

# Bernd Kärcher

## List of Publications by Year in descending order

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127  
papers

11,337  
citations

53660

45  
h-index

31759

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. <i>Journal of Geophysical Research D: Atmospheres</i> , 2022, 127, .	1.2	15
2	Toward practical stratospheric aerosol albedo modification: Solar-powered lofting. <i>Science Advances</i> , 2021, 7, .	4.7	6
3	Soot PCF: pore condensation and freezing framework for soot aggregates. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 7791-7843.	1.9	22
4	Process-oriented analysis of aircraft soot-cirrus interactions constrains the climate impact of aviation. <i>Communications Earth &amp; Environment</i> , 2021, 2, .	2.6	17
5	Aerosol-cloud interactions: the representation of heterogeneous ice activation in cloud models. <i>Atmospheric Chemistry and Physics</i> , 2021, 21, 15213-15220.	1.9	5
6	Process-Based Simulation of Aerosol-Cloud Interactions in a One-Dimensional Cirrus Model. <i>Journal of Geophysical Research D: Atmospheres</i> , 2020, 125, e2019JD031847.	1.2	2
7	The Impact of Mesoscale Gravity Waves on Homogeneous Ice Nucleation in Cirrus Clouds. <i>Geophysical Research Letters</i> , 2019, 46, 5556-5565.	1.5	15
8	A Stochastic Representation of Temperature Fluctuations Induced by Mesoscale Gravity Waves. <i>Journal of Geophysical Research D: Atmospheres</i> , 2019, 124, 11506-11529.	1.2	16
9	In Situ Observations of Ice Particle Losses in a Young Persistent Contrail. <i>Geophysical Research Letters</i> , 2018, 45, 13,553.	1.5	35
10	On the Statistical Distribution of Total Water in Cirrus Clouds. <i>Geophysical Research Letters</i> , 2018, 45, 9963-9971.	1.5	2
11	Contrail Formation: Analysis of Sublimation Mechanisms. <i>Geophysical Research Letters</i> , 2018, 45, 13,547.	1.5	9
12	Heterogeneous Ice Nucleation in the Tropical Tropopause Layer. <i>Journal of Geophysical Research D: Atmospheres</i> , 2018, 123, 12,210.	1.2	16
13	Formation and radiative forcing of contrail cirrus. <i>Nature Communications</i> , 2018, 9, 1824.	5.8	155
14	Cirrus Clouds and Their Response to Anthropogenic Activities. <i>Current Climate Change Reports</i> , 2017, 3, 45-57.	2.8	53
15	Microscale characteristics of homogeneous freezing events in cirrus clouds. <i>Geophysical Research Letters</i> , 2017, 44, 2027-2034.	1.5	10
16	Small-Scale Wind Fluctuations in the Tropical Tropopause Layer from Aircraft Measurements: Occurrence, Nature, and Impact on Vertical Mixing. <i>Journals of the Atmospheric Sciences</i> , 2017, 74, 3847-3869.	0.6	23
17	Homogeneous ice formation in convective cloud outflow regions. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2017, 143, 2093-2103.	1.0	5
18	Susceptibility of contrail ice crystal numbers to aircraft soot particle emissions. <i>Geophysical Research Letters</i> , 2017, 44, 8037-8046.	1.5	16

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19	The importance of contrail ice formation for mitigating the climate impact of aviation. Journal of Geophysical Research D: Atmospheres, 2016, 121, 3497-3505.	1.2	24
20	On homogeneous ice formation in liquid clouds. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 1320-1334.	1.0	19
21	The microphysical pathway to contrail formation. Journal of Geophysical Research D: Atmospheres, 2015, 120, 7893-7927.	1.2	45
22	Supersaturation Variability and Cirrus Ice Crystal Size Distributions. Journals of the Atmospheric Sciences, 2014, 71, 2905-2926.	0.6	28
23	Dust ice nuclei effects on cirrus clouds. Atmospheric Chemistry and Physics, 2014, 14, 3027-3046.	1.9	77
24	Effects of optical depth variability on contrail radiative forcing. Quarterly Journal of the Royal Meteorological Society, 2013, 139, 1658-1664.	1.0	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.	1.2	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.	0.6	12
28	Atmospheric Ice Formation Processes. Research Topics in Aerospace, 2012, , 151-167.	0.6	6
29	Aerosols in the Atmosphere. Research Topics in Aerospace, 2012, , 37-53.	0.6	11
30	Effects of ice nuclei on cirrus clouds in a global climate model. Journal of Geophysical Research, 2011, 116, .	3.3	83
31	Process-oriented large-eddy simulations of a midlatitude cirrus cloud system based on observations. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 374-393.	1.0	32
32	Global radiative forcing from contrail cirrus. Nature Climate Change, 2011, 1, 54-58.	8.1	274
33	Contrail Microphysics. Bulletin of the American Meteorological Society, 2010, 91, 465-472.	1.7	62
34	A large-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.	1.0	95
35	Heterogeneous nucleation of ice particles on glassy aerosols under cirrus conditions. Nature Geoscience, 2010, 3, 233-237.	5.4	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.	3.3	25

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37	Global Modeling of the Contrail and Contrail Cirrus Climate Impact. Bulletin of the American Meteorological Society, 2010, 91, 479-484.	1.7	61
38	Aerodynamic Contrails: Microphysics and Optical Properties. Journals of the Atmospheric Sciences, 2009, 66, 227-243.	0.6	29
39	Aerodynamic Contrails: Phenomenology and Flow Physics. Journals of the Atmospheric Sciences, 2009, 66, 217-226.	0.6	28
40	Trapping of trace gases by growing ice surfaces including surface 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	Process 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, .	1.5	99
45	Airborne measurements of the nitric acid partitioning in persistent contrails. Atmospheric Chemistry and Physics, 2009, 9, 8189-8197.	1.9	18
46	Factors controlling contrail cirrus optical depth. Atmospheric Chemistry and Physics, 2009, 9, 6229-6254.	1.9	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.	1.0	61
49	Contrail cirrus supporting areas in model and observations. Geophysical Research Letters, 2008, 35, .	1.5	45
50	In-situ observations and modeling of small nitric acid-containing ice crystals. Atmospheric Chemistry and Physics, 2007, 7, 3373-3383.	1.9	41
51	Insights into the role of soot aerosols in cirrus cloud formation. Atmospheric Chemistry and Physics, 2007, 7, 4203-4227.	1.9	144
52	Condensed phase nitric acid in a tropical subvisible cirrus cloud. Geophysical Research Letters, 2007, 34, .	1.5	21
53	Nitric acid in cirrus clouds. Geophysical Research Letters, 2006, 33, .	1.5	54
54	Physically based parameterization of cirrus cloud formation for use in global atmospheric models. Journal of Geophysical Research, 2006, 111, .	3.3	159

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55	Single-particle measurements of midlatitude black carbon and light-scattering aerosols from the boundary layer to the lower stratosphere. <i>Journal of Geophysical Research</i> , 2006, 111, .	3.3	594
56	Formation of nitric acid/water ice particles in cirrus clouds. <i>Geophysical Research Letters</i> , 2006, 33, .	1.5	40
57	Aircraft-based operation of an aerosol mass spectrometer: Measurements of tropospheric aerosol composition. <i>Journal of Aerosol Science</i> , 2006, 37, 839-857.	1.8	30
58	The observation of nitric acid-containing particles in the tropical lower stratosphere. <i>Atmospheric Chemistry and Physics</i> , 2006, 6, 601-611.	1.9	30
59	Supersaturation, dehydration, and denitrification in Arctic cirrus. <i>Atmospheric Chemistry and Physics</i> , 2005, 5, 1757-1772.	1.9	20
60	Microphysics and heterogeneous chemistry in aircraft plumes - high sensitivity on local meteorology and atmospheric composition. <i>Atmospheric Chemistry and Physics</i> , 2005, 5, 533-545.	1.9	35
61	The role of organic aerosols in homogeneous ice formation. <i>Atmospheric Chemistry and Physics</i> , 2005, 5, 703-714.	1.9	64
62	Do aircraft black carbon emissions affect cirrus clouds on the global scale?. <i>Geophysical Research Letters</i> , 2005, 32, n/a-n/a.	1.5	61
63	Factors controlling upper tropospheric relative humidity. <i>Annales Geophysicae</i> , 2004, 22, 705-715.	0.6	26
64	Evidence That Nitric Acid Increases Relative Humidity in Low-Temperature Cirrus Clouds. <i>Science</i> , 2004, 303, 516-520.	6.0	110
65	Nitric acid uptake on subtropical cirrus cloud particles. <i>Journal of Geophysical Research</i> , 2004, 109, n/a-n/a.	3.3	62
66	Sensitivity studies of cirrus clouds formed by heterogeneous freezing in the ECHAM GCM. <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	56
67	Cirrus clouds in the tropical tropopause layer: Role of heterogeneous ice nuclei. <i>Geophysical Research Letters</i> , 2004, 31, n/a-n/a.	1.5	27
68	The impact of aerosols and gravity waves on cirrus clouds at midlatitudes. <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	94
69	Correction to "Nitric acid uptake on subtropical cirrus cloud particles". <i>Journal of Geophysical Research</i> , 2004, 109, .	3.3	2
70	Trapping of trace gases in growing ice crystals. <i>Journal of Geophysical Research</i> , 2004, 109, n/a-n/a.	3.3	35
71	PARTICLES FROM AIRCRAFT EXHAUST: IN-SITU MASS SPECTROMETRIC ANALYSIS. <i>Journal of Aerosol Science</i> , 2004, 35, S1227-S1228.	1.8	0
72	Simulating the global atmospheric black carbon cycle: a revisit to the contribution of aircraft emissions. <i>Atmospheric Chemistry and Physics</i> , 2004, 4, 2521-2541.	1.9	76

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73	Impact of the Mount Pinatubo eruption on cirrus clouds formed by homogeneous freezing in the ECHAM4 GCM. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	38
74	A parameterization of cirrus cloud formation: Heterogeneous freezing. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	236
75	Simulating gas-aerosol-cirrus interactions: Process-oriented microphysical model and applications. <i>Atmospheric Chemistry and Physics</i> , 2003, 3, 1645-1664.	1.9	38
76	Numerical simulations of homogeneous freezing processes in the aerosol chamber AIDA. <i>Atmospheric Chemistry and Physics</i> , 2003, 3, 195-210.	1.9	48
77	Freezing thresholds and cirrus cloud formation mechanisms inferred from in situ measurements of relative humidity. <i>Atmospheric Chemistry and Physics</i> , 2003, 3, 1791-1806.	1.9	148
78	Cirrus cloud occurrence as function of ambient relative humidity: a comparison of observations obtained during the INCA experiment. <i>Atmospheric Chemistry and Physics</i> , 2003, 3, 1807-1816.	1.9	74
79	Experimental investigation of homogeneous freezing of sulphuric acid particles in the aerosol chamber AIDA. <i>Atmospheric Chemistry and Physics</i> , 2003, 3, 211-223.	1.9	178
80	The roles of dynamical variability and aerosols in cirrus cloud formation. <i>Atmospheric Chemistry and Physics</i> , 2003, 3, 823-838.	1.9	167
81	Properties of subvisible cirrus clouds formed by homogeneous freezing. <i>Atmospheric Chemistry and Physics</i> , 2002, 2, 161-170.	1.9	35
82	Suppression of chlorine activation on aviation-produced volatile particles. <i>Atmospheric Chemistry and Physics</i> , 2002, 2, 307-312.	1.9	10
83	A parameterization of cirrus cloud formation: Homogeneous freezing of supercooled aerosols. <i>Journal of Geophysical Research</i> , 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. <i>Journal of Geophysical Research</i> , 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 1&acirc7. <i>Journal of Geophysical Research</i> , 2002, 107, AAC 2-1.	3.3	108
86	A Parameterization of cirrus cloud formation: Homogeneous freezing including effects of aerosol size. <i>Journal of Geophysical Research</i> , 2002, 107, AAC 9-1-AAC 9-10.	3.3	118
87	Aerosol states in the free troposphere at northern midlatitudes. <i>Journal of Geophysical Research</i> , 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. <i>Journals of the Atmospheric Sciences</i> , 2002, 59, 2305-2329.	0.6	91
89	On the impact of heterogeneous chemistry on ozone in the tropopause region. <i>Geophysical Research Letters</i> , 2001, 28, 515-518.	1.5	25
90	On the Transition of Contrails into Cirrus Clouds. <i>Journals of the Atmospheric Sciences</i> , 2000, 57, 464-480.	0.6	153

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91	New particle formation in aircraft exhaust plumes. <i>Journal of Aerosol Science</i> , 2000, 31, 170-171.	1.8	1
92	Limitation of heterogeneous chemistry on aviation-produced aerosols. <i>Journal of Aerosol Science</i> , 2000, 31, 356-357.	1.8	0
93	Properties of particles in the tropopause region. <i>Journal of Aerosol Science</i> , 2000, 31, 594-595.	1.8	0
94	Ultrafine particle size distributions measured in aircraft exhaust plumes. <i>Journal of Geophysical Research</i> , 2000, 105, 26555-26567.	3.3	122
95	In situ observations of aerosol properties above ice saturation in the polar tropopause region. <i>Journal of Geophysical Research</i> , 2000, 105, 29387-29395.	3.3	7
96	A unified model for ultrafine aircraft particle emissions. <i>Journal of Geophysical Research</i> , 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. <i>Atmospheric Environment</i> , 1999, 33, 2689-2698.	1.9	54
99	The possible role of organics in the formation and evolution of ultrafine aircraft particles. <i>Journal of Geophysical Research</i> , 1999, 104, 4079-4087.	3.3	59
100	On the composition and optical extinction of particles in the tropopause region. <i>Journal of Geophysical Research</i> , 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. <i>Atmospheric Research</i> , 1998, 46, 293-305.	1.8	26
102	On the mechanisms controlling the formation and properties of volatile particles in aircraft wakes. <i>Geophysical Research Letters</i> , 1998, 25, 3839-3842.	1.5	38
103	Aviation fuel tracer simulation: Model intercomparison and implications. <i>Geophysical Research Letters</i> , 1998, 25, 3947-3950.	1.5	48
104	Perturbation of the aerosol layer by aviation-produced aerosols: A parametrization of plume processes. <i>Geophysical Research Letters</i> , 1998, 25, 4465-4468.	1.5	15
105	Ultrafine aerosol particles in aircraft plumes: In situ observations. <i>Geophysical Research Letters</i> , 1998, 25, 2789-2792.	1.5	72
106	Ultrafine aerosol particles in aircraft plumes: Analysis of growth mechanisms. <i>Geophysical Research Letters</i> , 1998, 25, 2793-2796.	1.5	57
107	Constraining the heterogeneous loss of O <sub>3</sub> on soot particles with observations in jet engine exhaust plumes. <i>Geophysical Research Letters</i> , 1998, 25, 3323-3326.	1.5	22
108	Physicochemistry of aircraft-generated liquid aerosols, soot, and ice particles: 1. Model description. <i>Journal of Geophysical Research</i> , 1998, 103, 17111-17128.	3.3	50

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109	Physicochemistry of aircraft-generated liquid aerosols, soot, and ice particles: 2. Comparison with observations and sensitivity studies. <i>Journal of Geophysical Research</i> , 1998, 103, 17129-17147.	3.3	66
110	The role of sulfur emission in volatile particle formation in jet aircraft exhaust plumes. <i>Geophysical Research Letters</i> , 1997, 24, 389-392.	1.5	37
111	Heterogeneous chemistry in aircraft wakes: Constraints for uptake coefficients. <i>Journal of Geophysical Research</i> , 1997, 102, 19119-19135.	3.3	29
112	Aircraft-generated aerosols and visible contrails. <i>Geophysical Research Letters</i> , 1996, 23, 1933-1936.	1.5	49
113	Small-scale chemical evolution of aircraft exhaust species at cruising altitudes. <i>Journal of Geophysical Research</i> , 1996, 101, 15169-15190.	3.3	60
114	The Initial Composition of Jet Condensation Trails. <i>Journals of the Atmospheric Sciences</i> , 1996, 53, 3066-3083.	0.6	165
115	Aerosol production caused by civil air traffic. , 1996, , 292-295.		1
116	Impact of aircraft emissions on stratospheric ozone: A research strategy. <i>Physics and Chemistry of the Earth</i> , 1995, 20, 123-131.	0.3	7
117	Contrail formation: Homogeneous nucleation of H <sub>2</sub> SO <sub>4</sub> /H <sub>2</sub> O droplets. <i>Geophysical Research Letters</i> , 1995, 22, 1501-1504.	1.5	68
118	A trajectory box model for aircraft exhaust plumes. <i>Journal of Geophysical Research</i> , 1995, 100, 18835.	3.3	34
119	Dynamics of aircraft exhaust plumes in the jet-regime. <i>Annales Geophysicae</i> , 1994, 12, 911-919.	0.6	17
120	Transport of exhaust products in the near trail of a jet engine under atmospheric conditions. <i>Journal of Geophysical Research</i> , 1994, 99, 14509.	3.3	28
121	Dynamics of aircraft exhaust plumes in the jet-regime. <i>Annales Geophysicae</i> , 1994, 12, 911.	0.6	2
122	On inner-shell X-rays from ion-beam-driven plasma. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1992, 48, 255-272.	1.1	2
123	Influence of excited states on the energy loss of fast ions in a hydrogen plasma. <i>Journal of Applied Physics</i> , 1991, 69, 3842-3848.	1.1	2
124	Influence of partial ionization on the energy loss of fast ions in high-Z material. <i>Journal of Applied Physics</i> , 1991, 69, 3835-3841.	1.1	8
125	Ion-beam-driven plasma described by rate equations. <i>Laser and Particle Beams</i> , 1990, 8, 679-695.	0.4	3
126	Self-similar solutions of ion-beam-driven plasma expansion. <i>Physics of Fluids B</i> , 1989, 1, 654-662.	1.7	2



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127	Evolution of entropy in the Gay-Lussac experiment. Physics Letters, Section A: General, Atomic and Solid State Physics, 1988, 126, 383-388.	0.9	1