Juan Pedro Mellado

List of Publications by Year
in descending order

59 papers	1,564 citations	304602 22 h-index	315616 38 g-index
61 all docs	61 docs citations	61 times ranked	1399 citing authors

#	Article	IF	Citations
1	A study of the flow-field evolution and mixing in a planar turbulent jet using direct numerical simulation. Journal of Fluid Mechanics, 2002, 450, 377-407.	1.4	191
2	Cloud-Top Entrainment in Stratocumulus Clouds. Annual Review of Fluid Mechanics, 2017, 49, 145-169.	10.8	127
3	The evaporatively driven cloud-top mixing layer. Journal of Fluid Mechanics, 2010, 660, 5-36.	1.4	87
4	Global Intermittency and Collapsing Turbulence in the Stratified Planetary Boundary Layer. Boundary-Layer Meteorology, 2014, 153, 89-116.	1.2	85
5	The Two-Layer Structure of the Entrainment Zone in the Convective Boundary Layer. Journals of the Atmospheric Sciences, 2014, 71, 1935-1955.	0.6	61
6	MicroHH 1.0: a computational fluid dynamics code for direct numerical simulation and large-eddy simulation of atmospheric boundary layer flows. Geoscientific Model Development, 2017, 10, 3145-3165.	1.3	61
7	Scaling Laws for the Heterogeneously Heated Free Convective Boundary Layer. Journals of the Atmospheric Sciences, 2014, 71, 3975-4000.	0.6	54
8	DNS and LES for Simulating Stratocumulus: Better Together. Journal of Advances in Modeling Earth Systems, 2018, 10, 1421-1438.	1.3	49
9	Large-eddy simulation of variable-density round and plane jets. International Journal of Heat and Fluid Flow, 2010, 31, 307-314.	1.1	46
10	Direct numerical simulation of free convection over a heated plate. Journal of Fluid Mechanics, 2012, 712, 418-450.	1.4	46
11	Gradient trajectory analysis of a scalar field with external intermittency. Journal of Fluid Mechanics, 2009, 626, 333-365.	1.4	43
12	A Conceptual Model of a Shallow Circulation Induced by Prescribed Low-Level Radiative Cooling. Journals of the Atmospheric Sciences, 2017, 74, 3129-3144.	0.6	42
13	Buoyancy reversal in cloudâ€top mixing layers. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 963-978.	1.0	39
14	Implications of Nonlocal Transport and Conditionally Averaged Statistics on Moninâ€“Obukhov Similarity Theory and Townsendâ€™s Attached Eddy Hypothesis. Journals of the Atmospheric Sciences, 2018, 75, 3403-3431.	0.6	37
15	Mixing Driven by Radiative and Evaporative Cooling at the Stratocumulus Top. Journals of the Atmospheric Sciences, 2015, 72, 4681-4700.	0.6	34
16	Reconstruction subgrid models for nonpremixed combustion. Physics of Fluids, 2003, 15, 3280-3307.	1.6	31
17	Large-eddy simulation of Rayleigh-Taylor turbulence with compressible miscible fluids. Physics of Fluids, 2005, 17, 076101.	1.6	31
18	Wind Shear and Buoyancy Reversal at the Top of Stratocumulus. Journals of the Atmospheric Sciences, 2014, 71, 1040-1057.	0.6	31

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19	Analyses of external and global intermittency in the logarithmic layer of Ekman flow. Journal of Fluid Mechanics, 2016, 805, 611-635.	1.4	31
20	Two-fluid formulation of the cloud-top mixing layer for direct numerical simulation. Theoretical and Computational Fluid Dynamics, 2010, 24, 511-536.	0.9	29
21	Growth and Decay of a Convective Boundary Layer over a Surface with a Constant Temperature. Journals of the Atmospheric Sciences, 2016, 73, 2165-2177.	0.6	27
22	Direct Numerical Simulation of Evaporative Cooling at the Lateral Boundary of Shallow Cumulus Clouds. Journals of the Atmospheric Sciences, 2013, 70, 2088-2102.	0.6	26
23	Factorization of the Fourier transform of the pressureâ€Poisson equation using finite differences in colocated grids. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2012, 92, 380-392.	0.9	22
24	Direct Numerical Simulations of a Smoke Cloudâ€“Top Mixing Layer as a Model for Stratocumuli. Journals of the Atmospheric Sciences, 2013, 70, 2356-2375.	0.6	22
25	Near-Surface Effects of Free Atmosphere Stratification in Free Convection. Boundary-Layer Meteorology, 2016, 159, 69-95.	1.2	22
26	Resolved energy budget of superstructures in Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2020, 887, .	1.4	22
27	Plume or bubble? Mixed-convection flow regimes and city-scale circulations. Journal of Fluid Mechanics, 2020, 897, .	1.4	21
28	Characterization of wind-shear effects on entrainment in a convective boundary layer. Journal of Fluid Mechanics, 2019, 858, 145-183.	1.4	20
29	Estimating Turbulence Kinetic Energy Dissipation Rates in the Numerically Simulated Stratocumulus Cloud-Top Mixing Layer: Evaluation of Different Methods. Journals of the Atmospheric Sciences, 2019, 76, 1471-1488.	0.6	19
30	Moisture statistics in free convective boundary layers growing into linearly stratified atmospheres. Quarterly Journal of the Royal Meteorological Society, 2017, 143, 2403-2419.	1.0	17
31	Observations of Aerosol, Cloud, Turbulence, and Radiation Properties at the Top of the Marine Boundary Layer over the Eastern North Atlantic Ocean: The ACORES Campaign. Bulletin of the American Meteorological Society, 2021, 102, E123-E147.	1.7	16
32	Cloudâ€“Aerosolâ€“Turbulence Interactions: Science Priorities and Concepts for a Large-Scale Laboratory Facility. Bulletin of the American Meteorological Society, 2020, 101, E1026-E1035.	1.7	16
33	Cloud droplets in a bulk formulation and its application to buoyancy reversal instability. Quarterly Journal of the Royal Meteorological Society, 2014, 140, 1493-1504.	1.0	15
34	Evaporative cooling amplification of the entrainment velocity in radiatively driven stratocumulus. Geophysical Research Letters, 2015, 42, 7223-7229.	1.5	14
35	Reduction of the Entrainment Velocity by Cloud Droplet Sedimentation in Stratocumulus. Journals of the Atmospheric Sciences, 2017, 74, 751-765.	0.6	14
36	On the Role of Large-Scale Updrafts and Downdrafts in Deviations From Moninâ€“Obukhov Similarity Theory in Free Convection. Boundary-Layer Meteorology, 2019, 172, 371-396.	1.2	14

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37	Impact of Thermally Driven Turbulence on the Bottom Melting of Ice. Journal of Physical Oceanography, 2016, 46, 1171-1187.	0.7	12
38	A refined statistical cloud closure using double-Gaussian probability density functions. Geoscientific Model Development, 2013, 6, 1641-1657.	1.3	11
39	Reconciling estimates of the ratio of heat and salt fluxes at the ice-ocean interface. Journal of Geophysical Research: Oceans, 2016, 121, 8419-8433.	1.0	11
40	Wind Shear Effects on Radiatively and Evaporatively Driven Stratocumulus Tops. Journals of the Atmospheric Sciences, 2018, 75, 3245-3263.	0.6	11
41	Error induced by neglecting subgrid chemical segregation due to inefficient turbulent mixing in regional chemical-transport models in urban environments. Atmospheric Chemistry and Physics, 2021, 21, 483-503.	1.9	9
42	Probability density functions in the cloud-top mixing layer. New Journal of Physics, 2010, 12, 085010.	1.2	8
43	Competing Effects of Droplet Sedimentation and Wind Shear on Entrainment in Stratocumulus. Journal of Advances in Modeling Earth Systems, 2019, 11, 1830-1846.	1.3	6
44	New Insights into Wind Shear Effects on Entrainment in Convective Boundary Layers Using Conditional Analysis. Journals of the Atmospheric Sciences, 2020, 77, 3227-3248.	0.6	6
45	Fractal Reconstruction of Sub-Grid Scales for Large Eddy Simulation. Flow, Turbulence and Combustion, 2019, 103, 293-322.	1.4	5
46	Modeling of filtered heat release for large eddy simulation of compressible infinitely fast reacting flows. Proceedings of the Combustion Institute, 2007, 31, 1691-1699.	2.4	3
47	Nonsingular Zero-Order Bulk Models of Sheared Convective Boundary Layers. Journals of the Atmospheric Sciences, 2019, 76, 3697-3715.	0.6	3
48	Using Numerical Simulations to Study the Atmospheric Boundary Layer. ERCOFTAC Series, 2020, , 1-10.	0.1	3
49	Numerical Simulation of Multi-Component Inductive Plasma Flows under Chemical Non-Equilibrium. Annals of the New York Academy of Sciences, 1999, 891, 340-347.	1.8	2
50	Study of low-order numerical effects in the two-dimensional cloud-top mixing layer. Theoretical and Computational Fluid Dynamics, 2013, 27, 239-251.	0.9	2
51	Controlling entrainment in the smoke cloud using level set-based front tracking. Meteorologische Zeitschrift, 2015, 23, 661-674.	0.5	2
52	Turbulent Entrainment in the Atmospheric Boundary Layer. Proceedings in Applied Mathematics and Mechanics, 2014, 14, 651-652.	0.2	1
53	Video: How fast does ice melt from below?. , 0, , .		1
54	On the Non-monotonic Variation of the Entrainment Buoyancy Flux with Wind Shear. Boundary-Layer Meteorology, 2022, 184, 463-477.	1.2	1

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55	Quantification of Global Intermittency in Stably Stratified Ekman Flow. Springer Proceedings in Physics, 2016, , 191-195.	0.1	0
56	Investigation of the Conditional Scalar Dissipation Rate Across a Shear Layer Using Gradient Trajectories. Springer Proceedings in Physics, 2009, , 21-24.	0.1	0
57	DNS of the turbulent cloud-top mixing layer. Springer Proceedings in Physics, 2009, , 401-404.	0.1	0
58	DNS of a Radiatively Driven Cloud-Top Mixing Layer as a Model for Stratocumulus Clouds. ERCOFTAC Series, 2015, , 419-422.	0.1	0
59	Estimating Turbulence Kinetic Energy Dissipation Rates in Atmospheric Flows: A Priori Study. Springer Proceedings in Physics, 2019, , 259-264.	0.1	0