Julien Aubert

List of Publications by Year
in descending order

71 papers	5,850 citations	87888 38 h-index	76900 74 g-index
75 all docs	75 docs citations	75 times ranked	3790 citing authors

#	Article	IF	Citations
1	International Geomagnetic Reference Field: the 12th generation. Earth, Planets and Space, 2015, 67, .	2.5	1,015
2	Scaling properties of convection-driven dynamos in rotating spherical shells and application to planetary magnetic fields. Geophysical Journal International, 2006, 166, 97-114.	2.4	611
3	International Geomagnetic Reference Field: the thirteenth generation. Earth, Planets and Space, 2021, 73, .	2.5	319
4	Thermochemical flows couple the Earth's inner core growth to mantle heterogeneity. Nature, 2008, 454, 758-761.	27.8	225
5	A numerical dynamo benchmark. Physics of the Earth and Planetary Interiors, 2001, 128, 25-34.	1.9	224
6	Modelling the palaeo-evolution of the geodynamo. Geophysical Journal International, 2009, 179, 1414-1428.	2.4	200
7	Conditions for Earth-like geodynamo models. Earth and Planetary Science Letters, 2010, 296, 487-496.	4.4	164
8	The magnetic structure of convection-driven numerical dynamos. Geophysical Journal International, 2008, 172, 945-956.	2.4	158
9	Bottom-up control of geomagnetic secular variation by the Earthâ€™s inner core. Nature, 2013, 502, 219-223.	27.8	154
10	Possible links between long-term geomagnetic variations and whole-mantle convection processes. Nature Geoscience, 2012, 5, 526-533.	12.9	152
11	Ultrasonic Doppler velocimetry in liquid gallium. Experiments in Fluids, 2001, 31, 653-663.	2.4	128
12	A systematic experimental study of rapidly rotating spherical convection in water and liquid gallium. Physics of the Earth and Planetary Interiors, 2001, 128, 51-74.	1.9	124
13	Steady zonal flows in spherical shell dynamos. Journal of Fluid Mechanics, 2005, 542, 53.	3.4	122
14	Spherical convective dynamos in the rapidly rotating asymptotic regime. Journal of Fluid Mechanics, 2017, 813, 558-593.	3.4	121
15	An Introduction to Data Assimilation and Predictability in Geomagnetism. Space Science Reviews, 2010, 155, 247-291.	8.1	110
16	A long-lived lunar dynamo powered by core crystallization. Earth and Planetary Science Letters, 2014, 401, 251-260.	4.4	105
17	Scaling regimes in spherical shell rotating convection. Journal of Fluid Mechanics, 2016, 808, 690-732.	3.4	95
18	The geomagnetic secularâ€variation timescale in observations and numerical dynamo models. Geophysical Research Letters, 2011, 38, .	4.0	80

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19	Observations and Models of the Long-Term Evolution ofÂEarthâ€™s Magnetic Field. Space Science Reviews, 2010, 155, 337-370.	8.1	71
20	Detecting thermal boundary control in surface flows from numerical dynamos. Physics of the Earth and Planetary Interiors, 2007, 160, 143-156.	1.9	69
21	Performance benchmarks for a next generation numerical dynamo model. Geochemistry, Geophysics, Geosystems, 2016, 17, 1586-1607.	2.5	66
22	Gyre-driven decay of the Earthâ€™s magnetic dipole. Nature Communications, 2016, 7, 10422.	12.8	66
23	Geomagnetic jerks and rapid hydromagnetic waves focusing at Earthâ€™s core surface. Nature Geoscience, 2019, 12, 393-398.	12.9	65
24	Geomagnetic forecasts driven by thermal wind dynamics in the Earth's core. Geophysical Journal International, 2015, 203, 1738-1751.	2.4	62
25	The signature of inner-core nucleation on the geodynamo. Earth and Planetary Science Letters, 2017, 465, 193-204.	4.4	58
26	Flow throughout the Earth's core inverted from geomagnetic observations and numerical dynamo models. Geophysical Journal International, 2013, 192, 537-556.	2.4	56
27	Axial vs. equatorial dipolar dynamo models with implications for planetary magnetic fields. Earth and Planetary Science Letters, 2004, 221, 409-419.	4.4	54
28	Earth's dynamo limit of predictability. Geophysical Research Letters, 2010, 37, .	4.0	53
29	Quasigeostrophic models of convection in rotating spherical shells. Geochemistry, Geophysics, Geosystems, 2003, 4, .	2.5	52
30	Magnesium Partitioning Between Earth's Mantle and Core and its Potential to Drive an Early Exsolution Geodynamo. Geophysical Research Letters, 2018, 45, 13,240.	4.0	50
31	Force balance in numerical geodynamo simulations: a systematic study. Geophysical Journal International, 2019, 219, S101-S114.	2.4	49
32	Observations of zonal flow created by potential vorticity mixing in a rotating fluid. Geophysical Research Letters, 2002, 29, 23-1-23-4.	4.0	44
33	Equatorially asymmetric convection inducing a hemispherical magnetic field in rotating spheres and implications for the past martian dynamo. Physics of the Earth and Planetary Interiors, 2011, 185, 61-73.	1.9	44
34	Earth's core internal dynamics 1840-2010 imaged by inverse geodynamo modelling. Geophysical Journal International, 2014, 197, 1321-1334.	2.4	42
35	Full sphere hydrodynamic and dynamo benchmarks. Geophysical Journal International, 2014, 197, 119-134.	2.4	41
36	Approaching Earthâ€™s core conditions in high-resolution geodynamo simulations. Geophysical Journal International, 2019, 219, S137-S151.	2.4	41

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37	The time-dependence of intense archeomagnetic flux patches. Journal of Geophysical Research, 2011, 116, .	3.3	39
38	Inferring internal properties of Earth's core dynamics and their evolution from surface observations and a numerical geodynamo model. Nonlinear Processes in Geophysics, 2011, 18, 657-674.	1.3	38
39	Inference on core surface flow from observations and 3-D dynamo modelling. Geophysical Journal International, 2011, 186, 118-136.	2.4	38
40	Frequency spectrum of the geomagnetic field harmonic coefficients from dynamo simulations. Geophysical Journal International, 2016, 207, 1142-1157.	2.4	38
41	A reduced stochastic model of core surface dynamics based on geodynamo simulations. Geophysical Journal International, 2019, 219, 522-539.	2.4	38
42	Steady and fluctuating inner core rotation in numerical geodynamo models. Geophysical Journal International, 2011, 184, 162-170.	2.4	36
43	Earth's dynamo limit of predictability controlled by magnetic dissipation. Geophysical Journal International, 2011, 186, 492-508.	2.4	36
44	Contributions to the geomagnetic secular variation from a reanalysis of core surface dynamics. Geophysical Journal International, 2017, 211, 50-68.	2.4	36
45	Geomagnetic acceleration and rapid hydromagnetic wave dynamics in advanced numerical simulations of the geodynamo. Geophysical Journal International, 2018, 214, 531-547.	2.4	36
46	Evaluation of candidate models for the 13th generation International Geomagnetic Reference Field. Earth, Planets and Space, 2021, 73, .	2.5	33
47	Stationary, oscillating or drifting mantleâ€driven geomagnetic flux patches?. Journal of Geophysical Research, 2010, 115, .	3.3	32
48	A candidate secular variation model for IGRF-12 based on Swarm data and inverse geodynamo modelling. Earth, Planets and Space, 2015, 67, .	2.5	32
49	Dynamo-based limit to the extent of a stable layer atop Earthâ€™s core. Geophysical Journal International, 2020, 222, 1433-1448.	2.4	32
50	An ensemble Kalman filter for the timeâ€dependent analysis of the geomagnetic field. Geochemistry, Geophysics, Geosystems, 2013, 14, 4035-4043.	2.5	30
51	The interplay of fast waves and slow convection in geodynamo simulations nearing Earthâ€™s core conditions. Geophysical Journal International, 2021, 225, 1854-1873.	2.4	29
52	A simple model for mantle-driven flow at the top of Earthâ€™s core. Earth, Planets and Space, 2008, 60, 845-854.	2.5	26
53	Satellite magnetic data reveal interannual waves in Earthâ€™s core. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2115258119.	7.1	25
54	Modelling the archaeomagnetic field under spatial constraints from dynamo simulations: a resolution analysis. Geophysical Journal International, 2016, 207, 983-1002.	2.4	21

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55	Recent geomagnetic variations and the force balance in Earthâ€™s core. Geophysical Journal International, 2020, 221, 378-393.	2.4	21
56	Relating force balances and flow length scales in geodynamo simulations. Geophysical Journal International, 2020, 224, 1890-1904.	2.4	19
57	THE PREDICTABILITY OF ADVECTION-DOMINATED FLUX-TRANSPORT SOLAR DYNAMO MODELS. Astrophysical Journal, 2014, 781, 8.	4.5	15
58	A particle-in-cell method for studying double-diffusive convection in the liquid layers of planetary interiors. Journal of Computational Physics, 2017, 346, 552-571.	3.8	14
59	Dynamo constraints on the long-term evolution of Earthâ€™s magnetic field strength. Geophysical Journal International, 2021, 228, 316-336.	2.4	14
60	End-member models of boundary-modulated convective dynamos. Physics of the Earth and Planetary Interiors, 2011, 187, 353-363.	1.9	11
61	Coupled dynamics of Earth's geomagnetic westward drift and inner core super-rotation. Earth and Planetary Science Letters, 2016, 437, 114-126.	4.4	11
62	A taxonomy of simulated geomagnetic jerks. Geophysical Journal International, 2022, 231, 650-672.	2.4	11
63	A secular variation candidate model for IGRF-13 based on Swarm data and ensemble inverse geodynamo modelling. Earth, Planets and Space, 2021, 73, .	2.5	9
64	Nonextensive statistical mechanics for rotating quasi-two-dimensional turbulence. Physica D: Nonlinear Phenomena, 2004, 193, 252-264.	2.8	7
65	A mean-field Babcock-Leighton solar dynamo model with long-term variability. Anais Da Academia Brasileira De Ciencias, 2014, 86, 11-26.	0.8	4
66	Impact of Earthâ€™s Magnetic Field Secular Drift on the Low-Altitude Proton Radiation Belt From 1900 to 2050. IEEE Transactions on Nuclear Science, 2019, 66, 1746-1752.	2.0	4
67	Physics-based secular variation candidate models for the IGRF. Earth, Planets and Space, 2021, 73, .	2.5	4
68	An Introduction to Data Assimilation and Predictability in Geomagnetism. Space Sciences Series of ISSI, 2010, , 247-291.	0.0	3
69	Convection-driven planetary dynamos. Proceedings of the International Astronomical Union, 2006, 2, 188-195.	0.0	2
70	Ancient planetary dynamos, take two. Science, 2015, 349, 475-476.	12.6	1
71	Observations and Models of the Long-Term Evolution ofÂEarthâ€™s Magnetic Field. Space Sciences Series of ISSI, 2010, , 337-370.	0.0	0