N Luke Abraham

List of Publications by Year
in descending order

86 papers	4,040 citations	136950 32 h-index	144013 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. Journal of Advances in Modeling Earth Systems, 2019, 11, 4513-4558.	3.8	448
2	Review of the global models used within phase 1 of the Chemistryâ€“Climate Model Initiative (CCMI). Geoscientific Model Development, 2017, 10, 639-671.	3.6	277
3	Evaluation of the new UKCA climate-composition model â€“ Part 2: The Troposphere. Geoscientific Model Development, 2014, 7, 41-91.	3.6	191
4	A periodic genetic algorithm with real-space representation for crystal structure and polymorph prediction. Physical Review B, 2006, 73, .	3.2	145
5	Estimates of ozone return dates from Chemistry-Climate Model Initiative simulations. Atmospheric Chemistry and Physics, 2018, 18, 8409-8438.	4.9	128
6	A large ozone-circulation feedback and its implications for global warming assessments. Nature Climate Change, 2015, 5, 41-45.	18.8	115
7	Description and evaluation of the UKCA stratosphereâ€“troposphere chemistry scheme (StratTrop vn) Tj ETQq1 1 0.784314 rgBT /Ov	3.6	109
8	Tropospheric ozone in CMIP6 simulations. Atmospheric Chemistry and Physics, 2021, 21, 4187-4218.	4.9	89
9	Implementation of the Fast-JX Photolysis scheme (v6.4) into the UKCA component of the MetUM chemistry-climate model (v7.3). Geoscientific Model Development, 2013, 6, 161-177.	3.6	84
10	Implementation of U.K. Earth System Models for CMIP6. Journal of Advances in Modeling Earth Systems, 2020, 12, e2019MS001946.	3.8	83
11	Description and evaluation of aerosol in UKESM1 and HadGEM3-GC3.1 CMIP6 historical simulations. Geoscientific Model Development, 2020, 13, 6383-6423.	3.6	83
12	Impacts of HO_xregeneration and recycling in the oxidation of isoprene: Consequences for the composition of past, present and future atmospheres. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	78
13	Lightning NO_x, a key chemistryâ€“climate interaction: impacts of future climate change and consequences for tropospheric oxidising capacity. Atmospheric Chemistry and Physics, 2014, 14, 9871-9881.	4.9	74
14	Stratospheric ozone loss over the Eurasian continent induced by the polar vortex shift. Nature Communications, 2018, 9, 206.	12.8	69
15	Drivers of changes in stratospheric and tropospheric ozone between year 2000 and 2100. Atmospheric Chemistry and Physics, 2016, 16, 2727-2746.	4.9	66
16	Effective radiative forcing from emissions of reactive gases and aerosols â€“ a multi-model comparison. Atmospheric Chemistry and Physics, 2021, 21, 853-874.	4.9	65
17	Future Arctic ozone recovery: the importance of chemistry and dynamics. Atmospheric Chemistry and Physics, 2016, 16, 12159-12176.	4.9	63
18	Aerosol microphysics simulations of the Mt.~Pinatubo eruption with the UM-UKCA composition-climate model. Atmospheric Chemistry and Physics, 2014, 14, 11221-11246.	4.9	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. Astronomy and Astrophysics, 2020, 636, A68.	5.1	60
20	Impacts of climate change, ozone recovery, and increasing methane on surface ozone and the tropospheric oxidizing capacity. Journal of Geophysical Research D: Atmospheres, 2013, 118, 1028-1041.	3.3	55
21	Global multi-year O₃-CO correlation patterns from models and TES satellite observations. Atmospheric Chemistry and Physics, 2011, 11, 5819-5838.	4.9	54
22	The impact of polar stratospheric ozone loss on Southern Hemisphere stratospheric circulation and climate. Atmospheric Chemistry and Physics, 2014, 14, 13705-13717.	4.9	53
23	Inter-model comparison of global hydroxyl radical (OH) distributions and their impact on atmospheric methane over the 2000â€“2016 period. Atmospheric Chemistry and Physics, 2019, 19, 13701-13723.	4.9	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. Atmospheric Chemistry and Physics, 2016, 16, 9163-9187.	4.9	51
25	Revisiting the Mystery of Recent Stratospheric Temperature Trends. Geophysical Research Letters, 2018, 45, 9919-9933.	4.0	51
26	Using machine learning to build temperature-based ozone parameterizations for climate sensitivity simulations. Environmental Research Letters, 2018, 13, 104016.	5.2	48
27	Processes Controlling Tropical Tropopause Temperature and Stratospheric Water Vapor in Climate Models. Journal of Climate, 2015, 28, 6516-6535.	3.2	47
28	Multimodel estimates of atmospheric lifetimes of longâ€lived ozoneâ€depleting substances: Present and future. Journal of Geophysical Research D: Atmospheres, 2014, 119, 2555-2573.	3.3	42
29	Stratospheric ozone changes under solar geoengineering: implications for UV exposure and air quality. Atmospheric Chemistry and Physics, 2016, 16, 4191-4203.	4.9	41
30	Effects of climate-induced changes in isoprene emissions after the eruption of Mount Pinatubo. Atmospheric Chemistry and Physics, 2010, 10, 7117-7125.	4.9	39
31	Modelling future changes to the stratospheric source gas injection of biogenic bromocarbons. Geophysical Research Letters, 2012, 39, .	4.0	38
32	Tropospheric jet response to Antarctic ozone depletion: An update with Chemistry-Climate Model Initiative (CCMI) models. Environmental Research Letters, 2018, 13, 054024.	5.2	38
33	Improved real-space genetic algorithm for crystal structure and polymorph prediction. Physical Review B, 2008, 77, .	3.2	37
34	Influence of future climate and cropland expansion on isoprene emissions and tropospheric ozone. Atmospheric Chemistry and Physics, 2014, 14, 1011-1024.	4.9	37
35	Climate change modulates the stratospheric volcanic sulfate aerosol lifecycle and radiative forcing from tropical eruptions. Nature Communications, 2021, 12, 4708.	12.8	35
36	How sensitive is the recovery of stratospheric ozone to changes in concentrations of very short-lived bromocarbons?. Atmospheric Chemistry and Physics, 2014, 14, 10431-10438.	4.9	34

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37	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
38	On the role of ozone feedback in the ENSO amplitude response under global warming. Geophysical Research Letters, 2017, 44, 3858-3866.	4.0	32
39	Heterogeneous reaction of N₂O₅ with airborne TiO₂ particles and its implication for stratospheric particle injection. Atmospheric Chemistry and Physics, 2014, 14, 6035-6048.	4.9	31
40	Global modelling of the total OH reactivity: investigations on the â€œmissingâ€• OH sink and its atmospheric implications. Atmospheric Chemistry and Physics, 2018, 18, 7109-7129.	4.9	31
41	Minimal Climate Impacts From Shortâ€Lived Climate Forcers Following Emission Reductions Related to the COVIDâ€19 Pandemic. Geophysical Research Letters, 2020, 47, e2020GL090326.	4.0	30
42	Circulation anomalies in the Southern Hemisphere and ozone changes. Atmospheric Chemistry and Physics, 2013, 13, 10677-10688.	4.9	29
43	The impact of lightning on tropospheric ozone chemistry using a new global lightning parametrisation. Atmospheric Chemistry and Physics, 2016, 16, 7507-7522.	4.9	29
44	Assessment of pre-industrial to present-day anthropogenic climate forcing in UKESM1. Atmospheric Chemistry and Physics, 2021, 21, 1211-1243.	4.9	29
45	Inclusion of mountain-wave-induced cooling for the formation of PSCs over the Antarctic Peninsula in a chemistryâ€“climate model. Atmospheric Chemistry and Physics, 2015, 15, 1071-1086.	4.9	27
46	Tropospheric ozone in CCMI models and Gaussian process emulation to understand biases in the SOCOLv3 chemistryâ€“climate model. Atmospheric Chemistry and Physics, 2018, 18, 16155-16172.	4.9	27
47	Evaluation of the ACCESS â€“ chemistryâ€“climate model for the Southern Hemisphere. Atmospheric Chemistry and Physics, 2016, 16, 2401-2415.	4.9	26
48	Deriving Global OH Abundance and Atmospheric Lifetimes for Longâ€Lived Gases: A Search for CH₃CCl₃ Alternatives. Journal of Geophysical Research D: Atmospheres, 2017, 122, 11,914.	3.3	26
49	The Impact of Stratospheric Ozone Feedbacks on Climate Sensitivity Estimates. Journal of Geophysical Research D: Atmospheres, 2018, 123, 4630-4641.	3.3	25
50	Modelling the impact of megacities on local, regional and global tropospheric ozone and the deposition of nitrogen species. Atmospheric Chemistry and Physics, 2013, 13, 12215-12231.	4.9	24
51	Direct and ozoneâ€mediated forcing of the Southern Annular Mode by greenhouse gases. Geophysical Research Letters, 2014, 41, 9050-9057.	4.0	24
52	Diagnosing the radiative and chemical contributions to future changes in tropical column ozone with the UM-UKCA chemistryâ€“climate model. Atmospheric Chemistry and Physics, 2017, 17, 13801-13818.	4.9	23
53	Evaluation of tropospheric ozone and ozone precursors in simulations from the HTAPII and CCMI model intercomparisons â€“ a focus on the Indian subcontinent. Atmospheric Chemistry and Physics, 2019, 19, 6437-6458.	4.9	23
54	Methane Emissions in a Chemistryâ€Climate Model: Feedbacks and Climate Response. Journal of Advances in Modeling Earth Systems, 2020, 12, e2019MS002019.	3.8	23

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55	Clear-sky ultraviolet radiation modelling using output from the Chemistry Climate Model Initiative. Atmospheric Chemistry and Physics, 2019, 19, 10087-10110.	4.9	22
56	Evaluating the simulated radiative forcings, aerosol properties, and stratospheric warmings from the 1963 Mt Agung, 1982 El ChichÃ³n, and 1991 Mt Pinatubo volcanic aerosol clouds. Atmospheric Chemistry and Physics, 2020, 20, 13627-13654.	4.9	22
57	Ozone chemistry on tidally locked M dwarf planets. Monthly Notices of the Royal Astronomical Society, 2020, 492, 1691-1705.	4.4	20
58	Responses of Arctic sea ice to stratospheric ozone depletion. Science Bulletin, 2022, 67, 1182-1190.	9.0	20
59	A 1D RCE Study of Factors Affecting the Tropical Tropopause Layer and Surface Climate. Journal of Climate, 2019, 32, 6769-6782.	3.2	19
60	On ozone trend detection: using coupled chemistryâ€“climate simulations to investigate early signs of total column ozone recovery. Atmospheric Chemistry and Physics, 2018, 18, 7625-7637.	4.9	18
61	On the Changing Role of the Stratosphere on the Tropospheric Ozone Budget: 1979â€“2010. Geophysical Research Letters, 2020, 47, e2019GL086901.	4.0	18
62	The role of future anthropogenic methane emissions in air quality and climate. Npj Climate and Atmospheric Science, 2022, 5, .	6.8	18
63	Co-emission of volcanic sulfur and halogens amplifies volcanic effective radiative forcing. Atmospheric Chemistry and Physics, 2021, 21, 9009-9029.	4.9	17
64	Heterogeneous reaction of ClONO₂ with TiO₂ and SiO₂ aerosol particles: implications for stratospheric particle injection for climate engineering. Atmospheric Chemistry and Physics, 2016, 16, 15397-15412.	4.9	16
65	Simulating the climate response to atmospheric oxygen variability in the Phanerozoic: a focus on the Holocene, Cretaceous and Permian. Climate of the Past, 2019, 15, 1463-1483.	3.4	16
66	Description and Evaluation of the specified-dynamics experiment in the Chemistry-Climate Model Initiative. Atmospheric Chemistry and Physics, 2020, 20, 3809-3840.	4.9	16
67	Constraints on global aerosol number concentration, SO₂ and condensation sink in UKESM1 using ATomÂmeasurements. Atmospheric Chemistry and Physics, 2021, 21, 4979-5014.	4.9	16
68	Projecting ozone hole recovery using an ensemble of chemistryâ€“climate models weighted by model performance and independence. Atmospheric Chemistry and Physics, 2020, 20, 9961-9977.	4.9	16
69	Reconciling the climate and ozone response to the 1257 CE Mount Samalas eruption. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 26651-26659.	7.1	15
70	Stratospheric Ozone Changes From Explosive Tropical Volcanoes: Modeling and Ice Core Constraints. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2019JD032290.	3.3	14
71	Sensitivity of modeled Indian monsoon to Chinese and Indian aerosol emissions. Atmospheric Chemistry and Physics, 2021, 21, 3593-3605.	4.9	13
72	Improvements to stratospheric chemistry scheme in the UM-UKCA (v10.7) model: solar cycle and heterogeneous reactions. Geoscientific Model Development, 2019, 12, 1227-1239.	3.6	12

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73	Improvements to the representation of BVOC chemistryâ€“climate interactions in UKCA (v11.5) with the CRI-StratÂ2 mechanism: incorporation and evaluation. Geoscientific Model Development, 2021, 14, 5239-5268.	3.6	12
74	Modelling the potential impacts of the recent, unexpected increase in CFC-11 emissions on total column ozone recovery. Atmospheric Chemistry and Physics, 2020, 20, 7153-7166.	4.9	10
75	Exploring the sensitivity of atmospheric nitrate concentrations to nitric acid uptake rate using the Met Office's Unified Model. Atmospheric Chemistry and Physics, 2021, 21, 15901-15927.	4.9	10
76	Quasi-Newton methods for atmospheric chemistry simulations: implementation in UKCA UM vn10.8. Geoscientific Model Development, 2018, 11, 3089-3108.	3.6	9
77	Assessing and improving cloud-height-based parameterisations of global lightning flash rate, and their impact on lightning-produced NO_{<i>x</i>} and tropospheric composition in a chemistryâ€“climate model. Atmospheric Chemistry and Physics, 2021, 21, 7053-7082.	4.9	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. Atmospheric Chemistry and Physics, 2020, 20, 12483-12497.	4.9	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. Atmospheric Chemistry and Physics, 2019, 19, 5209-5233.	4.9	7
80	Corrigendum to "Heterogeneous reaction of N₂O₅ with airborne TiO₂ particles and its implication for stratospheric particle injection" published in Atmos. Chem. Phys., 14, 6035â€“6048, 2014. Atmospheric Chemistry and Physics, 2014, 14, 8233-8234.	4.9	6
81	The Common Representative Intermediates Mechanism Version 2 in the United Kingdom Chemistry and Aerosols Model. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002420.	3.8	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. Atmosphere, 2020, 11, 1095.	2.3	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. Geoscientific Model Development, 2018, 11, 3647-3657.	3.6	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. Atmospheric Chemistry and Physics, 2019, 19, 9833-9846.	4.9	3
86	Nonâ€additive response of the highâ€latitude Southern Hemisphere climate to aerosol forcing in a climate model with interactive chemistry. Atmospheric Science Letters, 2020, 21, e1004.	1.9	2