Bernd KÃ¤rcher

List of Publications by Year in descending order

127 papers	11,337 citations	53794 45 h-index	31849 101 g-index
139 all docs	139 docs citations	139 times ranked	8037 citing authors

#	Article	IF	Citations
1	Studies on the Competition Between Homogeneous and Heterogeneous Ice Nucleation in Cirrus Formation. Journal of Geophysical Research D: Atmospheres, 2022, 127, .	3.3	15
2	Toward practical stratospheric aerosol albedo modification: Solar-powered lofting. Science Advances, 2021, 7, .	10.3	6
3	Soot PCF: pore condensation and freezing framework for soot aggregates. Atmospheric Chemistry and Physics, 2021, 21, 7791-7843.	4.9	22
4	Process-oriented analysis of aircraft soot-cirrus interactions constrains the climate impact of aviation. Communications Earth & Environment, 2021, 2, .	6.8	17
5	Aerosolâ€“cloud interactions: the representation of heterogeneous ice activation in cloud models. Atmospheric Chemistry and Physics, 2021, 21, 15213-15220.	4.9	5
6	Processâ€Based Simulation of Aerosolâ€Cloud Interactions in a Oneâ€Dimensional Cirrus Model. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2019JD031847.	3.3	2
7	The Impact of Mesoscale Gravity Waves on Homogeneous Ice Nucleation in Cirrus Clouds. Geophysical Research Letters, 2019, 46, 5556-5565.	4.0	15
8	A Stochastic Representation of Temperature Fluctuations Induced by Mesoscale Gravity Waves. Journal of Geophysical Research D: Atmospheres, 2019, 124, 11506-11529.	3.3	16
9	In Situ Observations of Ice Particle Losses in a Young Persistent Contrail. Geophysical Research Letters, 2018, 45, 13,553.	4.0	35
10	On the Statistical Distribution of Total Water in Cirrus Clouds. Geophysical Research Letters, 2018, 45, 9963-9971.	4.0	2
11	Contrail Formation: Analysis of Sublimation Mechanisms. Geophysical Research Letters, 2018, 45, 13,547.	4.0	9
12	Heterogeneous Ice Nucleation in the Tropical Tropopause Layer. Journal of Geophysical Research D: Atmospheres, 2018, 123, 12,210.	3.3	16
13	Formation and radiative forcing of contrail cirrus. Nature Communications, 2018, 9, 1824.	12.8	155
14	Cirrus Clouds and Their Response to Anthropogenic Activities. Current Climate Change Reports, 2017, 3, 45-57.	8.6	53
15	Microscale characteristics of homogeneous freezing events in cirrus clouds. Geophysical Research Letters, 2017, 44, 2027-2034.	4.0	10
16	Small-Scale Wind Fluctuations in the Tropical Tropopause Layer from Aircraft Measurements: Occurrence, Nature, and Impact on Vertical Mixing. Journals of the Atmospheric Sciences, 2017, 74, 3847-3869.	1.7	23
17	Homogeneous ice formation in convective cloud outflow regions. Quarterly Journal of the Royal Meteorological Society, 2017, 143, 2093-2103.	2.7	5
18	Susceptibility of contrail ice crystal numbers to aircraft soot particle emissions. Geophysical Research Letters, 2017, 44, 8037-8046.	4.0	16

#	Article	IF	Citations
19	The importance of contrail ice formation for mitigating the climate impact of aviation. Journal of Geophysical Research D: Atmospheres, 2016, 121, 3497-3505.	3.3	24
20	On homogeneous ice formation in liquid clouds. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 1320-1334.	2.7	19
21	The microphysical pathway to contrail formation. Journal of Geophysical Research D: Atmospheres, 2015, 120, 7893-7927.	3.3	45
22	Supersaturation Variability and Cirrus Ice Crystal Size Distributions. Journals of the Atmospheric Sciences, 2014, 71, 2905-2926.	1.7	28
23	Dust ice nuclei effects on cirrus clouds. Atmospheric Chemistry and Physics, 2014, 14, 3027-3046.	4.9	77
24	Effects of optical depth variability on contrail radiative forcing. Quarterly Journal of the Royal Meteorological Society, 2013, 139, 1658-1664.	2.7	6
25	Bounding the role of black carbon in the climate system: A scientific assessment. Journal of Geophysical Research D: Atmospheres, 2013, 118, 5380-5552.	3.3	4,319
26	Dust ice nuclei effects on cirrus clouds in ECHAM5-HAM. , 2013, , .		0
27	Supersaturation Fluctuations in Cirrus Clouds Driven by Colored Noise. Journals of the Atmospheric Sciences, 2012, 69, 435-443.	1.7	12
28	Atmospheric Ice Formation Processes. Research Topics in Aerospace, 2012, , 151-167.	0.7	6
29	Aerosols in the Atmosphere. Research Topics in Aerospace, 2012, , 37-53.	0.7	11
30	Effects of ice nuclei on cirrus clouds in a global climate model. Journal of Geophysical Research, 2011, 116, .	3.3	83
31	Processâ€oriented largeâ€eddy simulations of a midlatitude cirrus cloud system based on observations. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 374-393.	2.7	32
32	Global radiative forcing from contrail cirrus. Nature Climate Change, 2011, 1, 54-58.	18.8	274
33	Contrail Microphysics. Bulletin of the American Meteorological Society, 2010, 91, 465-472.	3.3	62
34	A largeâ€eddy model for cirrus clouds with explicit aerosol and ice microphysics and Lagrangian ice particle tracking. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 2074-2093.	2.7	95
35	Heterogeneous nucleation of ice particles on glassy aerosols under cirrus conditions. Nature Geoscience, 2010, 3, 233-237.	12.9	302
36	Importance of representing optical depth variability for estimates of global line-shaped contrail radiative forcing. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 19181-19184.	7.1	25

#	Article	IF	Citations
37	Global Modeling of the Contrail and Contrail Cirrus Climate Impact. Bulletin of the American Meteorological Society, 2010, 91, 479-484.	3.3	61
38	Aerodynamic Contrails: Microphysics and Optical Properties. Journals of the Atmospheric Sciences, 2009, 66, 227-243.	1.7	29
39	Aerodynamic Contrails: Phenomenology and Flow Physics. Journals of the Atmospheric Sciences, 2009, 66, 217-226.	1.7	28
40	Trapping of trace gases by growing ice surfaces including surfaceâ€saturated adsorption. Journal of Geophysical Research, 2009, 114, .	3.3	19
41	Climate Impact Evaluation as Part of Aircraft Pre-Design. , 2009, , .		1
42	On optical and microphysical characteristics of contrails and cirrus. Journal of Geophysical Research, 2009, 114, .	3.3	53
43	Processâ€based simulation of contrail cirrus in a global climate model. Journal of Geophysical Research, 2009, 114, .	3.3	72
44	Role of aircraft soot emissions in contrail formation. Geophysical Research Letters, 2009, 36, .	4.0	99
45	Airborne measurements of the nitric acid partitioning in persistent contrails. Atmospheric Chemistry and Physics, 2009, 9, 8189-8197.	4.9	18
46	Factors controlling contrail cirrus optical depth. Atmospheric Chemistry and Physics, 2009, 9, 6229-6254.	4.9	54
47	Cloud-controlling Factors of Cirrus. , 2009, , 235-268.		17
48	A cirrus cloud scheme for general circulation models. Quarterly Journal of the Royal Meteorological Society, 2008, 134, 1439-1461.	2.7	61
49	Contrail cirrus supporting areas in model and observations. Geophysical Research Letters, 2008, 35, .	4.0	45
50	In-situ observations and modeling of small nitric acid-containing ice crystals. Atmospheric Chemistry and Physics, 2007, 7, 3373-3383.	4.9	41
51	Insights into the role of soot aerosols in cirrus cloud formation. Atmospheric Chemistry and Physics, 2007, 7, 4203-4227.	4.9	144
52	Condensedâ€phase nitric acid in a tropical subvisible cirrus cloud. Geophysical Research Letters, 2007, 34, .	4.0	21
53	Nitric acid in cirrus clouds. Geophysical Research Letters, 2006, 33, .	4.0	54
54	Physically based parameterization of cirrus cloud formation for use in global atmospheric models. Journal of Geophysical Research, 2006, 111, .	3.3	159

#	Article	IF	Citations
55	Single-particle measurements of midlatitude black carbon and light-scattering aerosols from the boundary layer to the lower stratosphere. Journal of Geophysical Research, 2006, 111, .	3.3	594
56	Formation of nitric acid/water ice particles in cirrus clouds. Geophysical Research Letters, 2006, 33, .	4.0	40
57	Aircraft-based operation of an aerosol mass spectrometer: Measurements of tropospheric aerosol composition. Journal of Aerosol Science, 2006, 37, 839-857.	3.8	30
58	The observation of nitric acid-containing particles in the tropical lower stratosphere. Atmospheric Chemistry and Physics, 2006, 6, 601-611.	4.9	30
59	Supersaturation, dehydration, and denitrification in Arctic cirrus. Atmospheric Chemistry and Physics, 2005, 5, 1757-1772.	4.9	20
60	Microphysics and heterogeneous chemistry in aircraft plumes - high sensitivity on local meteorology and atmospheric composition. Atmospheric Chemistry and Physics, 2005, 5, 533-545.	4.9	35
61	The role of organic aerosols in homogeneous ice formation. Atmospheric Chemistry and Physics, 2005, 5, 703-714.	4.9	64
62	Do aircraft black carbon emissions affect cirrus clouds on the global scale?. Geophysical Research Letters, 2005, 32, n/a-n/a.	4.0	61
63	Factors controlling upper tropospheric relative humidity. Annales Geophysicae, 2004, 22, 705-715.	1.6	26
64	Evidence That Nitric Acid Increases Relative Humidity in Low-Temperature Cirrus Clouds. Science, 2004, 303, 516-520.	12.6	110
65	Nitric acid uptake on subtropical cirrus cloud particles. Journal of Geophysical Research, 2004, 109, n/a-n/a.	3.3	62
66	Sensitivity studies of cirrus clouds formed by heterogeneous freezing in the ECHAM GCM. Journal of Geophysical Research, 2004, 109, .	3.3	56
67	Cirrus clouds in the tropical tropopause layer: Role of heterogeneous ice nuclei. Geophysical Research Letters, 2004, 31, n/a-n/a.	4.0	27
68	The impact of aerosols and gravity waves on cirrus clouds at midlatitudes. Journal of Geophysical Research, 2004, 109, .	3.3	94
69	Correction to â€œNitric acid uptake on subtropical cirrus cloud particlesâ€. Journal of Geophysical Research, 2004, 109, .	3.3	2
70	Trapping of trace gases in growing ice crystals. Journal of Geophysical Research, 2004, 109, n/a-n/a.	3.3	35
71	PARTICLES FROM AIRCRAFT EXHAUST: IN-SITU MASS SPECTROMETRIC ANALYSIS. Journal of Aerosol Science, 2004, 35, S1227-S1228.	3.8	0
72	Simulating the global atmospheric black carbon cycle: a revisit to the contribution of aircraft emissions. Atmospheric Chemistry and Physics, 2004, 4, 2521-2541.	4.9	76

#	Article	IF	Citations
73	Impact of the Mount Pinatubo eruption on cirrus clouds formed by homogeneous freezing in the ECHAM4 GCM. Journal of Geophysical Research, 2003, 108, .	3.3	38
74	A parameterization of cirrus cloud formation: Heterogeneous freezing. Journal of Geophysical Research, 2003, 108, .	3.3	236
75	Simulating gas-aerosol-cirrus interactions: Process-oriented microphysical model and applications. Atmospheric Chemistry and Physics, 2003, 3, 1645-1664.	4.9	38
76	Numerical simulations of homogeneous freezing processes in the aerosol chamber AIDA. Atmospheric Chemistry and Physics, 2003, 3, 195-210.	4.9	48
77	Freezing thresholds and cirrus cloud formation mechanisms inferred from in situ measurements of relative humidity. Atmospheric Chemistry and Physics, 2003, 3, 1791-1806.	4.9	148
78	Cirrus cloud occurrence as function of ambient relative humidity: a comparison of observations obtained during the INCA experiment. Atmospheric Chemistry and Physics, 2003, 3, 1807-1816.	4.9	74
79	Experimental investigation of homogeneous freezing of sulphuric acid particles in the aerosol chamber AIDA. Atmospheric Chemistry and Physics, 2003, 3, 211-223.	4.9	178
80	The roles of dynamical variability and aerosols in cirrus cloud formation. Atmospheric Chemistry and Physics, 2003, 3, 823-838.	4.9	167
81	Properties of subvisible cirrus clouds formed by homogeneous freezing. Atmospheric Chemistry and Physics, 2002, 2, 161-170.	4.9	35
82	Suppression of chlorine activation on aviation-produced volatile particles. Atmospheric Chemistry and Physics, 2002, 2, 307-312.	4.9	10
83	A parameterization of cirrus cloud formation: Homogeneous freezing of supercooled aerosols. Journal of Geophysical Research, 2002, 107, AAC 4-1.	3.3	223
84	First interactive simulations of cirrus clouds formed by homogeneous freezing in the ECHAM general circulation model. Journal of Geophysical Research, 2002, 107, AAC 8-1-AAC 8-13.	3.3	114
85	Influence of fuel sulfur on the composition of aircraft exhaust plumes: The experiments SULFUR 1â€“7. Journal of Geophysical Research, 2002, 107, AAC 2-1.	3.3	108
86	A Parameterization of cirrus cloud formation: Homogeneous freezing including effects of aerosol size. Journal of Geophysical Research, 2002, 107, AAC 9-1-AAC 9-10.	3.3	118
87	Aerosol states in the free troposphere at northern midlatitudes. Journal of Geophysical Research, 2002, 107, LAC 8-1-LAC 8-8.	3.3	59
88	Cirrus Parcel Model Comparison Project. Phase 1: The Critical Components to Simulate Cirrus Initiation Explicitly. Journals of the Atmospheric Sciences, 2002, 59, 2305-2329.	1.7	91
89	On the impact of heterogeneous chemistry on ozone in the tropopause region. Geophysical Research Letters, 2001, 28, 515-518.	4.0	25
90	On the Transition of Contrails into Cirrus Clouds. Journals of the Atmospheric Sciences, 2000, 57, 464-480.	1.7	153

#	Article	IF	Citations
91	New particle formation in aircraft exhaust plumes. Journal of Aerosol Science, 2000, 31, 170-171.	3.8	1
92	Limitation of heterogeneous chemistry on aviation-produced aerosols. Journal of Aerosol Science, 2000, 31, 356-357.	3.8	0
93	Properties of particles in the tropopause region. Journal of Aerosol Science, 2000, 31, 594-595.	3.8	0
94	Ultrafine particle size distributions measured in aircraft exhaust plumes. Journal of Geophysical Research, 2000, 105, 26555-26567.	3.3	122
95	In situ observations of aerosol properties above ice saturation in the polar tropopause region. Journal of Geophysical Research, 2000, 105, 29387-29395.	3.3	7
96	A unified model for ultrafine aircraft particle emissions. Journal of Geophysical Research, 2000, 105, 29379-29386.	3.3	30
97	Aviation-Produced Aerosols and Contrails. , 1999, 20, 113-167.		51
98	Carbonaceous aerosol in jet engine exhaust: emission characteristics and implications for heterogeneous chemical reactions. Atmospheric Environment, 1999, 33, 2689-2698.	4.1	54
99	The possible role of organics in the formation and evolution of ultrafine aircraft particles. Journal of Geophysical Research, 1999, 104, 4079-4087.	3.3	59
100	On the composition and optical extinction of particles in the tropopause region. Journal of Geophysical Research, 1999, 104, 27441-27459.	3.3	44
101	On the potential importance of sulfur-induced activation of soot particles in nascent jet aircraft exhaust plumes. Atmospheric Research, 1998, 46, 293-305.	4.1	26
102	On the mechanisms controlling the formation and properties of volatile particles in aircraft wakes. Geophysical Research Letters, 1998, 25, 3839-3842.	4.0	38
103	Aviation fuel tracer simulation: Model intercomparison and implications. Geophysical Research Letters, 1998, 25, 3947-3950.	4.0	48
104	Perturbation of the aerosol layer by aviation-produced aerosols: A parametrization of plume processes. Geophysical Research Letters, 1998, 25, 4465-4468.	4.0	15
105	Ultrafine aerosol particles in aircraft plumes: In situ observations. Geophysical Research Letters, 1998, 25, 2789-2792.	4.0	72
106	Ultrafine aerosol particles in aircraft plumes: Analysis of growth mechanisms. Geophysical Research Letters, 1998, 25, 2793-2796.	4.0	57
107	Constraining the heterogeneous loss of O3on soot particles with observations in jet engine exhaust plumes. Geophysical Research Letters, 1998, 25, 3323-3326.	4.0	22
108	Physicochemistry of aircraft-generated liquid aerosols, soot, and ice particles: 1. Model description. Journal of Geophysical Research, 1998, 103, 17111-17128.	3.3	50

#	Article	IF	Citations
109	Physicochemistry of aircraft-generated liquid aerosols, soot, and ice particles: 2. Comparison with observations and sensitivity studies. Journal of Geophysical Research, 1998, 103, 17129-17147.	3.3	66
110	The role of sulfur emission in volatile particle formation in jet aircraft exhaust plumes. Geophysical Research Letters, 1997, 24, 389-392.	4.0	37
111	Heterogeneous chemistry in aircraft wakes: Constraints for uptake coefficients. Journal of Geophysical Research, 1997, 102, 19119-19135.	3.3	29
112	Aircraft-generated aerosols and visible contrails. Geophysical Research Letters, 1996, 23, 1933-1936.	4.0	49
113	Small-scale chemical evolution of aircraft exhaust species at cruising altitudes. Journal of Geophysical Research, 1996, 101, 15169-15190.	3.3	60
114	The Initial Composition of Jet Condensation Trails. Journals of the Atmospheric Sciences, 1996, 53, 3066-3083.	1.7	165
115	Aerosol production caused by civil air traffic. , 1996, , 292-295.		1
116	Impact of aircraft emissions on stratospheric ozone: A research strategy. Physics and Chemistry of the Earth, 1995, 20, 123-131.	0.3	7
117	Contrail formation: Homogeneous nucleation of H2SO4/H2O droplets. Geophysical Research Letters, 1995, 22, 1501-1504.	4.0	68
118	A trajectory box model for aircraft exhaust plumes. Journal of Geophysical Research, 1995, 100, 18835.	3.3	34
119	Dynamics of aircraft exhaust plumes in the jet-regime. Annales Geophysicae, 1994, 12, 911-919.	1.6	17
120	Transport of exhaust products in the near trail of a jet engine under atmospheric conditions. Journal of Geophysical Research, 1994, 99, 14509.	3.3	28
121	Dynamics of aircraft exhaust plumes in the jet-regime. Annales Geophysicae, 1994, 12, 911.	1.6	2
122	On inner-shell X-rays from ion-beam-driven plasma. Journal of Quantitative Spectroscopy and Radiative Transfer, 1992, 48, 255-272.	2.3	2
123	Influence of excited states on the energy loss of fast ions in a hydrogen plasma. Journal of Applied Physics, 1991, 69, 3842-3848.	2.5	2
124	Influence of partial ionization on the energy loss of fast ions in highâ€Zmaterial. Journal of Applied Physics, 1991, 69, 3835-3841.	2.5	8
125	Ion-beam-driven plasma described by rate equations. Laser and Particle Beams, 1990, 8, 679-695.	1.0	3
126	Selfâ€similar solutions of ionâ€beamâ€driven plasma expansion. Physics of Fluids B, 1989, 1, 654-662.	1.7	2

#	Article	IF	Citations
127	Evolution of entropy in the Gay-Lussac experiment. Physics Letters, Section A: General, Atomic and Solid State Physics, 1988, 126, 383-388.	2.1	1