Hugh Morrison

List of Publications by Year
in descending order

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111 papers	11,158 citations	38660 50 h-index	31759 101 g-index
115 all docs	115 docs citations	115 times ranked	5848 citing authors

#	ARTICLE	IF	CITATIONS
1	Impact of Cloud Microphysics on the Development of Trailing Stratiform Precipitation in a Simulated Squall Line: Comparison of One- and Two-Moment Schemes. Monthly Weather Review, 2009, 137, 991-1007.	0.5	1,639
2	A New Two-Moment Bulk Stratiform Cloud Microphysics Scheme in the Community Atmosphere Model, Version 3 (CAM3). Part I: Description and Numerical Tests. Journal of Climate, 2008, 21, 3642-3659.	1.2	962
3	A New Double-Moment Microphysics Parameterization for Application in Cloud and Climate Models. Part I: Description. Journals of the Atmospheric Sciences, 2005, 62, 1665-1677.	0.6	870
4	Resilience of persistent Arctic mixed-phase clouds. Nature Geoscience, 2012, 5, 11-17.	5.4	498
5	Parameterization of Cloud Microphysics Based on the Prediction of Bulk Ice Particle Properties. Part I: Scheme Description and Idealized Tests. Journals of the Atmospheric Sciences, 2015, 72, 287-311.	0.6	368
6	Sensitivity of a Simulated Squall Line to Horizontal Resolution and Parameterization of Microphysics. Monthly Weather Review, 2012, 140, 202-225.	0.5	350
7	Advanced Two-Moment Bulk Microphysics for Global Models. Part I: Off-Line Tests and Comparison with Other Schemes. Journal of Climate, 2015, 28, 1268-1287.	1.2	267
8	Indirect and Semi-direct Aerosol Campaign. Bulletin of the American Meteorological Society, 2011, 92, 183-201.	1.7	228
9	Intercomparison of model simulations of mixedâ€phase clouds observed during the ARM Mixedâ€Phase Arctic Cloud Experiment. I: singleâ€layer cloud. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 979-1002.	1.0	224
10	A New Two-Moment Bulk Stratiform Cloud Microphysics Scheme in the Community Atmosphere Model, Version 3 (CAM3). Part II: Single-Column and Global Results. Journal of Climate, 2008, 21, 3660-3679.	1.2	189
11	Advanced Two-Moment Bulk Microphysics for Global Models. Part II: Global Model Solutions and Aerosolâ€"Cloud Interactions*. Journal of Climate, 2015, 28, 1288-1307.	1.2	177
12	Comparison of Bulk and Bin Warm-Rain Microphysics Models Using a Kinematic Framework. Journals of the Atmospheric Sciences, 2007, 64, 2839-2861.	0.6	174
13	Higher-Order Turbulence Closure and Its Impact on Climate Simulations in the Community Atmosphere Model. Journal of Climate, 2013, 26, 9655-9676.	1.2	165
14	Modeling Supersaturation and Subgrid-Scale Mixing with Two-Moment Bulk Warm Microphysics. Journals of the Atmospheric Sciences, 2008, 65, 792-812.	0.6	159
15	Mesoscale Modeling of Springtime Arctic Mixed-Phase Stratiform Clouds Using a New Two-Moment Bulk Microphysics Scheme. Journals of the Atmospheric Sciences, 2005, 62, 3683-3704.	0.6	158
16	Comparison of Two-Moment Bulk Microphysics Schemes in Idealized Supercell Thunderstorm Simulations. Monthly Weather Review, 2011, 139, 1103-1130.	0.5	158
17	The Microphysics of Ice and Precipitation Development in Tropical Cumulus Clouds. Journals of the Atmospheric Sciences, 2015, 72, 2429-2445.	0.6	156
18	Evidence of liquid dependent ice nucleation in high-latitude stratiform clouds from surface remote sensors. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	154

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19	Confronting the Challenge of Modeling Cloud and Precipitation Microphysics. Journal of Advances in Modeling Earth Systems, 2020, 12, e2019MS001689.	1.3	154
20	Aerosol impacts on clouds and precipitation in eastern China: Results from bin and bulk microphysics. Journal of Geophysical Research, 2012, 117, .	3.3	152
21	Parameterization of Cloud Microphysics Based on the Prediction of Bulk Ice Particle Properties. Part II: Case Study Comparisons with Observations and Other Schemes. Journals of the Atmospheric Sciences, 2015, 72, 312-339.	0.6	146
22	A Novel Approach for Representing Ice Microphysics in Models: Description and Tests Using a Kinematic Framework. Journals of the Atmospheric Sciences, 2008, 65, 1528-1548.	0.6	139
23	Constraining cloud lifetime effects of aerosols using Aâ€Train satellite observations. Geophysical Research Letters, 2012, 39, .	1.5	117
24	Intercomparison of largeâ€eddy simulations of Arctic mixedâ€phase clouds: Importance of ice size distribution assumptions. Journal of Advances in Modeling Earth Systems, 2014, 6, 223-248.	1.3	114
25	Moisture and dynamical interactions maintaining decoupled Arctic mixed-phase stratocumulus in the presence of a humidity inversion. Atmospheric Chemistry and Physics, 2011, 11, 10127-10148.	1.9	112
26	A comparison of TWPâ€ICE observational data with cloudâ€resolving model results. Journal of Geophysical Research, 2012, 117, .	3.3	108
27	Cloudâ€resolving model intercomparison of an MC3E squall line case: Part Iâ€”Convective updrafts. Journal of Geophysical Research D: Atmospheres, 2017, 122, 9351-9378.	1.2	106
28	A New Double-Moment Microphysics Parameterization for Application in Cloud and Climate Models. Part II: Single-Column Modeling of Arctic Clouds. Journals of the Atmospheric Sciences, 2005, 62, 1678-1693.	0.6	99
29	Modeling of Cloud Microphysics: Can We Do Better?. Bulletin of the American Meteorological Society, 2019, 100, 655-672.	1.7	98
30	A Method for Adaptive Habit Prediction in Bulk Microphysical Models. Part I: Theoretical Development. Journals of the Atmospheric Sciences, 2013, 70, 349-364.	0.6	97
31	Parameterization of Cloud Microphysics Based on the Prediction of Bulk Ice Particle Properties. Part III: Introduction of Multiple Free Categories. Journals of the Atmospheric Sciences, 2016, 73, 975-995.	0.6	95
32	Intercomparison of cloud model simulations of Arctic mixed-phase boundary layer clouds observed during SHEBA/FIRE-ACE. Journal of Advances in Modeling Earth Systems, 2011, 3, n/a-n/a.	1.3	90
33	Are simulated aerosol-induced effects on deep convective clouds strongly dependent on saturation adjustment?. Atmospheric Chemistry and Physics, 2012, 12, 9941-9964.	1.9	90
34	Two-moment bulk stratiform cloud microphysics in the GFDL AM3 GCM: description, evaluation, and sensitivity tests. Atmospheric Chemistry and Physics, 2010, 10, 8037-8064.	1.9	87
35	Effects of Horizontal and Vertical Grid Spacing on Mixing in Simulated Squall Lines and Implications for Convective Strength and Structure. Monthly Weather Review, 2015, 143, 4355-4375.	0.5	87
36	Possible roles of ice nucleation mode and ice nuclei depletion in the extended lifetime of Arctic mixed-phase clouds. Geophysical Research Letters, 2005, 32, n/a-n/a.	1.5	85

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37	Sensitivity of modeled arctic mixedâ€phase stratocumulus to cloud condensation and ice nuclei over regionally varying surface conditions. Journal of Geophysical Research, 2008, 113, .	3.3	84
38	Intercomparison of model simulations of mixedâ€phase clouds observed during the ARM Mixedâ€Phase Arctic Cloud Experiment. II: Multilayer cloud. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 1003-1019.	1.0	84
39	A FIRE-ACE/SHEBA Case Study of Mixed-Phase Arctic Boundary Layer Clouds: Entrainment Rate Limitations on Rapid Primary Ice Nucleation Processes. Journals of the Atmospheric Sciences, 2012, 69, 365-389.	0.6	77
40	Intercomparison of Bulk Cloud Microphysics Schemes in Mesoscale Simulations of Springtime Arctic Mixed-Phase Stratiform Clouds. Monthly Weather Review, 2006, 134, 1880-1900.	0.5	76
41	Sensitivity of a Simulated Midlatitude Squall Line to Parameterization of Raindrop Breakup. Monthly Weather Review, 2012, 140, 2437-2460.	0.5	74
42	Sensitivity of Idealized Squall-Line Simulations to the Level of Complexity Used in Two-Moment Bulk Microphysics Schemes. Monthly Weather Review, 2012, 140, 1883-1907.	0.5	73
43	The Sensitivity of Springtime Arctic Mixed-Phase Stratocumulus Clouds to Surface-Layer and Cloud-Top Inversion-Layer Moisture Sources. Journals of the Atmospheric Sciences, 2014, 71, 574-595.	0.6	72
44	Modeling convectiveâ€stratiform precipitation processes on a Meiâ€Yu front with the Weather Research and Forecasting model: Comparison with observations and sensitivity to cloud microphysics parameterizations. Journal of Geophysical Research, 2010, 115, .	3.3	67
45	Microphysical process rates and global aerosolâ€“cloud interactions. Atmospheric Chemistry and Physics, 2013, 13, 9855-9867.	1.9	66
46	Predicting Ice Shape Evolution in a Bulk Microphysics Model. Journals of the Atmospheric Sciences, 2017, 74, 2081-2104.	0.6	65
47	Impacts of Updraft Size and Dimensionality on the Perturbation Pressure and Vertical Velocity in Cumulus Convection. Part I: Simple, Generalized Analytic Solutions. Journals of the Atmospheric Sciences, 2016, 73, 1441-1454.	0.6	62
48	An Analytic Description of the Structure and Evolution of Growing Deep Cumulus Updrafts. Journals of the Atmospheric Sciences, 2017, 74, 809-834.	0.6	58
49	Aerosol transport and wet scavenging in deep convective clouds: A case study and model evaluation using a multiple passive tracer analysis approach. Journal of Geophysical Research D: Atmospheres, 2015, 120, 8448-8468.	1.2	56
50	The Role of Vertical Wind Shear in Modulating Maximum Supercell Updraft Velocities. Journals of the Atmospheric Sciences, 2019, 76, 3169-3189.	0.6	56
51	Idealized Simulations of a Squall Line from the MC3E Field Campaign Applying Three Bin Microphysics Schemes: Dynamic and Thermodynamic Structure. Monthly Weather Review, 2017, 145, 4789-4812.	0.5	55
52	Investigation of Microphysical Parameterizations of Snow and Ice in Arctic Clouds during M-PACE through Modelâ€“Observation Comparisons. Monthly Weather Review, 2009, 137, 3110-3128.	0.5	52
53	100 Years of Earth System Model Development. Meteorological Monographs, 2019, 59, 12.1-12.66.	5.0	48
54	Modeling clouds observed at SHEBA using a bulk microphysics parameterization implemented into a single-column model. Journal of Geophysical Research, 2003, 108, .	3.3	46

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55	Cloudâ€Resolving Model Intercomparison of an MC3E Squall Line Case: Part II. Stratiform Precipitation Properties. Journal of Geophysical Research D: Atmospheres, 2019, 124, 1090-1117.	1.2	43
56	Broadening of Modeled Cloud Droplet Spectra Using Bin Microphysics in an Eulerian Spatial Domain. Journals of the Atmospheric Sciences, 2018, 75, 4005-4030.	0.6	41
57	Toward the Mitigation of Spurious Cloud-Edge Supersaturation in Cloud Models. Monthly Weather Review, 2008, 136, 1224-1234.	0.5	40
58	A unified parameterization of clouds and turbulence using CLUBB and subcolumns in the Community Atmosphere Model. Geoscientific Model Development, 2015, 8, 3801-3821.	1.3	39
59	Theoretical Expressions for the Ascent Rate of Moist Deep Convective Thermals. Journals of the Atmospheric Sciences, 2018, 75, 1699-1719.	0.6	37
60	Homogeneity of the Subgrid-Scale Turbulent Mixing in Large-Eddy Simulation of Shallow Convection. Journals of the Atmospheric Sciences, 2013, 70, 2751-2767.	0.6	35
61	Machine Learning the Warm Rain Process. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002268.	1.3	35
62	Multiâ€layer arctic mixedâ€phase clouds simulated by a cloudâ€resolving model: Comparison with ARM observations and sensitivity experiments. Journal of Geophysical Research, 2008, 113, .	3.3	33
63	Arctic Mixed-Phase Clouds Simulated by a Cloud-Resolving Model: Comparison with ARM Observations and Sensitivity to Microphysics Parameterizations. Journals of the Atmospheric Sciences, 2008, 65, 1285-1303.	0.6	33
64	Thermal Chains and Entrainment in Cumulus Updrafts. Part I: Theoretical Description. Journals of the Atmospheric Sciences, 2020, 77, 3637-3660.	0.6	33
65	Threeâ€Moment Representation of Rain in a Bulk Microphysics Model. Journal of Advances in Modeling Earth Systems, 2019, 11, 257-277.	1.3	32
66	The Influence of Vertical Wind Shear on Moist Thermals. Journals of the Atmospheric Sciences, 2019, 76, 1645-1659.	0.6	30
67	Impact of Microphysics Scheme Complexity on the Propagation of Initial Perturbations. Monthly Weather Review, 2012, 140, 2287-2296.	0.5	29
68	Comparison of ice cloud properties simulated by the Community Atmosphere Model (CAM5) with in-situ observations. Atmospheric Chemistry and Physics, 2014, 14, 10103-10118.	1.9	29
69	Wet scavenging of soluble gases in DC3 deep convective storms using WRFâ€Chem simulations and aircraft observations. Journal of Geophysical Research D: Atmospheres, 2016, 121, 4233-4257.	1.2	29
70	Sensitivity of Mountain Hydroclimate Simulations in Variableâ€Resolution CESM to Microphysics and Horizontal Resolution. Journal of Advances in Modeling Earth Systems, 2018, 10, 1357-1380.	1.3	28
71	Microphysical Characteristics of Squall-Line Stratiform Precipitation and Transition Zones Simulated Using an Ice Particle Property-Evolving Model. Monthly Weather Review, 2018, 146, 723-743.	0.5	27
72	Parameterization of the Bulk Liquid Fraction on Mixed-Phase Particles in the Predicted Particle Properties (P3) Scheme: Description and Idealized Simulations. Journals of the Atmospheric Sciences, 2019, 76, 561-582.	0.6	27

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73	A novel approach for characterizing the variability in massâ€"dimension relationships: results from MC3E. Atmospheric Chemistry and Physics, 2019, 19, 3621-3643.	1.9	27
74	Dynamical and Microphysical Evolution during Mixed-Phase Cloud Glaciation Simulated Using the Bulk Adaptive Habit Prediction Model. Journals of the Atmospheric Sciences, 2014, 71, 4158-4180.	0.6	26
75	Improvements in Global Climate Model Microphysics Using a Consistent Representation of Ice Particle Properties. Journal of Climate, 2017, 30, 609-629.	1.2	26
76	A Triple-Moment Representation of Ice in the Predicted Particle Properties (P3) Microphysics Scheme. Journals of the Atmospheric Sciences, 2021, 78, 439-458.	0.6	26
77	A General N-Moment Normalization Method for Deriving Raindrop Size Distribution Scaling Relationships. Journal of Applied Meteorology and Climatology, 2019, 58, 247-267.	0.6	24
78	Thermal Chains and Entrainment in Cumulus Updrafts. Part II: Analysis of Idealized Simulations. Journals of the Atmospheric Sciences, 2020, 77, 3661-3681.	0.6	24
79	On Calculating Deposition Coefficients and Aspect-Ratio Evolution in Approximate Models of Ice Crystal Vapor Growth. Journals of the Atmospheric Sciences, 2019, 76, 1609-1625.	0.6	23
80	Process-model simulations of cloud albedo enhancement by aerosols in the Arctic. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20140052.	1.6	21
81	A single ice approach using varying ice particle properties in global climate model microphysics. Journal of Advances in Modeling Earth Systems, 2017, 9, 2138-2157.	1.3	21
82	Effects of Under-Resolved Convective Dynamics on the Evolution of a Squall Line. Monthly Weather Review, 2020, 148, 289-311.	0.5	21
83	Sensitivity of Simulated Deep Convection to a Stochastic Ice Microphysics Framework. Journal of Advances in Modeling Earth Systems, 2019, 11, 3362-3389.	1.3	20
84	A Bayesian Approach for Statisticalâ€"Physical Bulk Parameterization of Rain Microphysics. Part I: Scheme Description. Journals of the Atmospheric Sciences, 2019, 77, 1019-1041.	0.6	19
85	A Formula for the Maximum Vertical Velocity in Supercell Updrafts. Journals of the Atmospheric Sciences, 2020, 77, 3747-3757.	0.6	18
86	Effects of Scavenging, Entrainment, and Aqueous Chemistry on Peroxides and Formaldehyde in Deep Convective Outflow Over the Central and Southeast United States. Journal of Geophysical Research D: Atmospheres, 2018, 123, 7594-7614.	1.2	15
87	Advection of Coupled Hydrometeor Quantities in Bulk Cloud Microphysics Schemes. Monthly Weather Review, 2016, 144, 2809-2829.	0.5	14
88	Drop Size Distribution Broadening Mechanisms in a Bin Microphysics Eulerian Model. Journals of the Atmospheric Sciences, 2020, 77, 3249-3273.	0.6	14
89	How Does LCL Height Influence Deep Convective Updraft Width?. Geophysical Research Letters, 2021, 48, e2021GL093316.	1.5	13
90	Improving the Physical Basis for Updraft Dynamics in Deep Convection Parameterizations. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002282.	1.3	11

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91	Influences of Environmental Relative Humidity and Horizontal Scale of Subcloud Ascent on Deep Convective Initiation. Journals of the Atmospheric Sciences, 2022, 79, 337-359.	0.6	11
92	Snow microphysical observations in shallow mixedâ€phase and deep frontal Arctic cloud systems. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 1589-1601.	1.0	10
93	Investigating ice nucleation in cirrus clouds with an aerosolâ€enabled Multiscale Modeling Framework. Journal of Advances in Modeling Earth Systems, 2014, 6, 998-1015.	1.3	10
94	Cloud-Resolving Modeling: ARM and the GCSS Story. Meteorological Monographs, 2016, 57, 25.1-25.16.	5.0	10
95	A Bayesian Approach for Statisticalâ€“Physical Bulk Parameterization of Rain Microphysics. Part II: Idealized Markov Chain Monte Carlo Experiments. Journals of the Atmospheric Sciences, 2019, 77, 1043-1064.	0.6	10
96	A New Approach for Obtaining Advection Profiles: Application to the SHEBA Column. Monthly Weather Review, 2004, 132, 687-702.	0.5	10
97	Ice Nucleation Parameterization and Relative Humidity Distribution in Idealized Squall-Line Simulations. Journals of the Atmospheric Sciences, 2017, 74, 2761-2787.	0.6	9
98	Dynamical conditions of ice supersaturation and ice nucleation in convective systems: A comparative analysis between in situ aircraft observations and WRF simulations. Journal of Geophysical Research D: Atmospheres, 2017, 122, 2844-2866.	1.2	9
99	Impact of entrainment-mixing and turbulent fluctuations on droplet size distributions in a cumulus cloud: An investigation using Lagrangian microphysics with a sub-grid-scale model. Journals of the Atmospheric Sciences, 2021, , .	0.6	9
100	Comparing Growth Rates of Simulated Moist and Dry Convective Thermals. Journals of the Atmospheric Sciences, 2021, 78, 797-816.	0.6	8
101	WMO INTERNATIONAL CLOUD MODELING WORKSHOP. Bulletin of the American Meteorological Society, 2009, 90, 1683-1686.	1.7	7
102	Effects of the Representation of Rimed Ice in Bulk Microphysics Schemes on Polarimetric Signatures. Monthly Weather Review, 2019, 147, 3785-3810.	0.5	7
103	Adaptation of the Predicted Particles Properties (P3) Microphysics Scheme for Large-Scale Numerical Weather Prediction. Weather and Forecasting, 2020, 35, 2541-2565.	0.5	6
104	Microphysical processes producing high ice water contents (HIWCs) in tropical convective clouds during the HAIC-HIWC field campaign: dominant role of secondary ice production. Atmospheric Chemistry and Physics, 2022, 22, 2365-2384.	1.9	5
105	Observed and simulated variability of droplet spectral dispersion in convective clouds over the Amazon. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2021JD035076.	1.2	4
106	Limitations of Bin and Bulk Microphysics in Reproducing the Observed Spatial Structure of Light Precipitation. Journals of the Atmospheric Sciences, 2022, 79, 161-178.	0.6	4
107	Observed and Bin Model Simulated Evolution of Drop Size Distributions in Highâ€Based Cumulus Congestus Over the United Arab Emirates. Journal of Geophysical Research D: Atmospheres, 2022, 127, .	1.2	3
108	Limitations of Separate Cloud and Rain Categories in Parameterizing Collisionâ€Coalescence for Bulk Microphysics Schemes. Journal of Advances in Modeling Earth Systems, 2022, 14, .	1.3	3

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109	Cloud Microphysics Across Scales for Weather and Climate. Springer Atmospheric Sciences, 2019, , 71-94.	0.4	2
110	Supersaturation Variability from Scalar Mixing: Evaluation of a New Subgrid-Scale Model Using Direct Numerical Simulations of Turbulent Rayleighâ€“BÃ©nard Convection. Journals of the Atmospheric Sciences, 2022, 79, 1191-1210.	0.6	2
111	Impacts of Latent Energy and Snow Fall Speed on a Wintertime Midlatitude Cyclone. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2020JD032655.	1.2	0