Guang J Zhang

List of Publications by Citations

111 papers	3,202 citations	34 h-index	52 g-index
121 ext. papers	3,661 ext. citations	5 avg, IF	5.64 L-index

#	Paper	IF	Citations
111	Vertical structure and physical processes of the Madden-Julian oscillation: Exploring key model physics in climate simulations. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 4718-4748	4.4	255
110	A Decomposition of Feedback Contributions to Polar Warming Amplification. *Journal of Climate*, **2013**, 26, 7023-7043	4.4	158
109	Convective quasi-equilibrium in midlatitude continental environment and its effect on convective parameterization. *Journal of Geophysical Research*, **2002**, 107, ACL 12-1		138
108	Simulation of the Madden□Julian Oscillation in the NCAR CCM3 Using a Revised Zhang□McFarlane Convection Parameterization Scheme. *Journal of Climate*, **2005**, 18, 4046-4064	4.4	120
107	Intercomparison and evaluation of cumulus parametrizations under summertime midlatitude continental conditions. *Quarterly Journal of the Royal Meteorological Society*, **2002**, 128, 1095-1135	6.4	106
106	Performance of the New NCAR CAM3.5 in East Asian Summer Monsoon Simulations: Sensitivity to Modifications of the Convection Scheme. *Journal of Climate*, **2010**, 23, 3657-3675	4.4	105
105	Uncertainty quantification and parameter tuning in the CAM5 Zhang-McFarlane convection scheme and impact of improved convection on the global circulation and climate. *Journal of Geophysical Research D: Atmospheres*, **2013**, 118, 395-415	4.4	89
104	Microphysics parameterization for convective clouds in a global climate model: Description and single-column model tests. *Journal of Geophysical Research*, **2011**, 116,		79
103	Role of convective scale momentum transport in climate simulation. *Journal of Geophysical Research*, **1995**, 100, 1417-1426		79
102	Convection Parameterization, Tropical Pacific Double ITCZ, and Upper-Ocean Biases in the NCAR CCSM3. Part I: Climatology and Atmospheric Feedback. *Journal of Climate*, **2009**, 22, 4299-4315	4.4	70
101	Toward mitigating the double ITCZ problem in NCAR CCSM3. *Geophysical Research Letters*, **2006**, 33,	4.9	70
100	Energy consumption and the unexplained winter warming over northern Asia and North America. *Nature Climate Change*, **2013**, 3, 466-470	21.4	69
99	Roles of tropospheric and boundary layer forcing in the diurnal cycle of convection in the U.S. southern great plains. *Geophysical Research Letters*, **2003**, 30,	4.9	59
98	Aerosol direct forcing of the summer Indian monsoon as simulated by the NCAR CAM3. *Climate Dynamics*, **2009**, 32, 313-332	4.2	56
97	Simulations of midlatitude frontal clouds by single-column and cloud-resolving models during the Atmospheric Radiation Measurement March 2000 cloud intensive operational period. *Journal of Geophysical Research*, **2005**, 110,		56
96	Preliminary Evaluation of a Revised Zhang-McFarlane Convection Scheme Using the NCAR CCM3 GCM. *Advances in Atmospheric Sciences*, **2001**, 18, 710-717	2.9	55
95	Vertical structure and physical processes of the Madden-Julian oscillation: Linking hindcast fidelity to simulated diabatic heating and moistening. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 4690-4717	4.4	54

94	Convective quasi-equilibrium in the tropical western Pacific: Comparison with midlatitude continental environment. *Journal of Geophysical Research*, **2003**, 108,		54
93	Interaction of deep and shallow convection is key to Madden-Julian Oscillation simulation. *Geophysical Research Letters*, **2009**, 36,	4.9	52
92	Effects of modifications to the Zhang-McFarlane convection parameterization on the simulation of the tropical precipitation in the National Center for Atmospheric Research Community Climate Model, version 3. *Journal of Geophysical Research*, **2005**, 110,		52
91	Impact of a modified convective scheme on the Madden-Julian Oscillation and El Niño-Southern Oscillation in a coupled climate model. *Geophysical Research Letters*, **2007**, 34,	4.9	50
90	Seasonal migration of ITCZ precipitation across the equator: Why can't GCMs simulate it?. *Geophysical Research Letters*, **2003**, 30,	4.9	50
89	Evaluation of Trigger Functions for Convective Parameterization Schemes Using Observations. *Journal of Climate*, **2014**, 27, 7647-7666	4.4	49
88	Evaluation of Microphysics Parameterization for Convective Clouds in the NCAR Community Atmosphere Model CAM5. *Journal of Climate*, **2012**, 25, 8568-8590	4.4	47
87	Improving representation of convective transport for scale-aware parameterization: 1. Convection and cloud properties simulated with spectral bin and bulk microphysics. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 3485-3509	4.4	43
86	Coupling of Convective Momentum Transport with Convective Heating in Global Climate Simulations. *Journals of the Atmospheric Sciences*, **2007**, 64, 1334-1349	2.1	43
85	Improved Diurnal Cycle of Precipitation in E3SM With a Revised Convective Triggering Function. *Journal of Advances in Modeling Earth Systems*, **2019**, 11, 2290-2310	7.1	42
84	Parameterization of the Vertical Transport of Momentum by Cumulus Clouds. Part I: Theory. *Journals of the Atmospheric Sciences*, **1991**, 48, 1483-1492	2.1	42
83	Convective Momentum Transport and Perturbation Pressure Field from a Cloud-Resolving Model Simulation. *Journals of the Atmospheric Sciences*, **2003**, 60, 1120-1139	2.1	41
82	Effects of entrainment on convective available potential energy and closure assumptions in convection parameterization. *Journal of Geophysical Research*, **2009**, 114,		40
81	Investigation of Regional and Seasonal Variations in Marine Boundary Layer Cloud Properties from MODIS Observations. *Journal of Climate*, **2008**, 21, 4955-4973	4.4	39
80	Impacts of Shallow Convection on MJO Simulation: A Moist Static Energy and Moisture Budget Analysis. *Journal of Climate*, **2013**, 26, 2417-2431	4.4	36
79	Convection Parameterization, Tropical Pacific Double ITCZ, and Upper-Ocean Biases in the NCAR CCSM3. Part II: Coupled Feedback and the Role of Ocean Heat Transport. *Journal of Climate*, **2010**, 23, 800-812	4.4	35
78	Convection-Evaporation Feedback in the Equatorial pacific. *Journal of Climate*, **1995**, 8, 3040-3051	4.4	34
77	Investigation of aerosol indirect effects using a cumulus microphysics parameterization in a regional climate model. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 906-926	4.4	32

76	Stochastic convective parameterization improving the simulation of tropical precipitation variability in the NCAR CAM5. *Geophysical Research Letters*, **2016**, 43, 6612-6619	4.9	31
75	A long-term tropical mesoscale convective systems dataset based on a novel objective automatic tracking algorithm. *Climate Dynamics*, **2018**, 51, 3145-3159	4.2	30
74	Simulations of the 2004 North American Monsoon: NAMAP2. *Journal of Climate*, **2009**, 22, 6716-6740	4.4	30
73	Impact of absorbing aerosol on precipitation: Dynamic aspects in association with convective available potential energy and convective parameterization closure and dependence on aerosol heating profile. *Journal of Geophysical Research*, **2004**, 109, n/a-n/a		30
72	Improving Parameterization of Entrainment Rate for Shallow Convection with Aircraft Measurements and Large-Eddy Simulation. *Journals of the Atmospheric Sciences*, **2016**, 73, 761-773	2.1	27
71	Response of Climate Simulation to a New Convective Parameterization in the National Center for Atmospheric Research Community Climate Model (CCM3)*. *Journal of Climate*, **1998**, 11, 2097-2115	4.4	25
70	The Roles of Convection Parameterization in the Formation of Double ITCZ Syndrome in the NCAR CESM: I. Atmospheric Processes. *Journal of Advances in Modeling Earth Systems*, **2018**, 10, 842-866	7.1	21
69	The Role of Nonconvective Condensation Processes in Response of Surface Shortwave Cloud Radiative Forcing to El Ni Warming. *Journal of Climate*, **2014**, 27, 6721-6736	4.4	21
68	Effects of Southeastern Pacific Sea Surface Temperature on the Double-ITCZ Bias in NCAR CESM1. *Journal of Climate*, **2016**, 29, 7417-7433	4.4	21
67	Estimation of convective entrainment properties from a cloud-resolving model simulation during TWP-ICE. *Climate Dynamics*, **2016**, 47, 2177-2192	4.2	20
66	Role of Climate Feedback in El Ni like SST Response to Global Warming. *Journal of Climate*, **2014**, 27, 7301-7318	4.4	20
65	Global climate impacts of stochastic deep convection parameterization in the NCAR CAM5. *Journal of Advances in Modeling Earth Systems*, **2016**, 8, 1641-1656	7.1	20
64	Evaluating AMIP Skill in Simulating Interannual Variability over the Indo Western Pacific. *Journal of Climate*, **2018**, 31, 2253-2265	4.4	19
63	Evaluating convective parameterization closures using cloud-resolving model simulation of tropical deep convection. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 1260-1277	4.4	19
62	Simulation of the intraseasonal variability over the Eastern Pacific ITCZ in climate models. *Climate Dynamics*, **2012**, 39, 617-636	4.2	19
61	Effects of Increased Horizontal Resolution on Simulation of the North American Monsoon in the NCAR CAM3: An Evaluation Based on Surface, Satellite, and Reanalysis Data. *Journal of Climate*, **2007**, 20, 1843-1861	4.4	19
60	Community Integrated Earth System Model (CIESM): Description and Evaluation. *Journal of Advances in Modeling Earth Systems*, **2020**, 12, e2019MS002036	7.1	17
59	Improving representation of convective transport for scale-aware parameterization: 2. Analysis of cloud-resolving model simulations. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 3510-3532	4.4	17

58	A Moist Physics Parameterization Based on Deep Learning. *Journal of Advances in Modeling Earth Systems*, **2020**, 12, e2020MS002076	7.1	16
57	Disproportionate control on aerosol burden by light rain. *Nature Geoscience*, **2021**, 14, 72-76	18.3	16
56	The double ITCZ syndrome in GCMs: A coupled feedback problem among convection, clouds, atmospheric and ocean circulations. *Atmospheric Research*, **2019**, 229, 255-268	5.4	15
55	Relating Satellite-Observed Cloud Properties from MODIS to Meteorological Conditions for Marine Boundary Layer Clouds. *Journal of Climate*, **2010**, 23, 1374-1391	4.4	15
54	Simulation of the North American Monsoon by the NCAR CCM3 and Its Sensitivity to Convection Parameterization. *Journal of Climate*, **2006**, 19, 2851-2866	4.4	15
53	Convective Stabilization in Midlatitudes. *Monthly Weather Review*, **1991**, 119, 1915-1928	2.4	14
52	Improving Trigger Functions for Convective Parameterization Schemes Using GOAmazon Observations. *Journal of Climate*, **2017**, 30, 8711-8726	4.4	13
51	Role of Vertical Structure of Convective Heating in MJO Simulation in NCAR CAM5.3. *Journal of Climate*, **2017**, 30, 7423-7439	4.4	13
50	An Observational Study of Entrainment Rate in Deep Convection. *Atmosphere*, **2015**, 6, 1362-1376	2.7	13
49	Diagnosing MJO hindcast biases in NCAR CAM3 using nudging during the DYNAMO field campaign. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 7231-7253	4.4	12
48	Effects of Convective Microphysics Parameterization on Large-Scale Cloud Hydrological Cycle and Radiative Budget in Tropical and Midlatitude Convective Regions. *Journal of Climate*, **2015**, 28, 9277-9297	4.4	12
47	Quantifying contributions of climate feedbacks to tropospheric warming in the NCAR CCSM3.0. *Climate Dynamics*, **2014**, 42, 901-917	4.2	12
46	Energetics of Madden Julian Oscillations in the NCAR CAM3: A Composite View. *Journal of Geophysical Research*, **2008**, 113, n/a-n/a		12
45	Observational Relationship Between Entrainment Rate and Environmental Relative Humidity and Implications for Convection Parameterization. *Geophysical Research Letters*, **2018**, 45, 13,495	4.9	12
44	The Weather Research and Forecasting Model with Aerosol-Cloud Interactions (WRF-ACI): Development, Evaluation, and Initial Application. *Monthly Weather Review*, **2019**, 147, 1491-1511	2.4	11
43	Dynamical Effects of Convective Momentum Transports on Global Climate Simulations. *Journal of Climate*, **2008**, 21, 180-194	4.4	11
42	Increased greenhouse gases enhance regional climate response to a Maunder Minimum. *Geophysical Research Letters*, **2010**, 37, n/a-n/a	4.9	10
41	Understanding the Effects of Convective Momentum Transport on Climate Simulations: The Role of Convective Heating. *Journal of Climate*, **2008**, 21, 5034-5047	4.4	10

40	Trends in surface equivalent potential temperature: A more comprehensive metric for global warming and weather extremes.. *Proceedings of the National Academy of Sciences of the United States of America*, **2022**, 119,	11.5	10
39	Impact of Tropical SSTs in the North Atlantic and Southeastern Pacific on the Eastern Pacific ITCZ. *Journal of Climate*, **2017**, 30, 1291-1305	4.4	9
38	Simulation of Precipitation Extremes Using a Stochastic Convective Parameterization in the NCAR CAM5 Under Different Resolutions. *Journal of Geophysical Research D: Atmospheres*, **2017**, 122, 12,875	4.4	9
37	Understanding and Improving the Scale Dependence of Trigger Functions for Convective Parameterization Using Cloud-Resolving Model Data. *Journal of Climate*, **2018**, 31, 7385-7399	4.4	9
36	Energetics of Madden-Julian oscillations in the National Center for Atmospheric Research Community Atmosphere Model version 3 (NCAR CAM3). *Journal of Geophysical Research*, **2006**, 111,		9
35	Assessing the Resolution Adaptability of the Zhang-McFarlane Cumulus Parameterization With Spatial and Temporal Averaging. *Journal of Advances in Modeling Earth Systems*, **2017**, 9, 2753-2770	7.1	8
34	Comments on A Unified Representation of Deep Moist Convection in Numerical Modeling of the Atmosphere. Part I*Journals of the Atmospheric Sciences*, **2015**, 72, 2562-2565	2.1	7
33	The Impacts of Horizontal Resolution on the Seasonally Dependent Biases of the Northeastern Pacific ITCZ in Coupled Climate Models. *Journal of Climate*, **2020**, 33, 941-957	4.4	7
32	Improving the Simulation of Tropical Convective Cloud-Top Heights in CAM5 with CloudSat Observations. *Journal of Climate*, **2018**, 31, 5189-5204	4.4	7
31	Culprit of the Eastern Pacific Double-ITCZ Bias in the NCAR CESM1.2. *Journal of Climate*, **2019**, 32, 6349-6364	4.4	7
30	Simulated Precipitation Diurnal Variation With a Deep Convective Closure Subject to Shallow Convection in Community Atmosphere Model Version 5 Coupled With CLUBB. *Journal of Advances in Modeling Earth Systems*, **2020**, 12, e2020MS002050	7.1	7
29	Parameterization of Microphysical Processes in Convective Clouds in Global Climate Models. *Meteorological Monographs*, **2016**, 56, 12.1-12.18	5.7	7
28	Linking Stochasticity of Convection to Large-Scale Vertical Velocity to Improve Indian Summer Monsoon Simulation in the NCAR CAM5. *Journal of Climate*, **2018**, 31, 6985-7002	4.4	6
27	Characterizing the Climate Feedback Pattern in the NCAR CCSM3-SOM Using Hourly Data. *Journal of Climate*, **2014**, 27, 2912-2930	4.4	6
26	Lagrangian Study of Cloud Properties and Their Relationships to Meteorological Parameters over the U.S. Southern Great Plains. *Journal of Climate*, **2003**, 16, 2700-2716	4.4	6
25	Understanding biases in shortwave cloud radiative forcing in the National Center for Atmospheric Research Community Atmosphere Model (CAM3) during El Niñ. *Journal of Geophysical Research*, **2008**, 113,		5
24	Effects of coupling a stochastic convective parameterization with the ZhangMcFarlane scheme on precipitation simulation in the DOE E3SMv1.0 atmosphere model. *Geoscientific Model Development*, **2021**, 14, 1575-1593	6.3	5
23	Spatial characteristics of the tropical cloud systems: comparison between model simulation and satellite observations. *Tellus, Series A: Dynamic Meteorology and Oceanography*, **1999**, 51, 922-936	2	4

22	Improving the Physical Basis for Updraft Dynamics in Deep Convection Parameterizations. *Journal of Advances in Modeling Earth Systems*, **2021**, 13, e2020MS002282	7.1	4
21	Factors Affecting Entrainment Rate in Deep Convective Clouds and Parameterizations. *Journal of Geophysical Research D: Atmospheres*, **2021**, 126, e2021JD034881	4.4	4
20	Relating Convection to GCM Grid-Scale Fields Using Cloud-Resolving Model Simulation of a Squall Line Observed during MC3E Field Experiment. *Atmosphere*, **2019**, 10, 523	2.7	3
19	Climate response to introduction of the ESA CCI land cover data to the NCAR CESM. *Climate Dynamics*, **2021**, 56, 4109-4127	4.2	3
18	A New Approach for Simultaneous Estimation of Entrainment and Detrainment Rates in Non-Precipitating Shallow Cumulus. *Geophysical Research Letters*, **2021**, 48, e2021GL093817	4.9	3
17	Stable climate simulations using a realistic general circulation model with neural network parameterizations for atmospheric moist physics and radiation processes. *Geoscientific Model Development*, **2022**, 15, 3923-3940	6.3	3
16	Role of Equatorial Cold Tongue in Central Pacific Double-ITCZ Bias in the NCAR CESM1.2. *Journal of Climate*, **2020**, 33, 10407-10418	4.4	2
15	Linking Deep and Shallow Convective Mass Fluxes via an Assumed Entrainment Distribution in CAM5-CLUBB: Parameterization and Simulated Precipitation Variability. *Journal of Advances in Modeling Earth Systems*, **2021**, 13, e2020MS002357	7.1	2
14	Using radar observations to evaluate 3-D radar echo structure simulated by the Energy Exascale Earth System Model (E3SM) version□1. *Geoscientific Model Development*, **2021**, 14, 719-734	6.3	2
13	Convective response to large-scale forcing in the tropical western Pacific simulated by spCAM5 and CanAM4.3. *Geoscientific Model Development*, **2019**, 12, 2107-2117	6.3	1
12	Analysis of Cloud-Resolving Model Simulations for Scale Dependence of Convective Momentum Transport. *Journals of the Atmospheric Sciences*, **2018**, 75, 2445-2472	2.1	1
11	Evaluating and Improving Scale-Awareness of a Convective Parameterization Closure Using Cloud-Resolving Model Simulations of Convection. *Journal of Geophysical Research D: Atmospheres*, **2022**, 127,	4.4	1
10	Studying Scale Dependency of Aerosol Cloud Interactions using Multi-Scale Cloud Formulations. *Journals of the Atmospheric Sciences*, **2020**, 77, 3847-3868	2.1	1
9	What rainfall rates are most important to wet removal of different aerosol types?. *Atmospheric Chemistry and Physics*, **2021**, 21, 16797-16816	6.8	1
8	Geographic Shift and Environment Change of U.S. Tornado Activities in a Warming Climate. *Atmosphere*, **2021**, 12, 567	2.7	1
7	Understanding the Roles of Convective Trigger Functions in the Diurnal Cycle of Precipitation in the NCAR CAM5. *Journal of Climate*, **2021**, 1-52	4.4	1
6	Double Trouble of Air Pollution by Anthropogenic Dust.. *Environmental Science & Technology*, **2021**,	10.3	1
5	Contrasting influences of biogeophysical and biogeochemical impacts of historical land use on global economic inequality.. *Nature Communications*, **2022**, 13, 2479	17.4	1

4	Winter Warming in North America Induced by Urbanization in China. *Geophysical Research Letters*, **2021**, 48, e2021GL095465	4.9	0
3	Current Challenges in Climate and Weather Research and Future Directions. *Atmosphere - Ocean*,1-12	1.5	0
2	PARAMETERIZATION OF CONVECTION IN GLOBAL CLIMATE MODELS. *World Scientific Series on Asia-Pacific Weather and Climate*, **2004**, 184-205		
1	Unexpected Changes of Aerosol Burdens With Decreased Convection in the Context of Scale-Aware Convection Schemes. *Geophysical Research Letters*, **2022**, 49,	4.9	