Ralf Wolke

List of Publications by Year
in descending order

92 papers	3,486 citations	172207 29 h-index	155451 55 g-index
123 all docs	123 docs citations	123 times ranked	3454 citing authors

#	Article	IF	Citations
1	CAPRAM2.3: A Chemical Aqueous Phase Radical Mechanism for Tropospheric Chemistry. Journal of Atmospheric Chemistry, 2000, 36, 231-284.	1.4	253
2	A model inter-comparison study focussing on episodes with elevated PM10 concentrations. Atmospheric Environment, 2008, 42, 4567-4588.	1.9	242
3	Operational model evaluation for particulate matter in Europe and North America in the context of AQMEII. Atmospheric Environment, 2012, 53, 75-92.	1.9	214
4	Model evaluation and ensemble modelling of surface-level ozone in Europe and North America in the context of AQMEII. Atmospheric Environment, 2012, 53, 60-74.	1.9	192
5	CAPRAM 2.4 (MODAC mechanism): An extended and condensed tropospheric aqueous phase mechanism and its application. Journal of Geophysical Research, 2003, 108, .	3.3	186
6	An advanced modeling study on the impacts and atmospheric implications of multiphase dimethyl sulfide chemistry. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 11776-11781.	3.3	170
7	Evaluation of operational on-line-coupled regional air quality models over Europe and North America in the context of AQMEII phase 2. Part I: Ozone. Atmospheric Environment, 2015, 115, 404-420.	1.9	168
8	Iteratively Reweighted Least Squares: Algorithms, Convergence Analysis, and Numerical Comparisons. SIAM Journal on Scientific and Statistical Computing, 1988, 9, 907-921.	1.5	143
9	Evaluation of operational online-coupled regional air quality models over Europe and North America in the context of AQMEII phase 2. Part II: Particulate matter. Atmospheric Environment, 2015, 115, 421-441.	1.9	133
10	Evaluation of the meteorological forcing used for the Air Quality Model Evaluation International Initiative (AQMEII) air quality simulations. Atmospheric Environment, 2012, 53, 15-37.	1.9	111
11	Regional modeling of Saharan dust events using LM-MUSCAT: Model description and case studies. Journal of Geophysical Research, 2007, 112, .	3.3	85
12	Comparative analysis of meteorological performance of coupled chemistry-meteorology models in the context of AQMEII phase 2. Atmospheric Environment, 2015, 115, 470-498.	1.9	85
13	Uncertainties of simulated aerosol optical properties induced by assumptions on aerosol physical and chemical properties: An AQMEII-2 perspective. Atmospheric Environment, 2015, 115, 541-552.	1.9	84
14	Influence of grid resolution and meteorological forcing on simulated European air quality: A sensitivity study with the modeling system COSMOâ€“MUSCAT. Atmospheric Environment, 2012, 53, 110-130.	1.9	82
15	SPACCIM: A parcel model with detailed microphysics and complex multiphase chemistry. Atmospheric Environment, 2005, 39, 4375-4388.	1.9	64
16	Modelling the formation and atmospheric transport of secondary inorganic aerosols with special attention to regions with high ammonia emissions. Atmospheric Environment, 2010, 44, 1904-1912.	1.9	59
17	Modelling multiphase chemistry in deliquescent aerosols and clouds using CAPRAM3.0i. Journal of Atmospheric Chemistry, 2013, 70, 221-256.	1.4	59
18	Assessment of the MACC reanalysis and its influence as chemical boundary conditions for regional air quality modeling in AQMEII-2. Atmospheric Environment, 2015, 115, 371-388.	1.9	59

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19	FEBUKO and MODMEP: Field measurements and modelling of aerosol and cloud multiphase processes. Atmospheric Environment, 2005, 39, 4169-4183.	1.9	58
20	A chemical aqueous phase radical mechanism for tropospheric chemistry. Chemosphere, 1999, 38, 1223-1232.	4.2	50
21	Flow and Transport in the Obstacle Layer: First Results of the Micro-Scale Model MITRAS. Journal of Atmospheric Chemistry, 2003, 44, 113-130.	1.4	49
22	Oxidation of substituted aromatic hydrocarbons in the tropospheric aqueous phase: kinetic mechanism development and modelling. Physical Chemistry Chemical Physics, 2018, 20, 10960-10977.	1.3	48
23	Implicit-explicit Runge-Kutta methods for computing atmospheric reactive flows. Applied Numerical Mathematics, 1998, 28, 327-341.	1.2	47
24	Multirate Rungeâ€“Kutta schemes for advection equations. Journal of Computational and Applied Mathematics, 2009, 226, 345-357.	1.1	42
25	An explicitâ€“implicit numerical approach for atmospheric chemistryâ€“transport modeling. Atmospheric Environment, 1998, 32, 1785-1797.	1.9	37
26	Implicitâ€“explicit Rungeâ€“Kutta methods applied to atmospheric chemistry-transport modelling. Environmental Modelling and Software, 2000, 15, 711-719.	1.9	37
27	SPACCIM: Simulations of the multiphase chemistry occurring in the FEBUKO hill cap cloud experiments. Atmospheric Environment, 2005, 39, 4389-4401.	1.9	36
28	A parameterization of the heterogeneous hydrolysis of N₂O₅ for mass-based aerosol models: improvement of particulate nitrate prediction. Atmospheric Chemistry and Physics, 2018, 18, 673-689.	1.9	35
29	Sea salt emission, transport and influence on size-segregated nitrate simulation: a case study in northwestern Europe by WRF-Chem. Atmospheric Chemistry and Physics, 2016, 16, 12081-12097.	1.9	33
30	The parallel model system LM-MUSCAT for chemistry-transport simulations: Coupling scheme, parallelization and applications. Advances in Parallel Computing, 2004, , 363-369.	0.3	32
31	Mechanism development and modelling of tropospheric multiphase halogen chemistry: The CAPRAM Halogen Module 2.0 (HM2). Journal of Atmospheric Chemistry, 2013, 70, 19-52.	1.4	29
32	Development of a protocol for the auto-generation of explicit aqueous-phase oxidation schemes of organic compounds. Atmospheric Chemistry and Physics, 2019, 19, 9209-9239.	1.9	28
33	Simulations of the 2010 EyjafjallajÃ¶kull volcanic ash dispersal over Europe using COSMOâ€“MUSCAT. Atmospheric Environment, 2012, 48, 195-204.	1.9	27
34	Comparison of different model approaches for the simulation of multiphase processes. Atmospheric Environment, 2005, 39, 4403-4417.	1.9	26
35	Towards an operational aqueous phase chemistry mechanism for regional chemistry-transport models: CAPRAM-RED and its application to the COSMO-MUSCAT model. Journal of Atmospheric Chemistry, 2009, 64, 1-35.	1.4	25
36	Direct and semiâ€direct radiative effects of absorbing aerosols in Europe: Results from a regional model. Geophysical Research Letters, 2012, 39, .	1.5	23

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37	Insights into the deterministic skill of air quality ensembles from the analysis of AQMEII data. Atmospheric Chemistry and Physics, 2016, 16, 15629-15652.	1.9	23
38	The Chemistry-Transport Modeling System lm-Muscat: Description and citydelta Applications. , 2004, , 427-439.		22
39	Formation of secondary inorganic aerosols by power plant emissions exhausted through cooling towers in Saxony. Environmental Science and Pollution Research, 2009, 16, 25-35.	2.7	21
40	Do new sea spray aerosol source functions improve the results of a regional aerosol model?. Atmospheric Environment, 2019, 198, 265-278.	1.9	19
41	Meteorological characterisation of the FEBUKO hill cap cloud experiments, Part II: Tracer experiments and flow characterisation with nested non-hydrostatic atmospheric models. Atmospheric Environment, 2005, 39, 4195-4207.	1.9	18
42	An assessment of aerosol optical properties from remote-sensing observations and regional chemistryâ€"climate coupled models over Europe. Atmospheric Chemistry and Physics, 2018, 18, 5021-5043.	1.9	18
43	Optimizing the coupling in parallel air quality model systems. Environmental Modelling and Software, 2008, 23, 235-243.	1.9	17
44	Evaluation of the size segregation of elemental carbon (EC) emission in Europe: influence on the simulation of EC long-range transportation. Atmospheric Chemistry and Physics, 2016, 16, 1823-1835.	1.9	17
45	Iteratively reweighted least squares: A comparison of several single step algorithms for linear models. BIT Numerical Mathematics, 1992, 32, 506-524.	1.0	16
46	A regional model of European aerosol transport: Evaluation with sun photometer, lidar and air quality data. Atmospheric Environment, 2012, 47, 519-532.	1.9	15
47	Comprehensive assessment of meteorological conditions and airflow connectivity during HCCT-2010. Atmospheric Chemistry and Physics, 2014, 14, 9105-9128.	1.9	15
48	Enhanced Chlorine and Bromine Atom Activation by Hydrolysis of Halogen Nitrates from Marine Aerosols at Polluted Coastal Areas. Environmental Science & Technology, 2019, 53, 771-778.	4.6	15
49	Numerical solution of multiscale problems in atmospheric modeling. Applied Numerical Mathematics, 2012, 62, 1531-1543.	1.2	14
50	Regional effects of atmospheric aerosols on temperature: an evaluation of an ensemble of online coupled models. Atmospheric Chemistry and Physics, 2017, 17, 9677-9696.	1.9	14
51	Technical note: AQMEII4 Activity 1: evaluation of wet and dry deposition schemes as an integral part of regional-scale air quality models. Atmospheric Chemistry and Physics, 2021, 21, 15663-15697.	1.9	14
52	Implementation of multirate time integration methods for air pollution modelling. Geoscientific Model Development, 2012, 5, 1395-1405.	1.3	13
53	Highly Scalable Dynamic Load Balancing in the Atmospheric Modeling System COSMO-SPECS+FD4. Lecture Notes in Computer Science, 2012, , 131-141.	1.0	13
54	Natural sea-salt emissions moderate the climate forcing of anthropogenic nitrate. Atmospheric Chemistry and Physics, 2020, 20, 771-786.	1.9	12

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55	Time-integration of multiphase chemistry in size-resolved cloud models. Applied Numerical Mathematics, 2002, 42, 473-487.	1.2	11
56	Implementation of aerosolâ€“cloud interactions in the regional atmosphereâ€“aerosol model COSMO-MUSCAT(5.0) and evaluation using satellite data. Geoscientific Model Development, 2017, 10, 2231-2246.	1.3	10
57	Near-Explicit Multiphase Modeling of Halogen Chemistry in a Mixed Urban and Maritime Coastal Area. ACS Earth and Space Chemistry, 2019, 3, 2452-2471.	1.2	10
58	Variations of CH2O and C2H2 determined from ground-based FTIR measurements and comparison with model results. Advances in Space Research, 2002, 29, 1713-1718.	1.2	9
59	Numerical methods for the solution of large kinetic systems. Applied Numerical Mathematics, 1995, 18, 211-221.	1.2	8
60	Kinetic modeling studies of SOA formation from <i>Î±</i>-pinene ozonolysis. Atmospheric Chemistry and Physics, 2017, 17, 13187-13211.	1.9	8
61	Treatment of non-ideality in the SPACCIM multiphase model â€“ Part 2: Impacts on the multiphase chemical processing in deliquesced aerosol particles. Atmospheric Chemistry and Physics, 2020, 20, 10351-10377.	1.9	8
62	Modeling the multiphase processing of an urban and a rural air mass with COSMOâ€“MUSCAT. Urban Climate, 2014, 10, 720-731.	2.4	6
63	A Comparison of Fast Chemical Kinetic Solvers in a Simple Vertical Diffusion Model. , 1994, , 287-294.		6
64	A Multi-model Case Study on Aerosol Feedbacks in Online Coupled Chemistry-Meteorology Models Within the COST Action ES1004 EuMetChem. Springer Proceedings in Complexity, 2016, , 23-28.	0.2	6
65	CAPRAM reduction towards an operational multiphase halogen and dimethyl sulfide chemistry treatment in the chemistry transport model COSMO-MUSCAT(5.04e). Geoscientific Model Development, 2020, 13, 2587-2609.	1.3	6
66	Treatment of non-ideality in the SPACCIM multiphase model â€“ Part 1: Model development. Geoscientific Model Development, 2016, 9, 247-281.	1.3	6
67	Regularization of a Volterra integral equation by linear inequalities. Computing (Vienna/New York), 1990, 43, 361-375.	3.2	4
68	A new Lagrangian in-time particle simulation module (Itpas v1) for atmospheric particle dispersion. Geoscientific Model Development, 2021, 14, 2205-2220.	1.3	4
69	Formation of Secondary Inorganic Aerosols by High Ammonia Emissions Simulated by LM/MUSCAT. NATO Security Through Science Series C: Environmental Security, 2008, , 522-529.	0.1	4
70	FD4: A Framework for Highly Scalable Load Balancing and Coupling of Multiphase Models. AIP Conference Proceedings, 2010, , .	0.3	3
71	The Effect of Land Use Classification on the Gasâ€Phase and Particle Composition of the Troposphere: Tree Species Versus Forest Type Information. Journal of Geophysical Research D: Atmospheres, 2022, 127, .	1.2	3
72	Numerical Treatment of Aqueous-Phase Chemistry in Atmospheric Chemistry-Transport Modelling. , 2004, , 399-407.		2

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73	Introduction to FEBUKO and MODMEP. Atmospheric Environment, 2005, 39, 4167.	1.9	2
74	Chapter 5.5 Modeling of Saharan dust events within SAMUM: Implications for regional radiation balance and mesoscale circulation. Developments in Environmental Science, 2007, , 523-533.	0.5	2
75	Detection of odor sources and high concentrations of pollutants in the Ore Mountains by modeling of air mass paths. Meteorologische Zeitschrift, 2013, 22, 213-220.	0.5	2
76	Multirate Implicit-Explicit Time Integration Schemes in Atmospheric Modelling. , 2010, , .		1
77	Numerical Treatment of Urban and Regional Scale Interactions in Chemistry-Transport Modelling. NATO Security Through Science Series C: Environmental Security, 2008, , 90-97.	0.1	1
78	Online Coupling of Multiscale Chemistry-Transport Models with Non-Hydrostatic Meteorological Models. , 2000, , 769-770.		1
79	Modelling Multiphase Aerosol-Cloud Processing with the 3-D CTM COSMO-MUSCAT: Application for Cloud Events During HCCT-2010. Springer Proceedings in Complexity, 2018, , 587-592.	0.2	1
80	Biogenic Emissions and Urban Air Quality. Springer Proceedings in Complexity, 2021, , 11-17.	0.2	1
81	Chapter 5.14 Mixing of plumes with ambient background air: Effects of particle size variations close to the source. Developments in Environmental Science, 2007, 6, 621-630.	0.5	0
82	Poster 27 Modeling of Saharan dust events within SAMUM: On the description of the Saharan dust cycle using LM-MUSCAT. Developments in Environmental Science, 2007, , 817-819.	0.5	0
83	Poster 28 An improved coupling scheme in the parallel modelling system LM-MUSCAT. Developments in Environmental Science, 2007, 6, 820-822.	0.5	0
84	MODELING STUDY ON CHEMISTRY OF HALOGENS IN MARINE AEROSOLS. Journal of Aerosol Science, 2001, 32, 303-304.	1.8	0
85	The Impact of Meteorological Uncertainties on the Prediction of PM in Urban Areas. NATO Science for Peace and Security Series C: Environmental Security, 2011, , 473-477.	0.1	0
86	Influence of Grid Resolution and Biomass Burning Emissions on Air Quality Simulations: A Sensitivity Study with the Modelling System COSMO-MUSCAT. NATO Science for Peace and Security Series C: Environmental Security, 2014, , 559-563.	0.1	0
87	An Implicit-Explicit Algorithm for Chemistry-Transport Models. , 1996, , 655-656.		0
88	Regional Scale Dispersion ModellingÂof Amines from Industrial CCS Processes with COSMO-MUSCAT. Springer Proceedings in Complexity, 2016, , 259-263.	0.2	0
89	Kinetic Modeling of SOA Formation for $$alpha $$ Î± - and $$eta $$ Î² -Pinene. Springer Proceedings in Complexity, 2018, , 559-564.	0.2	0
90	Capram Modeling Of Aqueous Aerosol And Cloud Chemistry. NATO Science for Peace and Security Series C: Environmental Security, 2008, , 107-122.	0.1	0

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91	Estimating Aerosol Loads and Aerosol-Cloud-Interaction in the 1980s and Today. Springer Proceedings in Complexity, 2021, , 25-30.	0.2	0
92	APPLICATIONS OF MESOSCALE MODELS FOR AIR POLLUTION RESEARCH. , 0, , 161-198.		0