Bernard Legras

List of Publications by Year
in descending order

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112 papers	5,247 citations	87888 38 h-index	95266 68 g-index
173 all docs	173 docs citations	173 times ranked	4024 citing authors

#	Article	IF	Citations
1	Weather Regimes: Recurrence and Quasi Stationarity. Journals of the Atmospheric Sciences, 1995, 52, 1237-1256.	1.7	518
2	Persistent Anomalies, Blocking and Variations in Atmospheric Predictability. Journals of the Atmospheric Sciences, 1985, 42, 433-471.	1.7	327
3	A Study of Barotropic Model Flows: Intermittency, Waves and Predictability. Journals of the Atmospheric Sciences, 1981, 38, 2305-2326.	1.7	212
4	High-Resolution Numerical Experiments for Forced Two-Dimensional Turbulence. Europhysics Letters, 1988, 5, 37-42.	2.0	203
5	The generation of vortices in highâ€resolution, twoâ€dimensional decaying turbulence and the influence of initial conditions on the breaking of selfâ€similarity. Physics of Fluids A, Fluid Dynamics, 1989, 1, 1027-1034.	1.6	150
6	Vorticity and passive-scalar dynamics in two-dimensional turbulence. Journal of Fluid Mechanics, 1987, 183, 379-397.	3.4	148
7	Relation between Kinematic Boundaries, Stirring, and Barriers for the Antarctic Polar Vortex. Journals of the Atmospheric Sciences, 2002, 59, 1198-1212.	1.7	144
8	The 2019/20 Australian wildfires generated a persistent smoke-charged vortex rising up to 35â€‰km altitude. Communications Earth & Environment, 2020, 1, .	6.8	140
9	Mixing and deformations in mantle plumes. Earth and Planetary Science Letters, 2002, 196, 1-15.	4.4	123
10	Vortex stripping and the erosion of coherent structures in twoâ€dimensional flows. Physics of Fluids, 1994, 6, 3954-3962.	4.0	121
11	Evaluating the advective Brewerâ€Dobson circulation in three reanalyses for the period 1979â€“2012. Journal of Geophysical Research D: Atmospheres, 2015, 120, 7534-7554.	3.3	114
12	The effect of small-scale inhomogeneities on ozone depletion in the Arctic. Nature, 1996, 384, 444-447.	27.8	113
13	On the Source of Midlatitude Low-Frequency Variability. Part II: Nonlinear Equilibration of Weather Regimes. Journals of the Atmospheric Sciences, 1988, 45, 2845-2867.	1.7	107
14	Hyperbolic lines and the stratospheric polar vortex. Chaos, 2002, 12, 382-394.	2.5	107
15	Ammonium nitrate particles formed in upper troposphere from ground ammonia sources during Asian monsoons. Nature Geoscience, 2019, 12, 608-612.	12.9	95
16	Water vapor transport and dehydration above convective outflow during Asian monsoon. Geophysical Research Letters, 2008, 35, .	4.0	93
17	The diabatic heat budget of the upper troposphere and lower/mid stratosphere in ECMWF reanalyses. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 21-37.	2.7	91
18	The life-cycle of tripoles in two-dimensional incompressible flows. Journal of Fluid Mechanics, 1994, 267, 53-82.	3.4	90

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19	Age of stratospheric air in the ERA-Interim. Atmospheric Chemistry and Physics, 2012, 12, 12133-12154.	4.9	84
20	Vortex stripping and the generation of high vorticity gradients in two-dimensional flows. Flow, Turbulence and Combustion, 1993, 51, 445-455.	0.2	70
21	Lagrangian temperature and vertical velocity fluctuations due to gravity waves in the lower stratosphere. Geophysical Research Letters, 2016, 43, 3543-3553.	4.0	70
22	Variability of the Lagrangian turbulent diffusion in the lower stratosphere. Atmospheric Chemistry and Physics, 2005, 5, 1605-1622.	4.9	69
23	Quantifying the effects of mixing and residual circulation on trends of stratospheric mean age of air. Geophysical Research Letters, 2015, 42, 2047-2054.	4.0	69
24	Stratospheric aerosol layer perturbation caused by the 2019ÂRaikoke and Ulawun eruptions and their radiative forcing. Atmospheric Chemistry and Physics, 2021, 21, 535-560.	4.9	64
25	On the Source of Midlatitude Low-Frequency Variability. Part I: A Statistical Approach to Persistence. Journals of the Atmospheric Sciences, 1988, 45, 2811-2844.	1.7	63
26	Vertical diffusivity in the lower stratosphere from Lagrangian back-trajectory reconstructions of ozone profiles. Journal of Geophysical Research, 2003, 108, .	3.3	63
27	Convective sources of trajectories traversing the tropicalÂtropopauseÂlayer. Atmospheric Chemistry and Physics, 2016, 16, 3383-3398.	4.9	58
28	Temperature and tropopause characteristics from reanalyses data in the tropical tropopause layer. Atmospheric Chemistry and Physics, 2020, 20, 753-770.	4.9	57
29	Planetary-scale tropopause folds in the southern subtropics. Geophysical Research Letters, 2000, 27, 353-356.	4.0	55
30	A Comparison of the Contour Surgery and Pseudo-spectral Methods. Journal of Computational Physics, 1993, 104, 287-302.	3.8	51
31	Effect of gravity wave temperature fluctuations on homogeneous ice nucleation in the tropical tropopause layer. Atmospheric Chemistry and Physics, 2016, 16, 35-46.	4.9	51
32	The elliptical model of twoâ€dimensional vortex dynamics. I: The basic state. Physics of Fluids A, Fluid Dynamics, 1991, 3, 845-854.	1.6	50
33	Response of stratospheric water vapor and ozone to the unusual timing of El NiÃ±o and the QBO disruption in 2015â€“2016. Atmospheric Chemistry and Physics, 2018, 18, 13055-13073.	4.9	48
34	Transport of the 2017 Canadian wildfire plume to the tropics via the Asian monsoon circulation. Atmospheric Chemistry and Physics, 2019, 19, 13547-13567.	4.9	48
35	Modeling Oceanic and Atmospheric Vortices. Physics Today, 1993, 46, 44-51.	0.3	45
36	Evidence for a kâ^'5/3 Spectrum from the EOLE Lagrangian Balloons in the Low Stratosphere. Journals of the Atmospheric Sciences, 2004, 61, 2936-2942.	1.7	44

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37	Modelling and interpreting the isotopic composition of water vapour in convective updrafts. Atmospheric Chemistry and Physics, 2013, 13, 7903-7935.	4.9	43
38	Comparison between vertical ozone soundings and reconstructed potential vorticity maps by contour advection with surgery. Journal of Geophysical Research, 1997, 102, 6131-6142.	3.3	41
39	Turbulent vertical diffusivity in the sub-tropical stratosphere. Atmospheric Chemistry and Physics, 2008, 8, 697-707.	4.9	39
40	A Lagrangian view of convective sources for transport of air across the Tropical Tropopause Layer: distribution, times and the radiative influence of clouds. Atmospheric Chemistry and Physics, 2011, 11, 12517-12534.	4.9	38
41	Estimation of mixing in the troposphere from Lagrangian trace gas reconstructions during longâ€range pollution plume transport. Journal of Geophysical Research, 2009, 114, .	3.3	37
42	The erosion of a distributed two-dimensional vortex in a background straining flow. Journal of Fluid Mechanics, 2001, 441, 369-398.	3.4	36
43	The impact of Mount Etna sulfur emissions on the atmospheric composition and aerosol properties in the central Mediterranean: A statistical analysis over the period 2000â€“2013 based on observations and Lagrangian modelling. Atmospheric Environment, 2017, 148, 77-88.	4.1	35
44	Deep-convective influence on the upper troposphereâ€“lower stratosphere composition in the Asian monsoon anticyclone region: 2017 StratoClim campaign results. Atmospheric Chemistry and Physics, 2020, 20, 12193-12210.	4.9	33
45	Synergistic use of Lagrangian dispersion and radiative transfer modelling with satellite and surface remote sensing measurements for the investigation of volcanic plumes: the Mount Etna eruption of 25â€“27ÂOctober 2013. Atmospheric Chemistry and Physics, 2016, 16, 6841-6861.	4.9	31
46	The elliptical model of twoâ€dimensional vortex dynamics. II: Disturbance equations. Physics of Fluids A, Fluid Dynamics, 1991, 3, 855-869.	1.6	30
47	Turbulent phase shift of rossby waves. Geophysical and Astrophysical Fluid Dynamics, 1980, 15, 253-281.	1.2	29
48	Confinement of air in the Asian monsoon anticyclone and pathways of convective air to the stratosphere during the summer season. Atmospheric Chemistry and Physics, 2020, 20, 11045-11064.	4.9	29
49	Local Mixing Events in the Upper Troposphere and Lower Stratosphere. Part I: Detection with the Lyapunov Diffusivity. Journals of the Atmospheric Sciences, 2009, 66, 3678-3694.	1.7	28
50	Significant Contributions of Volcanic Aerosols to Decadal Changes in the Stratospheric Circulation. Geophysical Research Letters, 2017, 44, 10,780.	4.0	28
51	Large-scale Kolmogorov flow on the beta-plane and resonant wave interactions. Physica D: Nonlinear Phenomena, 1996, 94, 36-56.	2.8	27
52	How robust are stratospheric age of air trends from different reanalyses?. Atmospheric Chemistry and Physics, 2019, 19, 6085-6105.	4.9	27
53	Structural changes in the shallow and transition branch of the Brewerâ€“Dobson circulation induced by El NiÃ±o. Atmospheric Chemistry and Physics, 2019, 19, 425-446.	4.9	27
54	Differences in tropical high clouds among reanalyses: origins and radiative impacts. Atmospheric Chemistry and Physics, 2020, 20, 8989-9030.	4.9	26

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55	Local Mixing Events in the Upper Troposphere and Lower Stratosphere. Part II: Seasonal and Interannual Variability. Journals of the Atmospheric Sciences, 2009, 66, 3695-3706.	1.7	25
56	Interannual variability in effective diffusivity in the upper troposphere/lower stratosphere from reanalysis data. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 1847-1861.	2.7	25
57	Smoke-charged vortices in the stratosphere generated by wildfires and their behaviour in both hemispheres: comparing Australia 2020 to Canada 2017. Atmospheric Chemistry and Physics, 2021, 21, 7113-7134.	4.9	25
58	The stratospheric Brewerâ€“Dobson circulation inferred from age of air in the ERA5 reanalysis. Atmospheric Chemistry and Physics, 2021, 21, 8393-8412.	4.9	24
59	Vortex Stripping and the Generation of High Vorticity Gradients in Two-Dimensional Flows. Fluid Mechanics and Its Applications, 1993, , 445-455.	0.2	24
60	Global distribution of CO₂ in the upper troposphere and stratosphere. Atmospheric Chemistry and Physics, 2017, 17, 3861-3878.	4.9	23
61	Dispersive Stabilization of the Inverse Cascade for the Kolmogorov Flow. Physical Review Letters, 1999, 82, 4440-4443.	7.8	22
62	Impact of the 2018 Ambae Eruption on the Global Stratospheric Aerosol Layer and Climate. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2020JD032410.	3.3	22
63	The Evolution of the Ozone â€œCollarâ€•in the Antarctic Lower Stratosphere during Early August 1994. Journals of the Atmospheric Sciences, 2000, 57, 402-414.	1.7	20
64	The effect of dynamical mixing in a simple model of the ozone hole. Journal of Geophysical Research, 1996, 101, 16771-16778.	3.3	19
65	On the origin of subvisible cirrus clouds in the tropical upper troposphere. Atmospheric Chemistry and Physics, 2012, 12, 12081-12101.	4.9	19
66	Potential Vorticity on Isentropic Surfaces: Climatology and Diagnostics. Monthly Weather Review, 1995, 123, 1037-1058.	1.4	18
67	Stretching rates and equivalent length near the tropopause. Journal of Geophysical Research, 2003, 108, n/a-n/a.	3.3	18
68	Mixing processes and exchanges in the tropical and the subtropical UT/LS. Atmospheric Chemistry and Physics, 2009, 9, 25-38.	4.9	18
69	An overview of the HIBISCUS campaign. Atmospheric Chemistry and Physics, 2011, 11, 2309-2339.	4.9	18
70	Global modeling studies of composition and decadal trends of the Asian Tropopause Aerosol Layer. Atmospheric Chemistry and Physics, 2021, 21, 2745-2764.	4.9	18
71	A two-dimensional vortex merger in an external strain field. Journal of Turbulence, 2002, 3, N45.	1.4	16
72	Persistence of moist plumes from overshooting convection in the Asian monsoon anticyclone. Atmospheric Chemistry and Physics, 2022, 22, 3169-3189.	4.9	16

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73	Chemical segregation by heterogeneous emissions. Atmospheric Environment, 2007, 41, 2303-2318.	4.1	15
74	Sensitivity of thermal infrared nadir instruments to the chemical and microphysical properties of UTLS secondary sulfate aerosols. Atmospheric Measurement Techniques, 2016, 9, 115-132.	3.1	15
75	Simulated annealing and weather regimes classification. Tellus, Series A: Dynamic Meteorology and Oceanography, 1995, 47, 955-973.	1.7	13
76	A vortex subjected to a shear: an experimental study. Journal of Fluid Mechanics, 1997, 351, 1-16.	3.4	13
77	Sensitivity of ensemble Lagrangian reconstructions to assimilated wind time step resolution. Atmospheric Chemistry and Physics, 2010, 10, 3155-3162.	4.9	12
78	Statistical issues about solarâ€“climate relations. Climate of the Past, 2010, 6, 565-573.	3.4	12
79	Toward a novel highâ€resolution modeling approach for the study of chemical evolution of pollutant plumes during longâ€range transport. Journal of Geophysical Research, 2010, 115, .	3.3	12
80	Australian Fires 2019â€“2020: Tropospheric and Stratospheric Pollution Throughout the Whole Fire Season. Frontiers in Environmental Science, 2021, 9, .	3.3	12
81	StratÃ©ole: A project to study antarctic polar vortex dynamics and its impact on ozone chemistry. Physics and Chemistry of the Earth, 1995, 20, 83-96.	0.3	11
82	In situ observation of new particle formation (NPF) in the tropical tropopause layer of the 2017ÂAsian monsoon anticyclone â€“ PartÂ1: Summary of StratoClim results. Atmospheric Chemistry and Physics, 2021, 21, 11689-11722.	4.9	11
83	Conformal dynamics for vortex motions. Physics Letters, Section A: General, Atomic and Solid State Physics, 1992, 167, 265-271.	2.1	10
84	Quantitative Retrieval of Volcanic Sulphate Aerosols from IASI Observations. Remote Sensing, 2021, 13, 1808.	4.0	10
85	Wave-vortex dynamics. Journal of Physics A, 1987, 20, 5125-5144.	1.6	9
86	Simulated annealing and weather regimes classification. Tellus, Series A: Dynamic Meteorology and Oceanography, 1995, 47, 955-973.	1.7	9
87	A critical look at solar-climate relationships from long temperature series. Climate of the Past, 2010, 6, 745-758.	3.4	9
88	A modelling case study of a large-scale cirrus in the tropical tropopause layer. Atmospheric Chemistry and Physics, 2016, 16, 3881-3902.	4.9	9
89	The universal scaling characteristics of tropical oceanic rain clusters. Journal of Geophysical Research D: Atmospheres, 2017, 122, 5582-5599.	3.3	9
90	Pollution trace gas distributions and their transport in the Asian monsoon upper troposphere and lowermost stratosphere during the StratoClim campaign 2017. Atmospheric Chemistry and Physics, 2020, 20, 14695-14715.	4.9	8

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91	Lagrangian gravity wave spectra in the lower stratosphere of current (re)analyses. Atmospheric Chemistry and Physics, 2020, 20, 9331-9350.	4.9	8
92	Secondary sulphate aerosols and cirrus clouds detection with SEVIRI during Nabro volcano eruption. International Journal of Remote Sensing, 2017, 38, 5657-5672.	2.9	6
93	Assessment of the Combined Sensitivity of Nadir TIR Satellite Observations to Volcanic SO2 and Sulphate Aerosols after a Moderate Stratospheric Eruption. Geosciences (Switzerland), 2017, 7, 84.	2.2	6
94	Large-scale instability of a generalized turbulent Kolmogorov flow. Nonlinear Processes in Geophysics, 2009, 16, 569-577.	1.3	6
95	Dispersive and friction-induced stabilization of the Cahnâ€“Hilliard inverse cascade. Physica D: Nonlinear Phenomena, 2003, 175, 139-166.	2.8	5
96	Sparse analysis for mesoscale convective systems tracking. Signal Processing: Image Communication, 2020, 85, 115854.	3.2	5
97	Lidar observations of cirrus clouds in Palau (7Â°33â€²â€‰N, 134Â°48â€²â€‰E). Atmospheric Chemistry and Physics, 2021, 21, 7947-7961.	4.9	4
98	Conformal Field Theory and Direct Numerical Simulation of Two-Dimensional Turbulence. Europhysics Letters, 1995, 29, 203-208.	2.0	3
99	Comparison of ISSâ€“CATS and CALIPSOâ€“CALIOP Characterization of High Clouds in the Tropics. Remote Sensing, 2020, 12, 3946.	4.0	3
100	Convective uplift of pollution from the Sichuan Basin into the Asian monsoon anticyclone during the StratoClim aircraft campaign. Atmospheric Chemistry and Physics, 2021, 21, 3255-3274.	4.9	3
101	Tracing the convective sources of air at tropical tropopause during the active and break phases of Indian summer monsoon. Climate Dynamics, 2022, 59, 2717-2734.	3.8	3
102	The COST 723 Action. Quarterly Journal of the Royal Meteorological Society, 2007, 133, 99-108.	2.7	2
103	Stability of Turbulent Kolmogorov Flow. , 2005, , 99-102.		1
104	Scaling characteristics of modelled tropical oceanic rain clusters. Quarterly Journal of the Royal Meteorological Society, 2021, 147, 1055-1069.	2.7	1
105	Transport and mixing in the stratosphere: the role of Lagrangian studies. ERCOFTAC Series, 2007, , 57-69.	0.1	1
106	Large-Scale Dynamics of the Kolmogorov Flow on the Beta-Plane. Fluid Mechanics and Its Applications, 1995, , 138-140.	0.2	1
107	Climate Change Sceptics. European Review, 2013, 21, S85-S93.	0.7	0
108	Volcanic SO2 Conversion to Sulfate Aerosols: Impact on Nadir TIR Satellite Observations. Advances in Science, Technology and Innovation, 2018, , 1791-1793.	0.4	0

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109	Conformal Transforms and Dynamics of Two-Dimensional Vortices. The IMA Volumes in Mathematics and Its Applications, 1992, , 221-237.	0.5	0
110	Numerical Simulations of Two-Dimensional Flows. NATO ASI Series Series B: Physics, 1995, , 51-58.	0.2	0
111	Large-Scale Kolmogorov Flow on the Beta-Plane, Resonant Wave Interactions and Scale Selection. Fluid Mechanics and Its Applications, 1996, , 335-336.	0.2	0
112	The Ozone Hole. NATO ASI Series Series B: Physics, 1999, , 273-285.	0.2	0