M S Pritchard

List of Publications by Year
in descending order

51 papers	2,193 citations	279487 23 h-index	233125 45 g-index
57 all docs	57 docs citations	57 times ranked	2622 citing authors

#	Article	IF	Citations
1	Deep learning to represent subgrid processes in climate models. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 9684-9689.	3.3	420
2	Could Machine Learning Break the Convection Parameterization Deadlock?. Geophysical Research Letters, 2018, 45, 5742-5751.	1.5	246
3	Enforcing Analytic Constraints in Neural Networks Emulating Physical Systems. Physical Review Letters, 2021, 126, 098302.	2.9	124
4	The Ongoing Need for High-Resolution Regional Climate Models: Process Understanding and Stakeholder Information. Bulletin of the American Meteorological Society, 2020, 101, E664-E683.	1.7	90
5	Constraining the influence of natural variability to improve estimates of global aerosol indirect effects in a nudged version of the Community Atmosphere Model 5. Journal of Geophysical Research, 2012, 117, .	3.3	89
6	Orogenic Propagating Precipitation Systems over the United States in a Global Climate Model with Embedded Explicit Convection. Journals of the Atmospheric Sciences, 2011, 68, 1821-1840.	0.6	88
7	Zonally contrasting shifts of the tropical rain belt in response to climate change. Nature Climate Change, 2021, 11, 143-151.	8.1	88
8	Forest response to rising CO2 drives zonally asymmetric rainfall change over tropical land. Nature Climate Change, 2018, 8, 434-440.	8.1	80
9	Causal Evidence that Rotational Moisture Advection is Critical to the Superparameterized Maddenâ€“Julian Oscillation. Journals of the Atmospheric Sciences, 2014, 71, 800-815.	0.6	74
10	Robust effects of cloud superparameterization on simulated daily rainfall intensity statistics across multiple versions of the <scp>C</scp>ommunity <scp>E</scp>arth <scp>S</scp>ystem <scp>M</scp>odel. Journal of Advances in Modeling Earth Systems, 2016, 8, 140-165.	1.3	64
11	Assessing the Diurnal Cycle of Precipitation in a Multiâ€scale Climate Model. Journal of Advances in Modeling Earth Systems, 2009, 1, .	1.3	56
12	Why Does Amazon Precipitation Decrease When Tropical Forests Respond to Increasing CO₂?. Earth's Future, 2019, 7, 450-468.	2.4	53
13	Interpreting and Stabilizing Machine-Learning Parametrizations of Convection. Journals of the Atmospheric Sciences, 2020, 77, 4357-4375.	0.6	49
14	Toward lowâ€cloudâ€permitting cloud superparameterization with explicit boundary layer turbulence. Journal of Advances in Modeling Earth Systems, 2017, 9, 1542-1571.	1.3	43
15	Robustness and sensitivities of central U.S. summer convection in the superâ€parameterized CAM: Multiâ€model intercomparison with a new regional EOF index. Geophysical Research Letters, 2013, 40, 3287-3291.	1.5	37
16	Empirical orthogonal function analysis of the diurnal cycle of precipitation in a multiâ€scale climate model. Geophysical Research Letters, 2009, 36, .	1.5	36
17	Rainfall From Resolved Rather Than Parameterized Processes Better Represents the Presentâ€Day and Climate Change Response of Moderate Rates in the Community Atmosphere Model. Journal of Advances in Modeling Earth Systems, 2018, 10, 971-988.	1.3	36
18	Response of the Superparameterized Maddenâ€“Julian Oscillation to Extreme Climate and Basic-State Variation Challenges a Moisture Mode View. Journal of Climate, 2016, 29, 4995-5008.	1.2	32

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19	The effect of plant physiological responses to rising CO2 on global streamflow. Nature Climate Change, 2019, 9, 873-879.	8.1	32
20	The response of US summer rainfall to quadrupled CO₂ climate change in conventional and superparameterized versions of the NCAR community atmosphere model. Journal of Advances in Modeling Earth Systems, 2014, 6, 859-882.	1.3	31
21	Restricting 32â€“128 km horizontal scales hardly affects the MJO in the Superparameterized Community Atmosphere Model v.3.0 but the number of cloudâ€resolving grid columns constrains vertical mixing. Journal of Advances in Modeling Earth Systems, 2014, 6, 723-739.	1.3	30
22	Initial Results From the Superâ€Parameterized E3SM. Journal of Advances in Modeling Earth Systems, 2020, 12, e2019MS001863.	1.3	28
23	A Strong Role for the AMOC in Partitioning Global Energy Transport and Shifting ITCZ Position in Response to Latitudinally Discrete Solar Forcing in CESM1.2. Journal of Climate, 2019, 32, 2207-2226.	1.2	27
24	Sensitivity of Coupled Tropical Pacific Model Biases to Convective Parameterization in CESM1. Journal of Advances in Modeling Earth Systems, 2018, 10, 126-144.	1.3	26
25	Impacts of cloud superparameterization on projected daily rainfall intensity climate changes in multiple versions of the Community Earth System Model. Journal of Advances in Modeling Earth Systems, 2016, 8, 1727-1750.	1.3	23
26	Plant Physiological Responses to Rising CO₂ Modify Simulated Daily Runoff Intensity With Implications for Globalâ€Scale Flood Risk Assessment. Geophysical Research Letters, 2018, 45, 12,457.	1.5	23
27	Effects of explicit convection on global landâ€atmosphere coupling in the superparameterized CAM. Journal of Advances in Modeling Earth Systems, 2016, 8, 1248-1269.	1.3	22
28	Neglecting iceâ€atmosphere interactions underestimates ice sheet melt in millennialâ€scale deglaciation simulations. Geophysical Research Letters, 2008, 35, .	1.5	21
29	Insensitivity of the Cloud Response to Surface Warming Under Radical Changes to Boundary Layer Turbulence and Cloud Microphysics: Results From the Ultraparameterized CAM. Journal of Advances in Modeling Earth Systems, 2018, 10, 3139-3158.	1.3	20
30	Soil Moisture Variability Intensifies and Prolongs Eastern Amazon Temperature and Carbon Cycle Response to El NiÃ±oâ€“Southern Oscillation. Journal of Climate, 2019, 32, 1273-1292.	1.2	20
31	Assessing the Potential of Deep Learning for Emulating Cloud Superparameterization in Climate Models With Realâ€Geography Boundary Conditions. Journal of Advances in Modeling Earth Systems, 2021, 13, e2020MS002385.	1.3	20
32	Towards Physically-Consistent, Data-Driven Models of Convection. , 2020, , .		18
33	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
34	The Impact of Resolving Subkilometer Processes on Aerosolâ€Cloud Interactions of Lowâ€Level Clouds in Global Model Simulations. Journal of Advances in Modeling Earth Systems, 2020, 12, e2020MS002274.	1.3	16
35	Meanâ€state acceleration of cloudâ€resolving models and large eddy simulations. Journal of Advances in Modeling Earth Systems, 2015, 7, 1643-1660.	1.3	14
36	Normal mode Rossby waves and their effects on chemical composition in the late summer stratosphere. Atmospheric Chemistry and Physics, 2008, 8, 1925-1935.	1.9	13

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37	Sensitivity of summer ensembles of fledgling superparameterized U.S. mesoscale convective systems to cloud resolving model microphysics and grid configuration. Journal of Advances in Modeling Earth Systems, 2016, 8, 634-649.	1.3	12
38	Investigating impacts of forest fires in Alaska and western Canada on regional weather over the northeastern United States using CAM5 global simulations to constrain transport to a WRF-Chem regional domain. Journal of Geophysical Research D: Atmospheres, 2014, 119, 7515-7536.	1.2	9
39	Radar observations of individual rain drops in the free atmosphere. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 9293-9298.	3.3	7
40	Effects on precipitation, clouds, and temperature from longâ€range transport of idealized aerosol plumes in WRFâ€Chem simulations. Journal of Geophysical Research, 2012, 117, .	3.3	7
41	Comparing Convective Selfâ€Aggregation in Idealized Models to Observed Moist Static Energy Variability Near the Equator. Geophysical Research Letters, 2019, 46, 10589-10598.	1.5	7
42	Regional MJO Modulation of Northwest Pacific Tropical Cyclones Driven by Multiple Transient Controls. Geophysical Research Letters, 2020, 47, e2020GL087148.	1.5	7
43	Assessing the Impact of Indian Irrigation on Precipitation in the Irrigation-Enabled Community Earth System Model. Journal of Hydrometeorology, 2018, 19, 427-443.	0.7	6
44	Interannual Atmospheric Variability Affects Continental Ice Sheet Simulations on Millennial Time Scales. Journal of Climate, 2008, 21, 5976-5992.	1.2	5
45	Global Effects of Superparameterization on Hydrothermal Landâ€Atmosphere Coupling on Multiple Timescales. Journal of Advances in Modeling Earth Systems, 2018, 10, 530-549.	1.3	5
46	High-Resolution Regional Climate Models: Meeting Ongoing Community and Scientific Needs. Bulletin of the American Meteorological Society, 2020, 101, 693-697.	1.7	5
47	Effects of Explicit Convection on Land Surface Air Temperature and Landâ€Atmosphere Coupling in the Thermal Feedback Pathway. Journal of Advances in Modeling Earth Systems, 2018, 10, 2376-2392.	1.3	4
48	Nonâ€Linear Dimensionality Reduction With a Variational Encoder Decoder to Understand Convective Processes in Climate Models. Journal of Advances in Modeling Earth Systems, 2022, 14, .	1.3	4
49	Future Community Efforts in Understanding and Modeling Atmospheric Processes. Bulletin of the American Meteorological Society, 2018, 99, ES159-ES162.	1.7	1
50	Loadâ€Balancing Intense Physics Calculations to Embed Regionalized Highâ€Resolution Cloud Resolving Models in the E3SM and CESM Climate Models. Journal of Advances in Modeling Earth Systems, 2022, 14, .	1.3	1
51	Lower Tropospheric Processes: A Control on the Global Mean Precipitation Rate. Geophysical Research Letters, 2021, 48, e2020GL091169.	1.5	0