

Ulrich Achatz

List of Publications by Year in descending order

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54
papers

1,232
citations

393982

19
h-index

395343

33
g-index

69
all docs

69
docs citations

69
times ranked

987
citing authors

#	ARTICLE	IF	CITATIONS
1	Stochastic Parameterization: Toward a New View of Weather and Climate Models. <i>Bulletin of the American Meteorological Society</i> , 2017, 98, 565-588.	1.7	247
2	Cosmic-ray particle transport in weakly turbulent plasmas. Part 1. Theory. <i>Journal of Plasma Physics</i> , 1993, 49, 63-77.	0.7	65
3	On the impact of middle-atmosphere thermal tides on the propagation and dissipation of gravity waves. <i>Journal of Geophysical Research</i> , 2011, 116, n/a-n/a.	3.3	56
4	Regime of Validity of Soundproof Atmospheric Flow Models. <i>Journals of the Atmospheric Sciences</i> , 2010, 67, 3226-3237.	0.6	53
5	A Two-Layer Model with Empirical Linear Corrections and Reduced Order for Studies of Internal Climate Variability. <i>Journals of the Atmospheric Sciences</i> , 1999, 56, 3140-3160.	0.6	49
6	Gravity waves, scale asymptotics and the pseudo-incompressible equations. <i>Journal of Fluid Mechanics</i> , 2010, 663, 120-147.	1.4	40
7	Mechanisms controlling the diurnal solar tide: Analysis using a GCM and a linear model. <i>Journal of Geophysical Research</i> , 2008, 113, .	3.3	37
8	Interplanetary transport of solar electrons and protons: Effect of dissipative processes in the magnetic field power spectrum. <i>Journal of Geophysical Research</i> , 1993, 98, 13261-13280.	3.3	34
9	On the role of optimal perturbations in the instability of monochromatic gravity waves. <i>Physics of Fluids</i> , 2005, 17, 094107.	1.6	32
10	Gravity-wave breaking: Linear and primary nonlinear dynamics. <i>Advances in Space Research</i> , 2007, 40, 719-733.	1.2	31
11	The Interaction between Atmospheric Gravity Waves and Large-Scale Flows: An Efficient Description beyond the Nonacceleration Paradigm. <i>Journals of the Atmospheric Sciences</i> , 2016, 73, 4833-4852.	0.6	31
12	The Primary Nonlinear Dynamics of Modal and Nonmodal Perturbations of Monochromatic Inertia-Gravity Waves. <i>Journals of the Atmospheric Sciences</i> , 2007, 64, 74-95.	0.6	30
13	On the application of Wentzel-Kramér-Brillouin theory for the simulation of the weakly nonlinear dynamics of gravity waves. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2015, 141, 676-697.	1.0	28
14	Principal Interaction Patterns in Baroclinic Wave Life Cycles. <i>Journals of the Atmospheric Sciences</i> , 1995, 52, 3201-3213.	0.6	25
15	On the Closure Problem in the Reduction of Complex Atmospheric Models by PIPs and EOFs: A Comparison for the Case of a Two-Layer Model with Zonally Symmetric Forcing. <i>Journals of the Atmospheric Sciences</i> , 1997, 54, 2452-2474.	0.6	25
16	Benchmarking in a rotating annulus: a comparative experimental and numerical study of baroclinic wave dynamics. <i>Meteorologische Zeitschrift</i> , 2015, 23, 611-635.	0.5	24
17	The dependence of the nonmigrating diurnal tide in the mesosphere and lower thermosphere on stationary planetary waves. <i>Journal of Atmospheric and Solar-Terrestrial Physics</i> , 2004, 66, 733-754.	0.6	23
18	Gravity wave emission in an atmosphere-like configuration of the differentially heated rotating annulus experiment. <i>Journal of Fluid Mechanics</i> , 2014, 758, 287-311.	1.4	19

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19	The interaction between gravity waves and solar tides in a linear tidal model with a 4D ray-tracing gravity-wave parameterization. <i>Journal of Geophysical Research: Space Physics</i> , 2016, 121, 8936-8950.	0.8	19
20	Shear and Static Instability of Inertia-Gravity Wave Packets: Short-Term Modal and Nonmodal Growth. <i>Journals of the Atmospheric Sciences</i> , 2006, 63, 397-413.	0.6	18
21	The interaction between synoptic-scale balanced flow and a finite-amplitude mesoscale wave field throughout all atmospheric layers: weak and moderately strong stratification. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2017, 143, 342-361.	1.0	18
22	Stochastic closure for local averages in the finite-difference discretization of the forced Burgers equation. <i>Theoretical and Computational Fluid Dynamics</i> , 2013, 27, 297-317.	0.9	17
23	The interaction between gravity waves and solar tides: Results from 4D ray tracing coupled to a linear tidal model. <i>Journal of Geophysical Research: Space Physics</i> , 2015, 120, 6795-6817.	0.8	16
24	Recent progress in modeling imbalance in the atmosphere and ocean. <i>Physical Review Fluids</i> , 2019, 4, .	1.0	16
25	Primitive-Equation-Based Low-Order Models with Seasonal Cycle. Part I: Model Construction. <i>Journals of the Atmospheric Sciences</i> , 2003, 60, 465-477.	0.6	16
26	Parameterization of stochastic multiscale triads. <i>Nonlinear Processes in Geophysics</i> , 2016, 23, 435-445.	0.6	16
27	Optimal Growth in Inertia-Gravity Wave Packets: Energetics, Long-Term Development, and Three-Dimensional Structure. <i>Journals of the Atmospheric Sciences</i> , 2006, 63, 414-434.	0.6	15
28	Fluctuation-Dissipation Supplemented by Nonlinearity: A Climate-Dependent Subgrid-Scale Parameterization in Low-Order Climate Models. <i>Journals of the Atmospheric Sciences</i> , 2013, 70, 1833-1846.	0.6	15
29	Toward Transient Subgrid-Scale Gravity Wave Representation in Atmospheric Models. Part II: Wave Intermittency Simulated with Convective Sources. <i>Journals of the Atmospheric Sciences</i> , 2021, 78, 1339-1357.	0.6	15
30	Toward Transient Subgrid-Scale Gravity Wave Representation in Atmospheric Models. Part I: Propagation Model Including Nondissipative Wave-Mean-Flow Interactions. <i>Journals of the Atmospheric Sciences</i> , 2021, 78, 1317-1338.	0.6	15
31	Cosmic-ray particle transport in weakly turbulent plasmas. Part 2. Mean free path of cosmic-ray protons. <i>Journal of Plasma Physics</i> , 1993, 50, 85-107.	0.7	14
32	Spontaneous inertia-gravity wave emission in the differentially heated rotating annulus experiment. <i>Journal of Fluid Mechanics</i> , 2018, 838, 5-41.	1.4	14
33	Quasi-linear theory and the phenomenology of interplanetary solar particle transport. <i>Astrophysical Journal</i> , 1993, 407, L95.	1.6	14
34	Range of validity of an extended WKB theory for atmospheric gravity waves: one-dimensional and two-dimensional case. <i>Journal of Fluid Mechanics</i> , 2013, 729, 330-363.	1.4	13
35	A Conservative Integration of the Pseudo-Incompressible Equations with Implicit Turbulence Parameterization. <i>Monthly Weather Review</i> , 2013, 141, 861-886.	0.5	13
36	Efficient Modeling of the Interaction of Mesoscale Gravity Waves with Unbalanced Large-Scale Flows: Pseudomomentum-Flux Convergence versus Direct Approach. <i>Journals of the Atmospheric Sciences</i> , 2019, 76, 2715-2738.	0.6	13

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37	Primitive-Equation-Based Low-Order Models with Seasonal Cycle. Part II: Application to Complexity and Nonlinearity of Large-Scale Atmosphere Dynamics. <i>Journals of the Atmospheric Sciences</i> , 2003, 60, 478-490.	0.6	13
38	Secondary Instabilities in Breaking Inertia-Gravity Waves. <i>Journals of the Atmospheric Sciences</i> , 2012, 69, 303-322.	0.6	12
39	Interactions between Mesoscale and Submesoscale Gravity Waves and Their Efficient Representation in Mesoscale-Resolving Models. <i>Journals of the Atmospheric Sciences</i> , 2018, 75, 2257-2280.	0.6	11
40	A new atmospheric-like differentially heated rotating annulus configuration to study gravity wave emission from jets and fronts. <i>Experiments in Fluids</i> , 2020, 61, 1.	1.1	11
41	Modal and Nonmodal Perturbations of Monochromatic High-Frequency Gravity Waves: Primary Nonlinear Dynamics. <i>Journals of the Atmospheric Sciences</i> , 2007, 64, 1977-1994.	0.6	8
42	Subgrid-scale closure for the inviscid Burgers-Hopf equation. <i>Communications in Mathematical Sciences</i> , 2013, 11, 757-777.	0.5	8
43	Validation of Large-Eddy Simulation Methods for Gravity Wave Breaking. <i>Journals of the Atmospheric Sciences</i> , 2015, 72, 3537-3562.	0.6	7
44	Reappraising the appropriate calculation of a common meteorological quantity: potential temperature. <i>Atmospheric Chemistry and Physics</i> , 2020, 20, 15585-15616.	1.9	7
45	Stochastic subgrid-scale parametrization for one-dimensional shallow-water dynamics using stochastic mode reduction. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2018, 144, 1975-1990.	1.0	6
46	Interaction Between Stratospheric Kelvin Waves and Gravity Waves in the Easterly QBO Phase. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL095226.	1.5	5
47	On the construction of a direct numerical simulation of a breaking inertia-gravity wave in the upper mesosphere. <i>Journal of Geophysical Research D: Atmospheres</i> , 2014, 119, 11,613-11,640.	1.2	4
48	Finite-amplitude gravity waves in the atmosphere: travelling wave solutions. <i>Journal of Fluid Mechanics</i> , 2017, 826, 1034-1065.	1.4	4
49	An application of WKBJ theory for triad interactions of internal gravity waves in varying background flows. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2021, 147, 1112-1134.	1.0	4
50	Finite-volume models with implicit subgrid-scale parameterization for the differentially heated rotating annulus. <i>Meteorologische Zeitschrift</i> , 2015, 23, 561-580.	0.5	2
51	Climate Dependence in Empirical Parameters of Subgrid-Scale Parameterizations using the Fluctuation-Dissipation Theorem. <i>Journals of the Atmospheric Sciences</i> , 2018, 75, 3843-3860.	0.6	2
52	Direct Numerical Simulation of Breaking Atmospheric Gravity Waves. , 2015, , 593-607.		1
53	Solar Diurnal Tides in the Middle Atmosphere: Interactions with the Zonal-Mean Flow, Planetary Waves and Gravity Waves. <i>Springer Atmospheric Sciences</i> , 2013, , 507-516.	0.4	0
54	Planetary geostrophic Boussinesq dynamics: Barotropic flow, baroclinic instability and forced stationary waves. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2019, 145, 3751-3765.	1.0	0