Johannes Quaas

List of Publications by Year
in descending order

135 papers	8,225 citations	53751 45 h-index	56687 83 g-index
233 all docs	233 docs citations	233 times ranked	6710 citing authors

#	Article	IF	Citations
1	Bounding Global Aerosol Radiative Forcing of Climate Change. Reviews of Geophysics, 2020, 58, e2019RG000660.	9.0	424
2	Aerosol indirect effects â€" general circulation model intercomparison and evaluation with satellite data. Atmospheric Chemistry and Physics, 2009, 9, 8697-8717.	1.9	418
3	Evaluating the climate and air quality impacts of short-lived pollutants. Atmospheric Chemistry and Physics, 2015, 15, 10529-10566.	1.9	365
4	The global aerosol-climate model ECHAM-HAM, version 2: sensitivity to improvements in process representations. Atmospheric Chemistry and Physics, 2012, 12, 8911-8949.	1.9	319
5	Global observations of aerosol-cloud-precipitation-climate interactions. Reviews of Geophysics, 2014, 52, 750-808.	9.0	316
6	Satelliteâ€based estimate of the direct and indirect aerosol climate forcing. Journal of Geophysical Research, 2008, 113, .	3.3	267
7	Frequency of occurrence of rain from liquidâ€, mixedâ€, and iceâ€phase clouds derived from Aâ€Train satellite retrievals. Geophysical Research Letters, 2015, 42, 6502-6509.	1.5	227
8	Model intercomparison of indirect aerosol effects. Atmospheric Chemistry and Physics, 2006, 6, 3391-3405.	1.9	205
9	Constraining the total aerosol indirect effect in the LMDZ and ECHAM4 GCMs using MODIS satellite data. Atmospheric Chemistry and Physics, 2006, 6, 947-955.	1.9	198
10	Estimates of aerosol radiative forcing from the MACC re-analysis. Atmospheric Chemistry and Physics, 2013, 13, 2045-2062.	1.9	194
11	Aerosol nucleation and its role for clouds and Earth's radiative forcing in the aerosol-climate model ECHAM5-HAM. Atmospheric Chemistry and Physics, 2010, 10, 10733-10752.	1.9	190
12	Remote Sensing of Droplet Number Concentration in Warm Clouds: A Review of the Current State of Knowledge and Perspectives. Reviews of Geophysics, 2018, 56, 409-453.	9.0	185
13	Total aerosol effect: radiative forcing or radiative flux perturbation?. Atmospheric Chemistry and Physics, 2010, 10, 3235-3246.	1.9	184
14	Largeâ€eddy simulations over Germany using ICON: a comprehensive evaluation. Quarterly Journal of the Royal Meteorological Society, 2017, 143, 69-100.	1.0	175
15	Interpreting the cloud cover â€" aerosol optical depth relationship found in satellite data using a general circulation model. Atmospheric Chemistry and Physics, 2010, 10, 6129-6135.	1.9	169
16	Global and regional trends of atmospheric sulfur. Scientific Reports, 2019, 9, 953.	1.6	166
17	Current model capabilities for simulating black carbon and sulfate concentrations in the Arctic atmosphere: a multi-model evaluation using a comprehensive measurement data set. Atmospheric Chemistry and Physics, 2015, 15, 9413-9433.	1.9	145
18	The Arctic Cloud Puzzle: Using ACLOUD/PASCAL Multiplatform Observations to Unravel the Role of Clouds and Aerosol Particles in Arctic Amplification. Bulletin of the American Meteorological Society, 2019, 100, 841-871.	1.7	145

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19	On Constraining Estimates of Climate Sensitivity with Present-Day Observations through Model Weighting. Journal of Climate, 2011, 24, 6092-6099.	1.2	130
20	Constraining the aerosol influence on cloud fraction. Journal of Geophysical Research D: Atmospheres, 2016, 121, 3566-3583.	1.2	129
21	How can aerosols affect the Asian summer monsoon? Assessment during three consecutive pre-monsoon seasons from CALIPSO satellite data. Atmospheric Chemistry and Physics, 2010, 10, 4673-4688.	1.9	127
22	Weak average liquid-cloud-water response to anthropogenic aerosols. Nature, 2019, 572, 51-55.	13.7	111
23	Constraining the aerosol influence on cloud liquid water path. Atmospheric Chemistry and Physics, 2019, 19, 5331-5347.	1.9	104
24	Arctic Clouds and Surface Radiation â€" a critical comparison of satellite retrievals and the ERA-Interim reanalysis. Atmospheric Chemistry and Physics, 2012, 12, 6667-6677.	1.9	96
25	Aerosol indirect effects in POLDER satellite data and the Laboratoire de MÃ©tÃ©orologie Dynamiqueâ€"Zoom (LMDZ) general circulation model. Journal of Geophysical Research, 2004, 109, .	3.3	94
26	Intercomparison of shortwave radiative transfer schemes in global aerosol modeling: results from the AeroCom Radiative Transfer Experiment. Atmospheric Chemistry and Physics, 2013, 13, 2347-2379.	1.9	94
27	The Added Value of Large-eddy and Storm-resolving Models for Simulating Clouds and Precipitation. Journal of the Meteorological Society of Japan, 2020, 98, 395-435.	0.7	93
28	Multi-model simulations of aerosol and ozone radiative forcing due to anthropogenic emission changes during the periodÂ1990â€"2015. Atmospheric Chemistry and Physics, 2017, 17, 2709-2720.	1.9	87
29	A microphysics guide to cirrus â€" Part 2: Climatologies of clouds and humidity from observations. Atmospheric Chemistry and Physics, 2020, 20, 12569-12608.	1.9	80
30	Constraining the instantaneous aerosol influence on cloud albedo. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 4899-4904.	3.3	77
31	Evaluating the â€œcritical relative humidityâ€•as a measure of subgridâ€scale variability of humidity in general circulation model cloud cover parameterizations using satellite data. Journal of Geophysical Research, 2012, 117, .	3.3	76
32	Understanding Causes and Effects of Rapid Warming in the Arctic. Eos, 2017, , .	0.1	76
33	Pollution trends over Europe constrain global aerosol forcing as simulated by climate models. Geophysical Research Letters, 2014, 41, 2176-2181.	1.5	75
34	Constraining the first aerosol indirect radiative forcing in the LMDZ GCM using POLDER and MODIS satellite data. Geophysical Research Letters, 2005, 32, .	1.5	69
35	Climate responses to anthropogenic emissions of short-lived climate pollutants. Atmospheric Chemistry and Physics, 2015, 15, 8201-8216.	1.9	69
36	Different Approaches for Constraining Global Climate Models of the Anthropogenic Indirect Aerosol Effect. Bulletin of the American Meteorological Society, 2007, 88, 243-250.	1.7	66

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37	Ice crystal number concentration estimates from lidarâ€“radar satellite remote sensing â€“ Part 1: Method and evaluation. Atmospheric Chemistry and Physics, 2018, 18, 14327-14350.	1.9	61
38	Global mean cloud feedbacks in idealized climate change experiments. Geophysical Research Letters, 2006, 33, .	1.5	58
39	Soot microphysical effects on liquid clouds, a multi-model investigation. Atmospheric Chemistry and Physics, 2011, 11, 1051-1064.	1.9	58
40	Contrasts in the effects on climate of anthropogenic sulfate aerosols between the 20th and the 21st century. Geophysical Research Letters, 2005, 32, .	1.5	57
41	Assessing large-scale weekly cycles in meteorological variables: a review. Atmospheric Chemistry and Physics, 2012, 12, 5755-5771.	1.9	56
42	Evaluation of Clouds and Precipitation in the ECHAM5 General Circulation Model Using CALIPSO and CloudSat Satellite Data. Journal of Climate, 2012, 25, 4975-4992.	1.2	55
43	Analysis of polarimetric satellite measurements suggests stronger cooling due to aerosol-cloud interactions. Nature Communications, 2019, 10, 5405.	5.8	55
44	An underestimated negative cloud feedback from cloud lifetime changes. Nature Climate Change, 2021, 11, 508-513.	8.1	51
45	A six year satellite-based assessment of the regional variations in aerosol indirect effects. Atmospheric Chemistry and Physics, 2009, 9, 4091-4114.	1.9	50
46	Effects of absorbing aerosols in cloudy skies: a satellite study over the Atlantic Ocean. Atmospheric Chemistry and Physics, 2011, 11, 1393-1404.	1.9	49
47	Water vapour affects both rain and aerosol optical depth. Nature Geoscience, 2013, 6, 4-5.	5.4	49
48	Constraining the Twomey effect from satellite observations: issues and perspectives. Atmospheric Chemistry and Physics, 2020, 20, 15079-15099.	1.9	49
49	Trends in AOD, Clouds, and Cloud Radiative Effects in Satellite Data and CMIP5 and CMIP6 Model Simulations Over Aerosol Source Regions. Geophysical Research Letters, 2020, 47, e2020GL087132.	1.5	48
50	Evaluating aerosol/cloud/radiation process parameterizations with single-column models and Second Aerosol Characterization Experiment (ACE-2) cloudy column observations. Journal of Geophysical Research, 2003, 108, n/a-n/a.	3.3	47
51	Opportunistic experiments to constrain aerosol effective radiative forcing. Atmospheric Chemistry and Physics, 2022, 22, 641-674.	1.9	44
52	Jury is still out on the radiative forcing by black carbon. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E5092-3.	3.3	43
53	Are there reasons against open-ended research into solar radiation management? A model of intergenerational decision-making under uncertainty. Journal of Environmental Economics and Management, 2017, 84, 1-17.	2.1	43
54	Parameter estimation using data assimilation in an atmospheric general circulation model: From a perfect toward the real world. Journal of Advances in Modeling Earth Systems, 2013, 5, 58-70.	1.3	41

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55	Climate extremes in multi-model simulations of stratospheric aerosol and marine cloud brightening climate engineering. Atmospheric Chemistry and Physics, 2015, 15, 9593-9610.	1.9	37
56	Approaches to Observe Anthropogenic Aerosol-Cloud Interactions. Current Climate Change Reports, 2015, 1, 297-304.	2.8	35
57	Exploiting the weekly cycle as observed over Europe to analyse aerosol indirect effects in two climate models. Atmospheric Chemistry and Physics, 2009, 9, 8493-8501.	1.9	34
58	GCM simulations of anthropogenic aerosolâ€induced changes in aerosol extinction, atmospheric heating and precipitation over India. Journal of Geophysical Research D: Atmospheres, 2013, 118, 2938-2955.	1.2	34
59	Ice crystal number concentration estimates from lidarâ€"radar satellite remote sensing â€" PartÂ2: Controls on the ice crystal number concentration. Atmospheric Chemistry and Physics, 2018, 18, 14351-14370.	1.9	34
60	Reducing the aerosol forcing uncertainty using observational constraints on warm rain processes. Science Advances, 2020, 6, eaaz6433.	4.7	33
61	Aerosol indirect effects from shipping emissions: sensitivity studies with the global aerosol-climate model ECHAM-HAM. Atmospheric Chemistry and Physics, 2012, 12, 5985-6007.	1.9	32
62	Evaluation of cloud thermodynamic phase parametrizations in the LMDZ GCM by using POLDER satellite data. Geophysical Research Letters, 2004, 31, n/a-n/a.	1.5	31
63	The importance of the representation of air pollution emissions for the modeled distribution and radiative effects of black carbon in the Arctic. Atmospheric Chemistry and Physics, 2019, 19, 11159-11183.	1.9	30
64	A search for large-scale effects of ship emissions on clouds and radiation in satellite data. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	29
65	Significant underestimation of radiative forcing by aerosolâ€"cloud interactions derived from satellite-based methods. Nature Communications, 2021, 12, 3649.	5.8	29
66	Satellite Observations of Precipitating Marine Stratocumulus Show Greater Cloud Fraction for Decoupled Clouds in Comparison to Coupled Clouds. Geophysical Research Letters, 2018, 45, 5126-5134.	1.5	28
67	Opposite Aerosol Indexâ€Cloud Droplet Effective Radius Correlations Over Major Industrial Regions and Their Adjacent Oceans. Geophysical Research Letters, 2018, 45, 5771-5778.	1.5	28
68	Using CALIOP to estimate cloud-field base height and its uncertainty: the Cloud Base Altitude Spatial Extrapolator (CBASE) algorithm and dataset. Earth System Science Data, 2018, 10, 2279-2293.	3.7	28
69	Assessment of simulated aerosol effective radiative forcings in the terrestrial spectrum. Geophysical Research Letters, 2017, 44, 1001-1007.	1.5	27
70	Regional climate engineering by radiation management: Prerequisites and prospects. Earth's Future, 2016, 4, 618-625.	2.4	26
71	Impacts of greenhouse gases and aerosol direct and indirect effects on clouds and radiation in atmospheric GCM simulations of the 1930â€"1989 period. Climate Dynamics, 2004, 23, 779-789.	1.7	25
72	The soot factor. Nature, 2011, 471, 456-457.	13.7	25

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73	Climate models disagree on the sign of total radiative feedback in the Arctic. Tellus, Series A: Dynamic Meteorology and Oceanography, 2022, 72, 1696139.	0.8	25
74	Scale Dependency of Total Water Variance and Its Implication for Cloud Parameterizations. Journals of the Atmospheric Sciences, 2013, 70, 3615-3630.	0.6	24
75	Clouds and Aerosols. , 2020, , 313-328.		24
76	Assessment of different metrics for physical climate feedbacks. Climate Dynamics, 2013, 41, 1173-1185.	1.7	23
77	Comment on â€œRethinking the Lower Bound on Aerosol Radiative Forcingâ€. Journal of Climate, 2017, 30, 6579-6584.	1.2	22
78	Is positive correlation between cloud droplet effective radius and aerosol optical depth over land due to retrieval artifacts or real physical processes?. Atmospheric Chemistry and Physics, 2019, 19, 8879-8896.	1.9	22
79	Radiative forcing of climate change from the Copernicus reanalysis of atmospheric composition. Earth System Science Data, 2020, 12, 1649-1677.	3.7	22
80	Current Understanding and Quantification of Clouds in the Changing Climate System and Strategies for Reducing Critical Uncertainties. , 2009, , 557-574.		22
81	The respective roles of surface temperature driven feedbacks and tropospheric adjustment to CO2 in CMIP5 transient climate simulations. Climate Dynamics, 2013, 41, 3103-3126.	1.7	21
82	Climate impact of aircraft-induced cirrus assessed from satellite observations before and during COVID-19. Environmental Research Letters, 2021, 16, 064051.	2.2	21
83	Incorporating the subgridâ€scale variability of clouds in the autoconversion parameterization using a PDFâ€scheme. Journal of Advances in Modeling Earth Systems, 2012, 4, .	1.3	20
84	Detection and attribution of aerosolâ€"cloud interactions in large-domain large-eddy simulations with the ICOsahedral Non-hydrostatic model. Atmospheric Chemistry and Physics, 2020, 20, 5657-5678.	1.9	20
85	The Research Unit VolImpact: Revisiting the volcanic impact on atmosphere and climateÂâ€" preparations for the next big volcanic eruption. Meteorologische Zeitschrift, 2020, 29, 3-18.	0.5	20
86	Convectionâ€"Climate Feedbacks in the ECHAM5 General Circulation Model: Evaluation of Cirrus Cloud Life Cycles with ISCCP Satellite Data from a Lagrangian Trajectory Perspective. Journal of Climate, 2012, 25, 5241-5259.	1.2	19
87	Processes limiting the emergence of detectable aerosol indirect effects on tropical warm clouds in global aerosol-climate model and satellite data. Tellus, Series B: Chemical and Physical Meteorology, 2022, 66, 24054.	0.8	19
88	Black carbon indirect radiative effects in a climate model. Tellus, Series B: Chemical and Physical Meteorology, 2017, 69, 1369342.	0.8	19
89	Cloud base height retrieval from multi-angle satellite data. Atmospheric Measurement Techniques, 2019, 12, 1841-1860.	1.2	18
90	Overview: Fusion of radar polarimetry and numerical atmospheric modelling towards an improved understanding of cloud and precipitation processes. Atmospheric Chemistry and Physics, 2021, 21, 17291-17314.	1.9	18

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91	Examination of aerosol distributions and radiative effects over the Bay of Bengal and the Arabian Sea region during ICARB using satellite data and a general circulation model. Atmospheric Chemistry and Physics, 2012, 12, 1287-1305.	1.9	17
92	Reassessment of satelliteâ€based estimate of aerosol climate forcing. Journal of Geophysical Research D: Atmospheres, 2014, 119, 10,394.	1.2	17
93	Evaluation of boundary layer cloud parameterizations in the ECHAM5 general circulation model using CALIPSO and CloudSat satellite data. Journal of Advances in Modeling Earth Systems, 2014, 6, 300-314.	1.3	17
94	Basic Concepts for Convection Parameterization in Weather Forecast and Climate Models: COST Action ES0905 Final Report. Atmosphere, 2015, 6, 88-147.	1.0	17
95	Multi-model evaluation of short-lived pollutant distributions over east Asia during summer 2008. Atmospheric Chemistry and Physics, 2016, 16, 10765-10792.	1.9	17
96	Regional and seasonal radiative forcing by perturbations to aerosol and ozone precursor emissions. Atmospheric Chemistry and Physics, 2016, 16, 13885-13910.	1.9	17
97	Better calibration of cloud parameterizations and subgrid effects increases the fidelity of the E3SM Atmosphere Model version 1. Geoscientific Model Development, 2022, 15, 2881-2916.	1.3	17
98	Separating radiative forcing by aerosolâ€"cloud interactions and rapid cloud adjustments in the ECHAMâ€"HAMMOZ aerosolâ€"climate model using the method of partial radiative perturbations. Atmospheric Chemistry and Physics, 2019, 19, 15415-15429.	1.9	16
99	Evaluation of the statistical cloud scheme in the ECHAM5 model using satellite data. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 2079-2091.	1.0	15
100	CHASER: An Innovative Satellite Mission Concept to Measure the Effects of Aerosols on Clouds and Climate. Bulletin of the American Meteorological Society, 2013, 94, 685-694.	1.7	15
101	Geographically versus dynamically defined boundary layer cloud regimes and their use to evaluate general circulation model cloud parameterizations. Geophysical Research Letters, 2013, 40, 4951-4956.	1.5	15
102	Correcting orbital drift signal in the time series of AVHRR derived convective cloud fraction using rotated empirical orthogonal function. Atmospheric Measurement Techniques, 2012, 5, 267-273.	1.2	13
103	Evaluating statistical cloud schemes: What can we gain from groundâ€based remote sensing?. Journal of Geophysical Research D: Atmospheres, 2013, 118, 10,507.	1.2	12
104	Black carbon aerosol reductions during COVID-19 confinement quantified by aircraft measurements over Europe. Atmospheric Chemistry and Physics, 2022, 22, 8683-8699.	1.9	11
105	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
106	Arctic clouds in ECHAM6 and their sensitivity to cloud microphysics and surface fluxes. Atmospheric Chemistry and Physics, 2019, 19, 10571-10589.	1.9	10
107	Who turns the global thermostat and by how much?. Energy Economics, 2020, 91, 104852.	5.6	10
108	Employing airborne radiation and cloud microphysics observations to improve cloud representation in ICON at kilometer-scale resolution in the Arctic. Atmospheric Chemistry and Physics, 2020, 20, 13145-13165.	1.9	10

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109	Which of satellite- or model-based estimates is closer to reality for aerosol indirect forcing?. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, E1099-E1099.	3.3	9
110	Corrigendum to "Aerosol indirect effects from shipping emissions: sensitivity studies with the global aerosol-climate model ECHAM-HAM" published in Atmos. Chem. Phys., 12, 5985â€“6007, 2012. Atmospheric Chemistry and Physics, 2013, 13, 6429-6430.	1.9	9
111	Addressing the difficulties in quantifying droplet number response to aerosol from satellite observations. Atmospheric Chemistry and Physics, 2022, 22, 7353-7372.	1.9	9
112	A new classification of satellite-derived liquid water cloud regimes at cloud scale. Atmospheric Chemistry and Physics, 2020, 20, 2407-2418.	1.9	7
113	Analysis of diagnostic climate model cloud parametrizations using largeâ€eddy simulations. Quarterly Journal of the Royal Meteorological Society, 2015, 141, 2199-2205.	1.0	6
114	Subgrid-scale variability in clear-sky relative humidity and forcing by aerosolâ€“radiation interactions in an atmosphere model. Atmospheric Chemistry and Physics, 2018, 18, 8589-8599.	1.9	6
115	The Global Atmosphereâ€aerosol Model ICONâ€Aâ€HAM2.3â€“Initial Model Evaluation and Effects of Radiation Balance Tuning on Aerosol Optical Thickness. Journal of Advances in Modeling Earth Systems, 2022, 14, .	1.3	6
116	An automated cirrus classification. Atmospheric Chemistry and Physics, 2018, 18, 6157-6169.	1.9	5
117	Smoke and Climate Change. Science, 2009, 325, 153-154.	6.0	4
118	A new statistical approach to improve the satellite-based estimation of the radiative forcing by aerosolâ€“cloud interactions. Atmospheric Chemistry and Physics, 2017, 17, 3687-3698.	1.9	4
119	CO2-forced changes of Arctic temperature lapse rates in CMIP5 models. Meteorologische Zeitschrift, 2020, 29, 79-93.	0.5	4
120	Satellite Observations of the Impact of Individual Aircraft on Ice Crystal Number in Thin Cirrus Clouds. Geophysical Research Letters, 2022, 49, .	1.5	4
121	Impact of Holuhraun volcano aerosols on clouds in cloud-system-resolving simulations. Atmospheric Chemistry and Physics, 2022, 22, 8457-8472.	1.9	4
122	A Prospectus for Constraining Rapid Cloud Adjustments in General Circulation Models. Journal of Advances in Modeling Earth Systems, 2018, 10, 2080-2094.	1.3	3
123	Polarimetric Radar Observations Meet Atmospheric Modelling. , 2018, , .		3
124	Absorbing aerosol decreases cloud cover in cloudâ€resolving simulations over Germany. Quarterly Journal of the Royal Meteorological Society, 2021, 147, 4083-4100.	1.0	3
125	Life Cycle of Shallow Marine Cumulus Clouds From Geostationary Satellite Observations. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2021JD035577.	1.2	3
126	Strong Ocean/Seaâ€Ice Contrasts Observed in Satelliteâ€Derived Ice Crystal Number Concentrations in Arctic Ice Boundaryâ€Layer Clouds. Geophysical Research Letters, 2022, 49, .	1.5	3

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127	A Methodology for Verifying Cloud Forecasts with VIIRS Imagery and Derived Cloud Productsâ€"A WRF Case Study. Atmosphere, 2019, 10, 521.	1.0	2
128	Substantial Climate Response outside the Target Area in an Idealized Experiment of Regional Radiation Management. Climate, 2021, 9, 66.	1.2	2
129	A short guide to increase FAIRness of atmospheric model data. Meteorologische Zeitschrift, 2020, 29, 483-491.	0.5	2
130	The Impact of CO2-Driven Climate Change on the Arctic Atmospheric Energy Budget in CMIP6 Climate Model Simulations. Tellus, Series A: Dynamic Meteorology and Oceanography, 2022, 74, 106-118.	0.8	2
131	Satellite-based analysis of clouds and radiation properties of different vegetation types in the Brazilian Amazon region. , 2013, , .		0
132	Aerosol alteration of Atlantic storms. Nature Geoscience, 2013, 6, 519-519.	5.4	0
133	Effects of diabatic and adiabatic processes on relative humidity in a GCM, and relationship between mid-tropospheric vertical wind and cloud-forming and cloud-dissipating processes. Tellus, Series A: Dynamic Meteorology and Oceanography, 2017, 69, 1272753.	0.8	0
134	Weekly Cycles in Meteorological Variables Over Large-Scales: Fact or Myth?. Springer Atmospheric Sciences, 2013, , 1211-1217.	0.4	0
135	Satellite observations of convection and their implications for parameterizations. Series on the Science of Climate Change, 2015, , 47-58.	0.1	0