

N Luke Abraham

List of Publications by Year in descending order

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86
papers

4,040
citations

136740

32
h-index

143772

57
g-index

181
all docs

181
docs citations

181
times ranked

4730
citing authors

#	ARTICLE	IF	CITATIONS
1	UKESM1: Description and Evaluation of the U.K. Earth System Model. <i>Journal of Advances in Modeling Earth Systems</i> , 2019, 11, 4513-4558.	1.3	448
2	Review of the global models used within phase 1 of the Chemistry–Climate Model Initiative (CCMI). <i>Geoscientific Model Development</i> , 2017, 10, 639-671.	1.3	277
3	Evaluation of the new UKCA climate-composition model – Part 2: The Troposphere. <i>Geoscientific Model Development</i> , 2014, 7, 41-91.	1.3	191
4	A periodic genetic algorithm with real-space representation for crystal structure and polymorph prediction. <i>Physical Review B</i> , 2006, 73, .	1.1	145
5	Estimates of ozone return dates from Chemistry-Climate Model Initiative simulations. <i>Atmospheric Chemistry and Physics</i> , 2018, 18, 8409-8438.	1.9	128
6	A large ozone-circulation feedback and its implications for global warming assessments. <i>Nature Climate Change</i> , 2015, 5, 41-45.	8.1	115
7	Description and evaluation of the UKCA stratosphere–troposphere chemistry scheme (StratTrop v _n). <i>Tj ETQq1 1 0.784314 rgBT /Ov</i>	1.3	109
8	Tropospheric ozone in CMIP6 simulations. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 4187-4218.	1.9	89
9	Implementation of the Fast-JX Photolysis scheme (v6.4) into the UKCA component of the MetUM chemistry-climate model (v7.3). <i>Geoscientific Model Development</i> , 2013, 6, 161-177.	1.3	84
10	Implementation of U.K. Earth System Models for CMIP6. <i>Journal of Advances in Modeling Earth Systems</i> , 2020, 12, e2019MS001946.	1.3	83
11	Description and evaluation of aerosol in UKESM1 and HadGEM3-GC3.1 CMIP6 historical simulations. <i>Geoscientific Model Development</i> , 2020, 13, 6383-6423.	1.3	83
12	Impacts of HO _x regeneration and recycling in the oxidation of isoprene: Consequences for the composition of past, present and future atmospheres. <i>Geophysical Research Letters</i> , 2011, 38, n/a-n/a.	1.5	78
13	Lightning NO _x ; a key chemistry–climate interaction: impacts of future climate change and consequences for tropospheric oxidising capacity. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 9871-9881.	1.9	74
14	Stratospheric ozone loss over the Eurasian continent induced by the polar vortex shift. <i>Nature Communications</i> , 2018, 9, 206.	5.8	69
15	Drivers of changes in stratospheric and tropospheric ozone between year 2000 and 2100. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 2727-2746.	1.9	66
16	Effective radiative forcing from emissions of reactive gases and aerosols – a multi-model comparison. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 853-874.	1.9	65
17	Future Arctic ozone recovery: the importance of chemistry and dynamics. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 12159-12176.	1.9	63
18	Aerosol microphysics simulations of the Mt.~Pinatubo eruption with the UM-UKCA composition-climate model. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 11221-11246.	1.9	62

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19	Implications of three-dimensional chemical transport in hot Jupiter atmospheres: Results from a consistently coupled chemistry-radiation-hydrodynamics model. <i>Astronomy and Astrophysics</i> , 2020, 636, A68.	2.1	60
20	Impacts of climate change, ozone recovery, and increasing methane on surface ozone and the tropospheric oxidizing capacity. <i>Journal of Geophysical Research D: Atmospheres</i> , 2013, 118, 1028-1041.	1.2	55
21	Global multi-year O ₃ -CO correlation patterns from models and TES satellite observations. <i>Atmospheric Chemistry and Physics</i> , 2011, 11, 5819-5838.	1.9	54
22	The impact of polar stratospheric ozone loss on Southern Hemisphere stratospheric circulation and climate. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 13705-13717.	1.9	53
23	Inter-model comparison of global hydroxyl radical (OH) distributions and their impact on atmospheric methane over the 2000–2016 period. <i>Atmospheric Chemistry and Physics</i> , 2019, 19, 13701-13723.	1.9	52
24	A multi-model intercomparison of halogenated very short-lived substances (TransCom-VSLS): linking oceanic emissions and tropospheric transport for a reconciled estimate of the stratospheric source gas injection of bromine. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 9163-9187.	1.9	51
25	Revisiting the Mystery of Recent Stratospheric Temperature Trends. <i>Geophysical Research Letters</i> , 2018, 45, 9919-9933.	1.5	51
26	Using machine learning to build temperature-based ozone parameterizations for climate sensitivity simulations. <i>Environmental Research Letters</i> , 2018, 13, 104016.	2.2	48
27	Processes Controlling Tropical Tropopause Temperature and Stratospheric Water Vapor in Climate Models. <i>Journal of Climate</i> , 2015, 28, 6516-6535.	1.2	47
28	Multimodel estimates of atmospheric lifetimes of long-lived ozone-depleting substances: Present and future. <i>Journal of Geophysical Research D: Atmospheres</i> , 2014, 119, 2555-2573.	1.2	42
29	Stratospheric ozone changes under solar geoengineering: implications for UV exposure and air quality. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 4191-4203.	1.9	41
30	Effects of climate-induced changes in isoprene emissions after the eruption of Mount Pinatubo. <i>Atmospheric Chemistry and Physics</i> , 2010, 10, 7117-7125.	1.9	39
31	Modelling future changes to the stratospheric source gas injection of biogenic bromocarbons. <i>Geophysical Research Letters</i> , 2012, 39, .	1.5	38
32	Tropospheric jet response to Antarctic ozone depletion: An update with Chemistry-Climate Model Initiative (CCMI) models. <i>Environmental Research Letters</i> , 2018, 13, 054024.	2.2	38
33	Improved real-space genetic algorithm for crystal structure and polymorph prediction. <i>Physical Review B</i> , 2008, 77, .	1.1	37
34	Influence of future climate and cropland expansion on isoprene emissions and tropospheric ozone. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 1011-1024.	1.9	37
35	Climate change modulates the stratospheric volcanic sulfate aerosol lifecycle and radiative forcing from tropical eruptions. <i>Nature Communications</i> , 2021, 12, 4708.	5.8	35
36	How sensitive is the recovery of stratospheric ozone to changes in concentrations of very short-lived bromocarbons?. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 10431-10438.	1.9	34

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37	Cloud impacts on photochemistry: building a climatology of photolysis rates from the Atmospheric Tomography mission. <i>Atmospheric Chemistry and Physics</i> , 2018, 18, 16809-16828.	1.9	34
38	On the role of ozone feedback in the ENSO amplitude response under global warming. <i>Geophysical Research Letters</i> , 2017, 44, 3858-3866.	1.5	32
39	Heterogeneous reaction of N_2O_5 with airborne TiO_2 particles and its implication for stratospheric particle injection. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 6035-6048.	1.9	31
40	Global modelling of the total OH reactivity: investigations on the HO_2 sink and its atmospheric implications. <i>Atmospheric Chemistry and Physics</i> , 2018, 18, 7109-7129.	1.9	31
41	Minimal Climate Impacts From Short-Lived Climate Forcers Following Emission Reductions Related to the COVID-19 Pandemic. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL090326.	1.5	30
42	Circulation anomalies in the Southern Hemisphere and ozone changes. <i>Atmospheric Chemistry and Physics</i> , 2013, 13, 10677-10688.	1.9	29
43	The impact of lightning on tropospheric ozone chemistry using a new global lightning parametrisation. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 7507-7522.	1.9	29
44	Assessment of pre-industrial to present-day anthropogenic climate forcing in UKESM1. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 1211-1243.	1.9	29
45	Inclusion of mountain-wave-induced cooling for the formation of PSCs over the Antarctic Peninsula in a chemistry-climate model. <i>Atmospheric Chemistry and Physics</i> , 2015, 15, 1071-1086.	1.9	27
46	Tropospheric ozone in CCMI models and Gaussian process emulation to understand biases in the SOCOLv3 chemistry-climate model. <i>Atmospheric Chemistry and Physics</i> , 2018, 18, 16155-16172.	1.9	27
47	Evaluation of the ACCESS chemistry-climate model for the Southern Hemisphere. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 2401-2415.	1.9	26
48	Deriving Global OH Abundance and Atmospheric Lifetimes for Long-Lived Gases: A Search for CH_3CCl_3 Alternatives. <i>Journal of Geophysical Research D: Atmospheres</i> , 2017, 122, 11,914.	1.2	26
49	The Impact of Stratospheric Ozone Feedbacks on Climate Sensitivity Estimates. <i>Journal of Geophysical Research D: Atmospheres</i> , 2018, 123, 4630-4641.	1.2	25
50	Modelling the impact of megacities on local, regional and global tropospheric ozone and the deposition of nitrogen species. <i>Atmospheric Chemistry and Physics</i> , 2013, 13, 12215-12231.	1.9	24
51	Direct and ozone-mediated forcing of the Southern Annular Mode by greenhouse gases. <i>Geophysical Research Letters</i> , 2014, 41, 9050-9057.	1.5	24
52	Diagnosing the radiative and chemical contributions to future changes in tropical column ozone with the UM-UKCA chemistry-climate model. <i>Atmospheric Chemistry and Physics</i> , 2017, 17, 13801-13818.	1.9	23
53	Evaluation of tropospheric ozone and ozone precursors in simulations from the HTAPII and CCMI model intercomparisons – a focus on the Indian subcontinent. <i>Atmospheric Chemistry and Physics</i> , 2019, 19, 6437-6458.	1.9	23
54	Methane Emissions in a Chemistry-Climate Model: Feedbacks and Climate Response. <i>Journal of Advances in Modeling Earth Systems</i> , 2020, 12, e2019MS002019.	1.3	23

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55	Clear-sky ultraviolet radiation modelling using output from the Chemistry Climate Model Initiative. <i>Atmospheric Chemistry and Physics</i> , 2019, 19, 10087-10110.	1.9	22
56	Evaluating the simulated radiative forcings, aerosol properties, and stratospheric warmings from the 1963 Mt Agung, 1982 El Chichón, and 1991 Mt Pinatubo volcanic aerosol clouds. <i>Atmospheric Chemistry and Physics</i> , 2020, 20, 13627-13654.	1.9	22
57	Ozone chemistry on tidally locked M dwarf planets. <i>Monthly Notices of the Royal Astronomical Society</i> , 2020, 492, 1691-1705.	1.6	20
58	Responses of Arctic sea ice to stratospheric ozone depletion. <i>Science Bulletin</i> , 2022, 67, 1182-1190.	4.3	20
59	A 1D RCE Study of Factors Affecting the Tropical Tropopause Layer and Surface Climate. <i>Journal of Climate</i> , 2019, 32, 6769-6782.	1.2	19
60	On ozone trend detection: using coupled chemistry–climate simulations to investigate early signs of total column ozone recovery. <i>Atmospheric Chemistry and Physics</i> , 2018, 18, 7625-7637.	1.9	18
61	On the Changing Role of the Stratosphere on the Tropospheric Ozone Budget: 1979–2010. <i>Geophysical Research Letters</i> , 2020, 47, e2019GL086901.	1.5	18
62	The role of future anthropogenic methane emissions in air quality and climate. <i>Npj Climate and Atmospheric Science</i> , 2022, 5, .	2.6	18
63	Co-emission of volcanic sulfur and halogens amplifies volcanic effective radiative forcing. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 9009-9029.	1.9	17
64	Heterogeneous reaction of ClONO ₂ with TiO ₂ and SiO ₂ aerosol particles: implications for stratospheric particle injection for climate engineering. <i>Atmospheric Chemistry and Physics</i> , 2016, 16, 15397-15412.	1.9	16
65	Simulating the climate response to atmospheric oxygen variability in the Phanerozoic: a focus on the Holocene, Cretaceous and Permian. <i>Climate of the Past</i> , 2019, 15, 1463-1483.	1.3	16
66	Description and Evaluation of the specified-dynamics experiment in the Chemistry-Climate Model Initiative. <i>Atmospheric Chemistry and Physics</i> , 2020, 20, 3809-3840.	1.9	16
67	Constraints on global aerosol number concentration, SO ₂ and condensation sink in UKESM1 using ATom measurements. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 4979-5014.	1.9	16
68	Projecting ozone hole recovery using an ensemble of chemistry–climate models weighted by model performance and independence. <i>Atmospheric Chemistry and Physics</i> , 2020, 20, 9961-9977.	1.9	16
69	Reconciling the climate and ozone response to the 1257 CE Mount Samalas eruption. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 26651-26659.	3.3	15
70	Stratospheric Ozone Changes From Explosive Tropical Volcanoes: Modeling and Ice Core Constraints. <i>Journal of Geophysical Research D: Atmospheres</i> , 2020, 125, e2019JD032290.	1.2	14
71	Sensitivity of modeled Indian monsoon to Chinese and Indian aerosol emissions. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 3593-3605.	1.9	13
72	Improvements to stratospheric chemistry scheme in the UM-UKCA (v10.7) model: solar cycle and heterogeneous reactions. <i>Geoscientific Model Development</i> , 2019, 12, 1227-1239.	1.3	12

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73	Improvements to the representation of BVOC chemistryâ€˜climate interactions in UKCA (v11.5) with the CRI-StratA2 mechanism: incorporation and evaluation. <i>Geoscientific Model Development</i> , 2021, 14, 5239-5268.	1.3	12
74	Modelling the potential impacts of the recent, unexpected increase in CFC-11 emissions on total column ozone recovery. <i>Atmospheric Chemistry and Physics</i> , 2020, 20, 7153-7166.	1.9	10
75	Exploring the sensitivity of atmospheric nitrate concentrations to nitric acid uptake rate using the Met Office's Unified Model. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 15901-15927.	1.9	10
76	Quasi-Newton methods for atmospheric chemistry simulations: implementation in UKCA UM vn10.8. <i>Geoscientific Model Development</i> , 2018, 11, 3089-3108.	1.3	9
77	Assessing and improving cloud-height-based parameterisations of global lightning flash rate, and their impact on lightning-produced NO<sub>2</sub</i> and tropospheric composition in a chemistryâ€˜climate model. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 7053-7082.	1.9	9
78	Polar stratospheric clouds initiated by mountain waves in a global chemistryâ€˜climate model: a missing piece in fully modelling polar stratospheric ozone depletion. <i>Atmospheric Chemistry and Physics</i> , 2020, 20, 12483-12497.	1.9	8
79	Simulating the atmospheric response to the 11-year solar cycle forcing with the UM-UKCA model: the role of detection method and natural variability. <i>Atmospheric Chemistry and Physics</i> , 2019, 19, 5209-5233.	1.9	7
80	Corrigendum to "Heterogeneous reaction of N<sub>2</sub</i> with airborne TiO<sub>2</sub</i> particles and its implication for stratospheric particle injection" published in <i>Atmos. Chem. Phys.</i> , 14, 6035â€“6048, 2014. <i>Atmospheric Chemistry and Physics</i> , 2014, 14, 8233-8234.	1.9	6
81	The Common Representative Intermediates Mechanism Version 2 in the United Kingdom Chemistry and Aerosols Model. <i>Journal of Advances in Modeling Earth Systems</i> , 2021, 13, e2020MS002420.	1.3	6
82	Ultraviolet Radiation modelling using output from the Chemistry Climate Model Initiative. , 2019, 19, 10087-10110.		5
83	The Impacts of Aerosol Emissions on Historical Climate in UKESM1. <i>Atmosphere</i> , 2020, 11, 1095.	1.0	5
84	Using a virtual machine environment for developing, testing, and training for the UM-UKCA composition-climate model, using Unified Model version 10.9 and above. <i>Geoscientific Model Development</i> , 2018, 11, 3647-3657.	1.3	3
85	Separating the role of direct radiative heating and photolysis in modulating the atmospheric response to the amplitude of the 11-year solar cycle forcing. <i>Atmospheric Chemistry and Physics</i> , 2019, 19, 9833-9846.	1.9	3
86	Nonâ€“additive response of the highâ€“latitude Southern Hemisphere climate to aerosol forcing in a climate model with interactive chemistry. <i>Atmospheric Science Letters</i> , 2020, 21, e1004.	0.8	2