Valerio Lucarini

List of Publications by Year
in descending order

148 papers	4,912 citations	94433 37 h-index	138484 58 g-index
215 all docs	215 docs citations	215 times ranked	3856 citing authors

#	Article	IF	Citations
1	Robustness of Competing Climatic States. Journal of Climate, 2022, 35, 2769-2784.	3.2	8
2	Decomposing the dynamics of the Lorenz 1963 model using unstable periodic orbits: Averages, transitions, and quasi-invariant sets. Chaos, 2022, 32, 033129.	2.5	6
3	LÃ©vy noise versus Gaussian-noise-induced transitions in the Ghilâ€"Sellers energy balance model. Nonlinear Processes in Geophysics, 2022, 29, 183-205.	1.3	7
4	Nonequilibrium ensembles for the three-dimensional Navier-Stokes equationsÂ. Physical Review E, 2022, 105, .	2.1	2
5	Interrupting vaccination policies can greatly spread SARS-CoV-2 and enhance mortality from COVID-19 disease: The AstraZeneca case for France and Italy. Chaos, 2021, 31, 041105.	2.5	14
6	Reduced-order models for coupled dynamical systems: Data-driven methods and the Koopman operator. Chaos, 2021, 31, 053116.	2.5	22
7	Dynamical landscape and multistability of a climate model. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20210019.	2.1	18
8	Spectroscopy of phase transitions for multiagent systems. Chaos, 2021, 31, 061103.	2.5	3
9	Analysis of a bistable climate toy model with physics-based machine learning methods. European Physical Journal: Special Topics, 2021, 230, 3121-3131.	2.6	6
10	Applications of large deviation theory in geophysical fluid dynamics and climate science. Rivista Del Nuovo Cimento, 2021, 44, 291-363.	5.7	14
11	Fingerprinting Heatwaves and Cold Spells and Assessing Their Response to Climate Change Using Large Deviation Theory. Physical Review Letters, 2021, 127, 058701.	7.8	19
12	Inferring the instability of a dynamical system from the skill of data assimilation exercises. Nonlinear Processes in Geophysics, 2021, 28, 633-649.	1.3	2
13	A new mathematical framework for atmospheric blocking events. Climate Dynamics, 2020, 54, 575-598.	3.8	38
14	Advancing Research for Seamless Earth System Prediction. Bulletin of the American Meteorological Society, 2020, 101, E23-E35.	3.3	18
15	The Forced Response of the El NiÃ±oâ€"Southern Oscillationâ€"Indian Monsoon Teleconnection in Ensembles of Earth System Models. Journal of Climate, 2020, 33, 2163-2182.	3.2	26
16	Evaluating the Performance of Climate Models Based on Wasserstein Distance. Geophysical Research Letters, 2020, 47, e2020GL089385.	4.0	13
17	Rough basin boundaries in high dimension: Can we classify them experimentally?. Chaos, 2020, 30, 103105.	2.5	6
18	Mechanics and thermodynamics of a new minimal model of the atmosphere. European Physical Journal Plus, 2020, 135, 1.	2.6	5

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19	The physics of climate variability and climate change. Reviews of Modern Physics, 2020, 92, .	45.6	159
20	Introduction to the Special Issue on the Statistical Mechanics of Climate. Journal of Statistical Physics, 2020, 179, 997-1009.	1.2	1
21	Can we use linear response theory to assess geoengineering strategies?. Chaos, 2020, 30, 023124.	2.5	18
22	Response and Sensitivity Using Markov Chains. Journal of Statistical Physics, 2020, 179, 1572-1593.	1.2	10
23	Beyond Forcing Scenarios: Predicting Climate Change through Response Operators in a Coupled General Circulation Model. Scientific Reports, 2020, 10, 8668.	3.3	25
24	Global stability properties of the climate: Melancholia states, invariant measures, and phase transitions. Nonlinearity, 2020, 33, R59-R92.	1.4	20
25	Response theory and phase transitions for the thermodynamic limit of interacting identical systems. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200688.	2.1	6
26	Earth System Model Evaluation Tool (ESMValTool) v2.0 â€“ an extended set of large-scale diagnostics for quasi-operational and comprehensive evaluation of Earth system models in CMIP. Geoscientific Model Development, 2020, 13, 3383-3438.	3.6	69
27	All Kinds of Integration: WMOâ€™s Strategy for Seamless Prediction. Bulletin of the American Meteorological Society, 2020, 101, 509-512.	3.3	1
28	Effects of stochastic parametrization on extreme value statistics. Chaos, 2019, 29, 083102.	2.5	5
29	Water Pathways for the Hindu-Kush-Himalaya and an Analysis of Three Flood Events. Atmosphere, 2019, 10, 489.	2.3	9
30	TheDiaTo (v1.0) â€“ a new diagnostic tool for water, energy and entropy budgets in climate models. Geoscientific Model Development, 2019, 12, 3805-3834.	3.6	20
31	Spectral Decomposition and Extremes of Atmospheric Meridional Energy Transport in the Northern Hemisphere Midlatitudes. Geophysical Research Letters, 2019, 46, 7602-7613.	4.0	10
32	Lyapunov analysis of multiscale dynamics: the slow bundle of the two-scale Lorenz 96 model. Nonlinear Processes in Geophysics, 2019, 26, 73-89.	1.3	10
33	Transitions across Melancholia States in a Climate Model: Reconciling the Deterministic and Stochastic Points of View. Physical Review Letters, 2019, 122, 158701.	7.8	56
34	A large deviation theory-based analysis of heat waves and cold spells in a simplified model of the general circulation of the atmosphere. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 033404.	2.3	19
35	Stochastic resonance for nonequilibrium systems. Physical Review E, 2019, 100, 062124.	2.1	16
36	Climate sensitivity to ozone and its relevance on the habitability of Earth-like planets. Icarus, 2019, 321, 608-618.	2.5	15

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37	Crisis of the chaotic attractor of a climate model: a transfer operator approach. Nonlinearity, 2018, 31, 2221-2251.	1.4	33
38	Resonances in a Chaotic Attractor Crisis of the Lorenz Flow. Journal of Statistical Physics, 2018, 170, 584-616.	1.2	21
39	A proof of concept for scaleâ€adaptive parametrizations: the case of the Lorenz '96 model. Quarterly Journal of the Royal Meteorological Society, 2018, 144, 63-75.	2.7	32
40	Exploring the Lyapunov instability properties of high-dimensional atmospheric and climate models. Nonlinear Processes in Geophysics, 2018, 25, 387-412.	1.3	26
41	Evaluating a stochastic parametrization for a fastâ€“slow system using the Wasserstein distance. Nonlinear Processes in Geophysics, 2018, 25, 413-427.	1.3	9
42	Revising and Extending the Linear Response Theory for Statistical Mechanical Systems: Evaluating Observables as Predictors and Predictands. Journal of Statistical Physics, 2018, 173, 1698-1721.	1.2	29
43	Climate Sensitivity to Carbon Dioxide and the Moist Greenhouse Threshold of Earth-like Planets under an Increasing Solar Forcing. Astrophysical Journal, 2018, 869, 129.	4.5	8
44	Equivalence of nonequilibrium ensembles in turbulence models. Physical Review E, 2018, 98, 012202.	2.1	13
45	Predicting Climate Change Using Response Theory: Global Averages and Spatial Patterns. Journal of Statistical Physics, 2017, 166, 1036-1064.	1.2	74
46	Fluctuations, response, and resonances in a simple atmospheric model. Physica D: Nonlinear Phenomena, 2017, 349, 62-76.	2.8	40
47	Edge states in the climate system: exploring global instabilities and critical transitions. Nonlinearity, 2017, 30, R32-R66.	1.4	57
48	Stochastic Parameterization: Toward a New View of Weather and Climate Models. Bulletin of the American Meteorological Society, 2017, 98, 565-588.	3.3	247
49	Response formulae for<i>n</i>-point correlations in statistical mechanical systems and application to a problem of coarse graining. Journal of Physics A: Mathematical and Theoretical, 2017, 50, 355003.	2.1	12
50	Return levels of temperature extremes in southern Pakistan. Earth System Dynamics, 2017, 8, 1263-1278.	7.1	15
51	Linear and fractional response for the SRB measure of smooth hyperbolic attractors and discontinuous observables. Nonlinearity, 2017, 30, 1204-1220.	1.4	19
52	Prevailing climatic trends and runoff response from Hindukushâ€“Karakoramâ€“Himalaya, upper Indus Basin. Earth System Dynamics, 2017, 8, 337-355.	7.1	96
53	Convergence of Extreme Value Statistics in a Two-Layer Quasi-Geostrophic Atmospheric Model. Complexity, 2017, 2017, 1-20.	1.6	11
54	Dynamical analysis of blocking events: spatial and temporal fluctuations of covariant Lyapunov vectors. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 2143-2158.	2.7	23

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55	Seasonal cycle of precipitation over major river basins in South and Southeast Asia: A review of the CMIP5 climate models data for present climate and future climate projections. Atmospheric Research, 2016, 180, 42-63.	4.1	116
56	Lessons on Climate Sensitivity From Past Climate Changes. Current Climate Change Reports, 2016, 2, 148-158.	8.6	42
57	Statistical and dynamical properties of covariant lyapunov vectors in a coupled atmosphere-ocean modelâ€"multiscale effects, geometric degeneracy, and error dynamics. Journal of Physics A: Mathematical and Theoretical, 2016, 49, 224001.	2.1	46
58	Response Operators for Markov Processes in a Finite State Space: Radius of Convergence and Link to the Response Theory for Axiom A Systems. Journal of Statistical Physics, 2016, 162, 312-333.	1.2	26
59	Projected changes of rainfall seasonality and dry spells in a high greenhouse gas emissions scenario. Climate Dynamics, 2016, 46, 1331-1350.	3.8	65
60	A new framework for climate sensitivity and prediction: a modelling perspective. Climate Dynamics, 2016, 46, 1459-1471.	3.8	70
61	Parameterization of stochastic multiscale triads. Nonlinear Processes in Geophysics, 2016, 23, 435-445.	1.3	16
62	Covariant Lyapunov vectors of a quasiâ€geostrophic baroclinic model: analysis of instabilities and feedbacks. Quarterly Journal of the Royal Meteorological Society, 2015, 141, 3040-3055.	2.7	23
63	The impact of oceanic heat transport on the atmospheric circulation. Earth System Dynamics, 2015, 6, 591-615.	7.1	15
64	Parametrization of Cross-scale Interaction in Multiscale Systems. World Scientific Series on Asia-Pacific Weather and Climate, 2015, , 67-80.	0.2	2
65	Climate of Earth-like planets with high obliquity and eccentric orbits: Implications for habitability conditions. Planetary and Space Science, 2015, 105, 43-59.	1.7	68
66	Analysis of rainfall seasonality from observations and climate models. Climate Dynamics, 2015, 44, 3281-3301.	3.8	70
67	Global instability in the Ghilâ€"Sellers model. Climate Dynamics, 2015, 44, 3361-3381.	3.8	29
68	Stochastic climate theory and modeling. Wiley Interdisciplinary Reviews: Climate Change, 2015, 6, 63-78.	8.1	110
69	Early 21st century snow cover state over the western river basins of the Indus River system. Hydrology and Earth System Sciences, 2014, 18, 4077-4100.	4.9	115
70	Seasonality of the hydrological cycle in major South and Southeast Asian river basins as simulated by PCMDI/CMIP3 experiments. Earth System Dynamics, 2014, 5, 67-87.	7.1	40
71	Towards a General Theory of Extremes for Observables of Chaotic Dynamical Systems. Journal of Statistical Physics, 2014, 154, 723-750.	1.2	39
72	Entropy production and coarse graining of the climate fields in a general circulation model. Climate Dynamics, 2014, 43, 981-1000.	3.8	16

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73	Equivalence of Non-equilibrium Ensembles and Representation of Friction in Turbulent Flows: The Lorenz 96 Model. Journal of Statistical Physics, 2014, 156, 1027-1065.	1.2	32
74	Mathematical and physical ideas for climate science. Reviews of Geophysics, 2014, 52, 809-859.	23.0	104
75	On using extreme values to detect global stability thresholds in multi-stable systems: The case of transitional plane Couette flow. Chaos, Solitons and Fractals, 2014, 64, 26-35.	5.1	22
76	Elements of a unified framework for response formulae. Journal of Statistical Mechanics: Theory and Experiment, 2014, 2014, P01002.	2.3	17
77	Numerical Bifurcation Methods and their Application to Fluid Dynamics: Analysis beyond Simulation. Communications in Computational Physics, 2014, 15, 1-45.	1.7	136
78	Thermodynamic Insights into Transitions Between Climate States Under Changes in Solar and Greenhouse Forcing. Understanding Complex Systems, 2014, , 201-223.	0.6	0
79	Multi-level Dynamical Systems: Connecting the Ruelle Response Theory and the Mori-Zwanzig Approach. Journal of Statistical Physics, 2013, 151, 850-860.	1.2	65
80	Avalanches, breathers, and flow reversal in a continuous Lorenz-96 model. Physical Review E, 2013, 88, 013201.	2.1	6
81	Nonequilibrium thermodynamics of circulation regimes in optically thin, dry atmospheres. Planetary and Space Science, 2013, 84, 48-65.	1.7	15
82	Bistability of the climate around the habitable zone: A thermodynamic investigation. Icarus, 2013, 226, 1724-1742.	2.5	68
83	Nambu representation of an extended Lorenz model with viscous heating. Physica D: Nonlinear Phenomena, 2013, 243, 86-91.	2.8	22
84	Extreme value statistics for dynamical systems with noise. Nonlinearity, 2013, 26, 2597-2622.	1.4	26
85	Hydrological cycle over South and Southeast Asian river basins as simulated by PCMDI/CMIP3 experiments. Earth System Dynamics, 2013, 4, 199-217.	7.1	65
86	Habitability and Multistability in Earthâ€like Planets. Astronomische Nachrichten, 2013, 334, 576-588.	1.2	34
87	Regional climate models' performance in representing precipitation and temperature over selected Mediterranean areas. Hydrology and Earth System Sciences, 2013, 17, 5041-5059.	4.9	57
88	Modeling Complexity: The Case of Climate Science. , 2013, , 229-254.		8
89	Relevance of sampling schemes in light of Ruelle's linear response theory. Nonlinearity, 2012, 25, 1311-1327.	1.4	1
90	Disentangling multi-level systems: averaging, correlations and memory. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P03003.	2.3	43

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91	Extreme value theory for singular measures. Chaos, 2012, 22, 023135.	2.5	39
92	Vertical and horizontal processes in the global atmosphere and the maximum entropy production conjecture. Earth System Dynamics, 2012, 3, 19-32.	7.1	16
93	Beyond the linear fluctuation-dissipation theorem: the role of causality. Journal of Statistical Mechanics: Theory and Experiment, 2012, 2012, P05013.	2.3	25
94	Total cloud cover from satellite observations and climate models. Atmospheric Research, 2012, 107, 161-170.	4.1	30
95	GENERALIZED EXTREME VALUE DISTRIBUTION PARAMETERS AS DYNAMICAL INDICATORS OF STABILITY. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2012, 22, 1250276.	1.7	18
96	Bistable systems with stochastic noise: virtues and limits of effective one-dimensional Langevin equations. Nonlinear Processes in Geophysics, 2012, 19, 9-22.	1.3	18
97	Stochastic Perturbations to Dynamical Systems: A Response Theory Approach. Journal of Statistical Physics, 2012, 146, 774-786.	1.2	38
98	Universal Behaviour of Extreme Value Statistics for Selected Observables of Dynamical Systems. Journal of Statistical Physics, 2012, 147, 63-73.	1.2	63
99	ENERGETICS OF CLIMATE MODELS: NET ENERGY BALANCE AND MERIDIONAL ENTHALPY TRANSPORT. Reviews of Geophysics, 2011, 49, .	23.0	94
100	A statistical mechanical approach for the computation of the climatic response to general forcings. Nonlinear Processes in Geophysics, 2011, 18, 7-28.	1.3	78
101	Numerical Convergence of the Block-Maxima Approach to the Generalized Extreme Value Distribution. Journal of Statistical Physics, 2011, 145, 1156-1180.	1.2	53
102	New Results on the Thermodynamic Properties of the Climate System. Journals of the Atmospheric Sciences, 2011, 68, 2438-2458.	1.7	37
103	Baroclinic Stationary Waves in Aquaplanet Models. Journals of the Atmospheric Sciences, 2011, 68, 1023-1040.	1.7	10
104	Thermodynamics of climate change: generalized sensitivities. Atmospheric Chemistry and Physics, 2010, 10, 9729-9737.	4.9	45
105	Thermodynamic analysis of snowball Earth hysteresis experiment: Efficiency, entropy production and irreversibility. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 2-11.	2.7	77
106	Symmetry-Break in a Minimal Lorenz-Like System. , 2010, , .		0
107	Mechanisms of femtosecond laser-induced refractive index modification of poly(methyl) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50	2.1	40
108	Symmetry breaking, mixing, instability, and low-frequency variability in a minimal Lorenz-like system. Physical Review E, 2009, 80, 026313.	2.1	20

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109	Thermodynamic efficiency and entropy production in the climate system. Physical Review E, 2009, 80, 021118.	2.1	64
110	Three-Dimensional Random Voronoi Tessellations: FromÂCubic Crystal Lattices to Poisson Point Processes. Journal of Statistical Physics, 2009, 134, 185-206.	1.2	32
111	Evidence of Dispersion Relations for the Nonlinear Response of the Lorenz 63 System. Journal of Statistical Physics, 2009, 134, 381-400.	1.2	49
112	Accessing extremes of mid-latitudinal wave activity: methodology and application. Tellus, Series A: Dynamic Meteorology and Oceanography, 2009, 61, 35-49.	1.7	11
113	Symmetry-Break in Voronoi Tessellations. Symmetry, 2009, 1, 21-54.	2.2	17
114	From Symmetry Breaking to Poisson Point Process in 2D Voronoi Tessellations: the Generic Nature of Hexagons. Journal of Statistical Physics, 2008, 130, 1047-1062.	1.2	47
115	Response Theory for Equilibrium and Non-Equilibrium Statistical Mechanics: Causality and Generalized Kramers-Kronig Relations. Journal of Statistical Physics, 2008, 131, 543-558.	1.2	53
116	Hydrological cycle in the Danube basin in presentâ€day and XXII century simulations by IPCCAR4 global climate models. Journal of Geophysical Research, 2008, 113, .	3.3	30
117	Extreme Value Statistics of the Total Energy in an Intermediate-Complexity Model of the Midlatitude Atmospheric Jet. Part II: Trend Detection and Assessment. Journals of the Atmospheric Sciences, 2007, 64, 2159-2175.	1.7	28
118	Extreme Value Statistics of the Total Energy in an Intermediate-Complexity Model of the Midlatitude Atmospheric Jet. Part I: Stationary Case. Journals of the Atmospheric Sciences, 2007, 64, 2137-2158.	1.7	31
119	Southern Hemisphere midlatitude atmospheric variability of the NCEP-NCAR and ECMWF reanalyses. Journal of Geophysical Research, 2007, 112, .	3.3	22
120	Does the Danube exist? Versions of reality given by various regional climate models and climatological data sets. Journal of Geophysical Research, 2007, 112, .	3.3	25
121	Twenty Years of Nonlinear Dynamics in Geosciences. Eos, 2007, 88, 29.	0.1	1
122	Parametric smoothness and self-scaling of the statistical properties of a minimal climate model: What beyond the mean field theories?. Physica D: Nonlinear Phenomena, 2007, 234, 105-123.	2.8	30
123	Experimental mathematics: Dependence of the stability properties of a two-dimensional model of the Atlantic ocean circulation on the boundary conditions. Russian Journal of Mathematical Physics, 2007, 14, 224-231.	1.5	9
124	Intercomparison of the northern hemisphere winter mid-latitude atmospheric variability of the IPCC models. Climate Dynamics, 2007, 28, 829-848.	3.8	69
125	Self-Scaling of the Statistical Properties of a Minimal Model of the Atmospheric Circulation. , 2007, , 197-219.		3
126	Statistical Properties of Mid-latitude Atmospheric Variability. , 2007, , 369-391.		0

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127	Does the subtropical jet catalyze the midlatitude atmospheric regimes?. Geophysical Research Letters, 2006, 33, .	4.0	27
128	Thermohaline Circulation Stability: A Box Model Study. Part II: Coupled Atmosphereâ€"Ocean Model. Journal of Climate, 2005, 18, 514-529.	3.2	14
129	Thermohaline Circulation Stability: A Box Model Study. Part I: Uncoupled Model. Journal of Climate, 2005, 18, 501-513.	3.2	18
130	Destabilization of the thermohaline circulation by transient changes in the hydrological cycle. Climate Dynamics, 2005, 24, 253-262.	3.8	13
131	Hayashi spectra of the northern hemisphere mid-latitude atmospheric variability in the NCEPâ€"NCAR and ECMWF reanalyses. Climate Dynamics, 2005, 25, 639-652.	3.8	55
132	Testing the validity of terahertz reflection spectra by dispersion relations. Physical Review B, 2005, 72, .	3.2	13
133	Detection and correction of the misplacement error in terahertz spectroscopy by application of singly subtractive Kramers-Kronig relations. Physical Review B, 2005, 72, .	3.2	35
134	Environmental Science, Physical Principles and Applications. , 2005, , 146-156.		4
135	Kramers-Kronig relations and sum rules of negative refractive index media. European Physical Journal B, 2004, 41, 61-65.	1.5	56
136	Kramersâ€"Kronig Relations and Sum Rules in Nonlinear Optical Spectroscopy. Applied Spectroscopy, 2004, 58, 499-509.	2.2	23
137	Multiply subtractive Kramersâ€"KrÃ¶nig relations for arbitrary-order harmonic generation susceptibilities. Optics Communications, 2003, 218, 409-414.	2.1	28
138	Multiply subtractive generalized Kramersâ€"Kronig relations: Application on third-harmonic generation susceptibility on polysilane. Journal of Chemical Physics, 2003, 119, 11095-11098.	3.0	19
139	Verification of generalized Kramersâ€"Kronig relations and sum rules on experimental data of third harmonic generation susceptibility on polymer. Journal of Chemical Physics, 2003, 119, 620-627.	3.0	16
140	Towards a definition of climate science. International Journal of Environment and Pollution, 2002, 18, 413.	0.2	20
141	Comparison of mean climate trends in the Northern Hemisphere between National Centers for Environmental Prediction and two atmosphere-ocean model forced runs. Journal of Geophysical Research, 2002, 107, ACL 7-1.	3.3	41
142	General properties of harmonic generation susceptibilities. , 2001, 4350, 144.		0
143	Spatial-dispersion and relativistic effects in the optical sum rules. European Physical Journal B, 2001, 23, 319-323.	1.5	4
144	Asymptotic behaviour and general properties of harmonic generation susceptibilities. European Physical Journal B, 2000, 17, 567-573.	1.5	14

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145	Pump and probe nonlinear processes: new modified sum rules from a simple oscillator model. European Physical Journal B, 1999, 12, 323-330.	1.5	11
146	General properties of optical harmonic generation from a simple oscillator model. Nuovo Cimento Della Societa Italiana Di Fisica D - Condensed Matter, Atomic, Molecular and Chemical Physics, Biophysics, 1998, 20, 1117-1125.	0.4	16
147	Predictors and predictands of linear response in spatially extended systems. European Physical Journal: Special Topics, 0, , 1.	2.6	1
148	Eddy saturation in a reduced two-level model of the atmosphere. Geophysical and Astrophysical Fluid Dynamics, 0, , 1-18.	1.2	0