical Research*, **1987**, 92, 6579		265
8	Numerical advection by conservation of second-order moments. *Journal of Geophysical Research*, **1986**, 91, 6671		657
7	Continental sources of halocarbons and nitrous oxide. *Nature*, **1985**, 317, 221-225	50.4	33
6	Reductions in ozone at high concentrations of stratospheric halogens. *Nature*, **1984**, 312, 227-31	50.4	143
5	Tropospheric chemistry: A global perspective. *Journal of Geophysical Research*, **1981**, 86, 7210		1533
4	Noble gases in the terrestrial planets. *Nature*, **1981**, 293, 535-539	50.4	49
3	Oxidation of CS_2 and COS: sources for atmospheric SO_2. *Nature*, **1979**, 281, 185-188	50.4	65

2	Photoelectrons in the upper atmosphere: A formulation incorporating effects of transport. *Planetary and Space Science*, **1978**, 26, 131-138	2	15
1	AerChemMIP: Quantifying the effects of chemistry and aerosols in CMIP6		7