Nicholas W Watkins

List of Publications by Citations

95 papers	2,384 citations	24 h-index	46 g-index
103 ext. papers	2,771 ext. citations	5 avg, IF	4.97 L-index

#	Paper	IF	Citations
95	Revisiting Lévy flight search patterns of wandering albatrosses, bumblebees and deer. *Nature*, **2007**, 449, 1044-8	50.4	626
94	Storylines: an alternative approach to representing uncertainty in physical aspects of climate change. *Climatic Change*, **2018**, 151, 555-571	4.5	130
93	Overview of the JET results in support to ITER. *Nuclear Fusion*, **2017**, 57, 102001	3.3	125
92	A simple avalanche model as an analogue for magnetospheric activity. *Geophysical Research Letters*, **1998**, 25, 2397-2400	4.9	123
91	25 Years of Self-organized Criticality: Concepts and Controversies. *Space Science Reviews*, **2016**, 198, 3-44	7.5	92
90	A Brief History of Long Memory: Hurst, Mandelbrot and the Road to ARFIMA, 1951–1980. *Entropy*, **2017**, 19, 437	2.8	65
89	Evidence for a solar wind origin of the power law burst lifetime distribution of the AE indices. *Geophysical Research Letters*, **2000**, 27, 1087-1090	4.9	64
88	Efficient generation of energetic ions in multi-ion plasmas by radio-frequency heating. *Nature Physics*, **2017**, 13, 973-978	16.2	50
87	Power law distributions of burst duration and interburst interval in the solar wind: turbulence or dissipative self-organized criticality?. *Physical Review E*, **2000**, 62, 8794-7	2.4	45
86	Finite size scaling in the solar wind magnetic field energy density as seen by WIND. *Geophysical Research Letters*, **2002**, 29, 86-1-86-4	4.9	41
85	Avalanching and Self-Organised Criticality, a paradigm for geomagnetic activity? **2001**, 95, 293-307		39
84	Towards Synthesis of Solar Wind and Geomagnetic Scaling Exponents: A Fractional Lévy Motion Model. *Space Science Reviews*, **2005**, 121, 271-284	7.5	38
83	Robustness of estimators of long-range dependence and self-similarity under non-Gaussianity. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2012**, 370, 1250-67	3	36
82	Overview of the JET results. *Nuclear Fusion*, **2015**, 55, 104001	3.3	34
81	Scaling collapse and structure functions: identifying self-affinity in finite length time series. *Nonlinear Processes in Geophysics*, **2005**, 12, 767-774	2.9	34
80	Robustness of collective behaviour in strongly driven avalanche models: Magnetospheric implications. *Geophysical Research Letters*, **1999**, 26, 2617-2620	4.9	33
79	First passage and first hitting times of Lévy flights and Lévy walks. *New Journal of Physics*, **2019**, 21, 103028	2.9	32

78	A spatiotemporal analysis of U.S. station temperature trends over the last century. *Journal of Geophysical Research D: Atmospheres*, **2013**, 118, 7427-7434	4.4	32
77	Extremum statistics: a framework for data analysis. *Nonlinear Processes in Geophysics*, **2002**, 9, 409-418	2.9	30
76	A dynamical systems explanation of the Hurst effect and atmospheric low-frequency variability. *Scientific Reports*, **2015**, 5, 9068	4.9	26
75	The Structure of Climate Variability Across Scales. *Reviews of Geophysics*, **2020**, 58, e2019RG000657	23.1	26
74	Scaling of solar wind ? and the AU, AL and AE indices as seen by WIND. *Geophysical Research Letters*, **2002**, 29, 35-1-35-4	4.9	25
73	Mapping climate change in European temperature distributions. *Environmental Research Letters*, **2013**, 8, 034031	6.2	24
72	Kinetic equation of linear fractional stable motion and applications to modeling the scaling of intermittent bursts. *Physical Review E*, **2009**, 79, 041124	2.4	24
71	Scaling in the space climatology of the auroral indices: is SOC the only possible description?. *Nonlinear Processes in Geophysics*, **2002**, 9, 389-397	2.9	23
70	Application of computational mechanics to the analysis of natural data: an example in geomagnetism. *Physical Review E*, **2003**, 67, 016203	2.4	23
69	On the fractal nature of the magnetic field energy density in the solar wind. *Geophysical Research Letters*, **2007**, 34,	4.9	22
68	Warming Trends in Summer Heatwaves. *Geophysical Research Letters*, **2019**, 46, 1634-1640	4.9	21
67	Testing the SOC hypothesis for the magnetosphere. *Journal of Atmospheric and Solar-Terrestrial Physics*, **2001**, 63, 1435-1445	2	20
66	Using the Index Over the Last 14 Solar Cycles to Characterize Extreme Geomagnetic Activity. *Geophysical Research Letters*, **2020**, 47, e2019GL086524	4.9	19
65	Scaling in long term data sets of geomagnetic indices and solar wind ? as seen by WIND spacecraft. *Geophysical Research Letters*, **2003**, 30,	4.9	18
64	Overlapping Magnetic Activity Cycles and the Sunspot Number: Forecasting Sunspot Cycle 25 Amplitude. *Solar Physics*, **2020**, 295, 1	2.6	18
63	14 MeV calibration of JET neutron detectors—Phase 1: calibration and characterization of the neutron source. *Nuclear Fusion*, **2018**, 58, 026012	3.3	16
62	Investigating turbulent structure of ionospheric plasma velocity using the Halley SuperDARN radar. *Nonlinear Processes in Geophysics*, **2007**, 14, 799-809	2.9	16
61	Comment on "Universal Fluctuations in Correlated Systems". *Physical Review Letters*, **2002**, 89, 208901, author reply 208902	7.4	16

60	Auroral and space physics. The heavens in a pile of sand. *Science*, **2002**, 298, 979-80	33.3	16
59	Timing Terminators: Forecasting Sunspot Cycle 25 Onset. *Solar Physics*, **2020**, 295, 1	2.6	15
58	(A)phantasia and severely deficient autobiographical memory: Scientific and personal perspectives. *Cortex*, **2018**, 105, 41-52	3.8	15
57	Parameterization of chaotic particle dynamics in a simple time-dependent field reversal. *Journal of Geophysical Research*, **1993**, 98, 165-177		14
56	Rhythm and Randomness in Human Contact **2010**,		13
55	Analytical determination of power-law index for the Chapman et al. sandpile (FSOC) analog for magnetospheric activity A renormalization-group analysis. *Geophysical Research Letters*, **2000**, 27, 1367-1370	4.9	13
54	Geoscience. Natural complexity. *Science*, **2008**, 320, 323-4	33.3	12
53	Efficient Bayesian inference for natural time series using ARFIMA processes. *Nonlinear Processes in Geophysics*, **2015**, 22, 679-700	2.9	12
52	Evidence for a solar wind origin of the power law burst lifetime distribution of the AE indices. *Geophysical Research Letters*, **2000**, 27, 1087-1090	4.9	12
51	Systematic inference of the long-range dependence and heavy-tail distribution parameters of ARFIMA models. *Physica A: Statistical Mechanics and Its Applications*, **2017**, 473, 60-71	3.3	11
50	Topological isomorphisms of human brain and financial market networks. *Frontiers in Systems Neuroscience*, **2011**, 5, 75	3.5	11
49	Scaling and commonality in anomalous fluctuation statistics in models for turbulence and ferromagnetism. *Journal of Physics A*, **2005**, 38, 2289-2297		11
48	Robustness and scaling: key observables in the complex dynamic magnetosphere. *Plasma Physics and Controlled Fusion*, **2004**, 46, B157-B166	2	11
47	High-resolution tungsten spectroscopy relevant to the diagnostic of high-temperature tokamak plasmas. *Physical Review A*, **2018**, 97,	2.6	10
46	Quantifying the Solar Cycle Modulation of Extreme Space Weather. *Geophysical Research Letters*, **2020**, 47, e2020GL087795	4.9	9
45	On estimating local long-term climate trends. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2013**, 371, 20120287	3	9
44	A 25-year record of 10 kHz sferics noise in Antarctica: Implications for tropical lightning levels. *Geophysical Research Letters*, **1998**, 25, 4353-4356	4.9	9
43	Exactly solvable sandpile with fractal avalanching. *Physical Review E*, **1999**, 59, 6356-60	2.4	9

42	Tritium distributions on W-coated divertor tiles used in the third JET ITER-like wall campaign. *Nuclear Materials and Energy*, **2019**, 18, 258-261	2.1	8
41	Reproducible Aspects of the Climate of Space Weather Over the Last Five Solar Cycles. *Space Weather*, **2018**, 16, 1128-1142	3.7	8
40	Robust statistical properties of the size of large burst events in AE. *Geophysical Research Letters*, **2015**, 42, 9197-9202	4.9	8
39	Pseudononstationarity in the scaling exponents of finite-interval time series. *Physical Review E*, **2009**, 79, 036109	2.4	8
38	Complexity and Extreme Events in Geosciences: An Overview. *Geophysical Monograph Series*, **2012**, 1-16	1.1	8
37	What can we infer about the underlying physics from burst distributions observed in an RMHD simulation?. *Planetary and Space Science*, **2001**, 49, 1233-1237	2	8
36	Diurnal and annual variations in 10-kHz radio noise. *Radio Science*, **1999**, 34, 933-938	1.4	8
35	Suspected wave-particle interactions coincident with a pancake distribution as seen by the CRRES spacecraft. *Advances in Space Research*, **1996**, 17, 83-87	2.4	7
34	Control system-plasma synchronization and naturally occurring edge localized modes in a tokamak. *Physics of Plasmas*, **2018**, 25, 062511	2.1	6
33	Relationship of edge localized mode burst times with divertor flux loop signal phase in JET. *Physics of Plasmas*, **2014**, 21, 062302	2.1	6
32	Bunched black (and grouped grey) swans: Dissipative and non-dissipative models of correlated extreme fluctuations in complex geosystems. *Geophysical Research Letters*, **2013**, 40, 402-410	4.9	6
31	Macroscopic control parameter for avalanche models for bursty transport. *Physics of Plasmas*, **2009**, 16, 012303	2.1	6
30	Avalanching systems under intermediate driving rate. *Plasma Physics and Controlled Fusion*, **2009**, 51, 124006	2	6
29	AMBIGUITIES IN DETERMINATION OF SELF-AFFINITY IN THE AE-INDEX TIME SERIES. *Fractals*, **2001**, 09, 471-479	3.2	6
28	Extreme-value statistics from Lagrangian convex hull analysis for homogeneous turbulent Boussinesq convection and MHD convection. *New Journal of Physics*, **2017**, 19, 065006	2.9	5
27	Limits to the quantification of local climate change. *Environmental Research Letters*, **2015**, 10, 094018	6.2	5
26	Comment on "Coexistence of self-organized criticality and intermittent turbulence in the solar corona". *Physical Review Letters*, **2009**, 103, 039501; author reply 039502	7.4	5
25	Signatures of dual scaling regimes in a simple avalanche model for magnetospheric activity. *Journal of Atmospheric and Solar-Terrestrial Physics*, **2001**, 63, 1361-1370	2	5

24	Temperature variability implies greater economic damages from climate change. *Nature Communications*, **2020**, 11, 5028	17.4	5
23	The global build-up to intrinsic edge localized mode bursts seen in divertor full flux loops in JET. *Physics of Plasmas*, **2015**, 22, 072506	2.1	4
22	Lightning atmospherics count rates observed at Halley, Antarctica. *Journal of Atmospheric and Solar-Terrestrial Physics*, **2001**, 63, 993-1003	2	4
21	Correction to Scaling of solar wind ? and the AU, AL and AE indices as seen by WIND by B. Hnat, S. C. Chapman, G. Rowlands, N. W. Watkins, and M. P. Freeman. *Geophysical Research Letters*, **2003**, 30,	4.9	3
20	Fractional Stochastic Models for Heavy Tailed, and Long-Range Dependent, Fluctuations in Physical Systems	340	3
19	Mandelbrot's Stochastic Time Series Models. *Earth and Space Science*, **2019**, 6, 2044-2056	3.1	2
18	The global build-up to intrinsic ELM bursts and comparison with pellet triggered ELMs seen in JET. *Nuclear Fusion*, **2017**, 57, 022017	3.3	2
17	Mandelbrot's 1/f Fractional Renewal Models of 1963: The Non-ergodic Missing Link Between Change Points and Long Range Dependence. *Contributions To Statistics*, **2017**, 197-208	0.1	2
16	On the continuing relevance of Mandelbrot's non-ergodic fractional renewal models of 1963 to 1967. *European Physical Journal B*, **2017**, 90, 1	1.2	2
15	On Self-Similar and Multifractal Models for the Scaling of Extreme Bursty Fluctuations in Space Plasmas. *Geophysical Monograph Series*, **2012**, 299-313	1.1	2
14	Comparison of VLF sferics intensities at Halley, Antarctica, with tropical lightning and temperature. *Radio Science*, **2001**, 36, 1053-1064	1.4	2
13	Delay coordinates: a sensitive indicator of nonlinear dynamics in single charged particle motion in magnetic reversals. *Annales Geophysicae*, **1995**, 13, 836-842	2	2
12	Trends in Winter Warm Spells in the Central England Temperature Record. *Journal of Applied Meteorology and Climatology*, **2020**, 59, 1069-1076	2.7	2
11	Efficient Bayesian inference for ARFIMA processes		2
10	Response to Limitations in the Hilbert Transform Approach to Locating Solar Cycle Terminators by R. Booth. *Solar Physics*, **2021**, 296, 1	2.6	2
9	Intrinsic ELMing in ASDEX Upgrade and global control system-plasma self-entrainment. *Nuclear Fusion*, **2018**, 58, 126003	3.3	2
8	The Dependence of Solar Wind Burst Size on Burst Duration and Its Invariance Across Solar Cycles 23 and 24. *Journal of Geophysical Research: Space Physics*, **2018**, 123, 7196-7210	2.6	2
7	Generalised Langevin Equations and the Climate Response Problem		2

6	Variation of Geomagnetic Index Empirical Distribution and Burst Statistics Across Successive Solar Cycles. *Journal of Geophysical Research: Space Physics*, **2022**, 127, e2021JA029986	2.6	1
5	Scaling parameters and parametric coordinates in static and time dependent magnetic reversals. *Advances in Space Research*, **1996**, 18, 285-289	2.4	0
4	Magnetic Topology of Actively Evolving and Passively Convecting Structures in the Turbulent Solar Wind. *Physical Review Letters*, **2021**, 126, 125101	7.4	0
3	The Sun Magnetic (Hale) Cycle and 27 Day Recurrences in the aa Geomagnetic Index. *Astrophysical Journal*, **2021**, 917, 54	4.7	0
2	In-Situ Spacecraft Particle Autocorrelation and Cross-Correlation- Theory and Practice. *Geophysical Monograph Series*, **2013**, 319-324	1.1	
1	On Generalized Langevin Dynamics and the Modelling of Global Mean Temperature. *Springer Proceedings in Complexity*, **2021**, 433-441	0.3	