Chris Ballentine

List of Publications by Year
in descending order

125 papers	7,162 citations	47006 47 h-index	62596 80 g-index
133 all docs	133 docs citations	133 times ranked	4492 citing authors

#	Article	IF	Citations
1	Solubility trapping in formation water as dominant CO2 sink in natural gas fields. Nature, 2009, 458, 614-618.	27.8	405
2	Production, Release and Transport of Noble Gases in the Continental Crust. Reviews in Mineralogy and Geochemistry, 2002, 47, 481-538.	4.8	397
3	Applications of Multiple Collector-ICPMS to Cosmochemistry, Geochemistry, and Paleoceanography. Geochimica Et Cosmochimica Acta, 1998, 62, 919-940.	3.9	256
4	Tracing Fluid Origin, Transport and Interaction in the Crust. Reviews in Mineralogy and Geochemistry, 2002, 47, 539-614.	4.8	244
5	Seawater subduction controls the heavy noble gas composition of the mantle. Nature, 2006, 441, 186-191.	27.8	226
6	Mantle Mixing: The Generation, Preservation, and Destruction of Chemical Heterogeneity. Annual Review of Earth and Planetary Sciences, 2002, 30, 493-525.	11.0	224
7	13. Tracing Fluid Origin, Transport and Interaction in the Crust. , 2002, , 539-614.		218
8	The noble gas geochemistry of natural CO2 gas reservoirs from the Colorado Plateau and Rocky Mountain provinces, USA. Geochimica Et Cosmochimica Acta, 2008, 72, 1174-1198.	3.9	208
9	The contribution of the Precambrian continental lithosphere to global H2 production. Nature, 2014, 516, 379-382.	27.8	201
10	Rare gas constraints on hydrocarbon accumulation, crustal degassing and groundwater flow in the Pannonian Basin. Earth and Planetary Science Letters, 1991, 105, 229-246.	4.4	178
11	Deep fracture fluids isolated in the crust since the Precambrian era. Nature, 2013, 497, 357-360.	27.8	148
12	Neon isotopes constrain convection and volatile origin in the Earth's mantle. Nature, 2005, 433, 33-38.	27.8	145
13	Regional groundwater focusing of nitrogen and noble gases into the Hugoton-Panhandle giant gas field, USA. Geochimica Et Cosmochimica Acta, 2002, 66, 2483-2497.	3.9	137
14	Noble gas tracing of groundwater/coalbed methane interaction in the San Juan Basin, USA. Geochimica Et Cosmochimica Acta, 2005, 69, 5413-5428.	3.9	128
15	The relative abundances of resolved l2CH2D2 and 13CH3D and mechanisms controlling isotopic bond ordering in abiotic and biotic methane gases. Geochimica Et Cosmochimica Acta, 2017, 203, 235-264.	3.9	125
16	Determining paleotemperature and other variables by using an error-weighted, nonlinear inversion of noble gas concentrations in water. Geochimica Et Cosmochimica Acta, 1999, 63, 2315-2336.	3.9	120
17	300-Myr-old magmatic CO2 in natural gas reservoirs of the west Texas Permian basin. Nature, 2001, 409, 327-331.	27.8	117
18	Seawater-derived noble gases and halogens preserved in exhumed mantle wedge peridotite. Earth and Planetary Science Letters, 2010, 294, 163-172.	4.4	113

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19	Pond-Derived Organic Carbon Driving Changes in Arsenic Hazard Found in Asian Groundwaters. Environmental Science & Technology, 2013, 47, 7085-7094.	10.0	106
20	Models for Distribution of Terrestrial Noble Gases and Evolution of the Atmosphere. Reviews in Mineralogy and Geochemistry, 2002, 47, 411-480.	4.8	105
21	Dynamical models of mantle volatile evolution and the role of phase transitions and temperature-dependent rheology. Journal of Geophysical Research, 1999, 104, 7137-7151.	3.3	99
22	A multiple-system study of the geochemical evolution of the mantle with force-balanced plates and thermochemical effects. Earth and Planetary Science Letters, 2008, 276, 1-13.	4.4	97
23	Forearc carbon sink reduces long-term volatile recycling into the mantle. Nature, 2019, 568, 487-492.	27.8	97
24	Drilling and sampling a natural CO2 reservoir: Implications for fluid flow and CO2-fluidâ€“rock reactions during CO2 migration through the overburden. Chemical Geology, 2014, 369, 51-82.	3.3	96
25	The origin of air-like noble gases in MORB and OIB. Earth and Planetary Science Letters, 2000, 180, 39-48.	4.4	95
26	Meteorite Kr in Earthâ€™s Mantle Suggests a Late Accretionary Source for the Atmosphere. Science, 2009, 326, 1522-1525.	12.6	94
27	An Overview of Noble Gas Geochemistry and Cosmochemistry. Reviews in Mineralogy and Geochemistry, 2002, 47, 1-19.	4.8	90
28	Tracing organic matter composition and distribution and its role on arsenic release in shallow Cambodian groundwaters. Geochimica Et Cosmochimica Acta, 2016, 178, 160-177.	3.9	90
29	Noble gases in the Cameroon line and the He, Ne, and Ar isotopic compositions of high Î¼ (HIMU) mantle. Journal of Geophysical Research, 1999, 104, 29509-29527.	3.3	86
30	Natural Geochemical Analogues for Carbon Dioxide Storage in Deep Geological Porous Reservoirs, a United Kingdom Perspective. Oil and Gas Science and Technology, 2005, 60, 33-49.	1.4	86
31	A Magnus opus: Helium, neon, and argon isotopes in a North Sea oilfield. Geochimica Et Cosmochimica Acta, 1996, 60, 831-849.	3.9	85
32	4He dating of groundwater associated with hydrocarbon reservoirs. Chemical Geology, 2006, 226, 309-327.	3.3	70
33	Carbon, helium, neon and argon isotopes in a Po basin (northern Italy) natural gas field. Chemical Geology, 1993, 106, 429-440.	3.3	69
34	Noble gases solubility models of hydrocarbon charge mechanism in the Sleipner Vest gas field. Geochimica Et Cosmochimica Acta, 2016, 194, 291-309.	3.9	65
35	The contribution of hydrothermally altered ocean crust to the mantle halogen and noble gas cycles. Geochimica Et Cosmochimica Acta, 2016, 183, 106-124.	3.9	64
36	Resolving the mantle He/Ne and crustal 21Ne/22Ne in well gases. Earth and Planetary Science Letters, 1997, 152, 233-249.	4.4	63

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37	Experimental partitioning of F and Cl between olivine, orthopyroxene and silicate melt at Earth's mantle conditions. Chemical Geology, 2015, 416, 65-78.	3.3	62
38	Numerical models, geochemistry and the zeroâ€“paradox nobleâ€“gas mantle. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2002, 360, 2611-2631.	3.4	61
39	Halogens in chondritic meteorites and terrestrial accretion. Nature, 2017, 551, 614-618.	27.8	58
40	The nature of mantle neon contributions to Vienna Basin hydrocarbon reservoirs. Earth and Planetary Science Letters, 1992, 113, 553-567.	4.4	57
41	Constraining the timing of microbial methane generation in an organic-rich shale using noble gases, Illinois Basin, USA. Chemical Geology, 2011, 287, 27-40.	3.3	56
42	Identifying and quantifying natural CO2 sequestration processes over geological timescales: The Jackson Dome CO2 Deposit, USA. Geochimica Et Cosmochimica Acta, 2012, 86, 257-275.	3.9	56
43	End-Permian extinction amplified by plume-induced release of recycled lithospheric volatiles. Nature Geoscience, 2018, 11, 682-687.	12.9	55
44	Rapid microbial methanogenesis during CO2 storage in hydrocarbon reservoirs. Nature, 2021, 600, 670-674.	27.8	54
45	Tracing ancient hydrogeological fracture network age and compartmentalisation using noble gases. Geochimica Et Cosmochimica Acta, 2018, 222, 340-362.	3.9	53
46	Hydrothermal 15N15N abundances constrain the origins of mantle nitrogen. Nature, 2020, 580, 367-371.	27.8	50
47	Helium and neon isotope systematics in carbon dioxide-rich and hydrocarbon-rich gas reservoirs. Geochimica Et Cosmochimica Acta, 1994, 58, 5279-5290.	3.9	49
48	A dynamical investigation of the heat and helium imbalance. Earth and Planetary Science Letters, 2001, 188, 421-434.	4.4	49
49	Thermal constraints on crustal rare gas release and migration: Evidence from Alpine fluid inclusions. Geochimica Et Cosmochimica Acta, 1994, 58, 4333-4348.	3.9	48
50	Sedimentary halogens and noble gases within Western Antarctic xenoliths: Implications of extensive volatile recycling to the sub continental lithospheric mantle. Geochimica Et Cosmochimica Acta, 2016, 176, 139-156.	3.9	46
51	In search of a hidden long-term isolated sub-chondritic 142Nd/144Nd reservoir in the deep mantle: Implications for the Nd isotope systematics of the Earth. Geochimica Et Cosmochimica Acta, 2010, 74, 738-750.	3.9	45
52	What CO ₂ well gases tell us about the origin of noble gases in the mantle and their relationship to the atmosphere. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 4183-4203.	3.4	39
53	Insights into deep carbon derived from noble gases. Nature Geoscience, 2009, 2, 543-547.	12.9	39
54	An evaluation of the C/N ratio of the mantle from natural CO2-rich gas analysis: Geochemical and cosmochemical implications. Earth and Planetary Science Letters, 2020, 551, 116574.	4.4	38

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55	Identification of chondritic krypton and xenon in Yellowstone gases and the timing of terrestrial volatile accretion. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 13997-14004.	7.1	35
56	Noble Gases. , 2002, , .		34
57	Determination of halogen abundances in terrestrial and extraterrestrial samples by the analysis of noble gases produced by neutron irradiation. Chemical Geology, 2016, 437, 77-87.	3.3	32
58	High resolution profile of inorganic aqueous geochemistry and key redox zones in an arsenic bearing aquifer in Cambodia. Science of the Total Environment, 2017, 590-591, 540-553.	8.0	32
59	Mechanisms and rates of 4He, 40Ar, and H2 production and accumulation in fracture fluids in Precambrian Shield environments. Chemical Geology, 2019, 530, 119322.	3.3	31
60	Delineating sources of groundwater recharge in an arsenic-affected Holocene aquifer in Cambodia using stable isotope-based mixing models. Journal of Hydrology, 2018, 557, 321-334.	5.4	31
61	12. Production, Release and Transport of Noble Gases in the Continental Crust. , 2002, , 481-538.		30
62	Rapid reactions between CO2, brine and silicate minerals during geological carbon storage: Modelling based on a field CO2 injection experiment. Chemical Geology, 2017, 468, 17-31.	3.3	29
63	Tracing enhanced oil recovery signatures in casing gases from the Lost Hills oil field using noble gases. Earth and Planetary Science Letters, 2018, 496, 57-67.	4.4	29
64	Scientific drilling and downhole fluid sampling of a natural CO₂ reservoir, Green River, Utah. Scientific Drilling, 2013, 16, 33-43.	0.6	28
65	Slab-derived halogens and noble gases illuminate closed system processes controlling volatile element transport into the mantle wedge. Earth and Planetary Science Letters, 2017, 457, 106-116.	4.4	28
66	Determining gas expulsion vs retention during hydrocarbon generation in the Eagle Ford Shale using noble gases. Geochimica Et Cosmochimica Acta, 2018, 241, 240-254.	3.9	28
67	Determining fluid migration and isolation times in multiphase crustal domains using noble gases. Geology, 2017, 45, 775-778.	4.4	27
68	Noble gas and carbon isotopic evidence for CO2-driven silicate dissolution in a recent natural CO2 field. Earth and Planetary Science Letters, 2012, 341-344, 10-19.	4.4	26
69	Determining noble gas partitioning within a CO2â€“H2O system at elevated temperatures and pressures. Geochimica Et Cosmochimica Acta, 2015, 159, 112-125.	3.9	26
70	Origins of the terrestrial Hf-Nd mantle array: Evidence from a combined geodynamical-geochemical approach. Earth and Planetary Science Letters, 2019, 518, 26-39.	4.4	26
71	Noble Gases in Mantle Plumes. Science, 2001, 291, 2269a-2269.	12.6	25
72	Dual in-aquifer and near surface processes drive arsenic mobilization in Cambodian groundwaters. Science of the Total Environment, 2019, 659, 699-714.	8.0	25

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73	Use of lithium tracers to quantify drilling fluid contamination for groundwater monitoring in Southeast Asia. Applied Geochemistry, 2015, 63, 190-202.	3.0	24
74	Crustal Groundwater Volumes Greater Than Previously Thought. Geophysical Research Letters, 2021, 48, e2021GL093549.	4.0	24
75	Noble gases recycled into the mantle through cold subduction zones. Earth and Planetary Science Letters, 2017, 471, 65-73.	4.4	23
76	The use of natural He, Ne and Ar isotopes to study hydrocarbon-related fluid provenance, migration and mass balance in sedimentary basins. Geological Society Special Publication, 1994, 78, 347-361.	1.3	22
77	Using 3He/4He isotope ratios to identify the source of deep reservoir contributions to shallow fluids and soil gas. Chemical Geology, 2012, 304-305, 142-150.	3.3	22
78	South African crustal fracture fluids preserve paleometeoric water signatures for up to tens of millions of years. Chemical Geology, 2018, 493, 379-395.	3.3	22
79	The use of noble gas isotopes to constrain subsurface fluid flow and hydrocarbon migration in the East Texas Basin. Geochimica Et Cosmochimica Acta, 2020, 268, 186-208.	3.9	22
80	Estimating the recharge properties of the deep ocean using noble gases and helium isotopes. Journal of Geophysical Research: Oceans, 2016, 121, 5959-5979.	2.6	21
81	Noble gases fingerprint a metasedimentary fluid source in the Macraes orogenic gold deposit, New Zealand. Mineralium Deposita, 2017, 52, 197-209.	4.1	21
82	Noble gases in conventional and unconventional petroleum systems. Geological Society Special Publication, 2018, 468, 127-149.	1.3	21
83	Occurrence and Sources of Radium in Groundwater Associated with Oil Fields in the Southern San Joaquin Valley, California. Environmental Science & Technology, 2019, 53, 9398-9406.	10.0	21
84	The principles of helium exploration. Petroleum Geoscience, 2022, 28, .	1.5	19
85	The geochemical and isotopic composition of ground waters in West Bengal: tracing ground-surface water interaction and its role in arsenic release. Mineralogical Magazine, 2008, 72, 441-444.	1.4	15
86	The noble gas isotope record of hydrocarbon field formation time scales. Chemical Geology, 2017, 471, 141-152.	3.3	15
87	Effect of water on the fluorine and chlorine partitioning behavior between olivine and silicate melt. Contributions To Mineralogy and Petrology, 2017, 172, 15.	3.1	15
88	Halogen behaviour in subduction zones: Eclogite facies rocks from the Western and Central Alps. Geochimica Et Cosmochimica Acta, 2018, 243, 1-23.	3.9	15
89	Optimizing Noble Gasâ€“Water Interactions via Monte Carlo Simulations. Journal of Physical Chemistry B, 2015, 119, 14486-14495.	2.6	14
90	The use of noble gas isotopes to trace subsurface boiling temperatures in Icelandic geothermal systems. Earth and Planetary Science Letters, 2021, 560, 116805.	4.4	14

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91	Noble Gases in Deepwater Oils of the U.S. Gulf of Mexico. Geochemistry, Geophysics, Geosystems, 2018, 19, 4218-4235.	2.5	13
92	Utility of natural and artificial geochemical tracers for leakage monitoring and quantification during an offshore controlled CO2 release experiment. International Journal of Greenhouse Gas Control, 2021, 111, 103421.	4.6	13
93	High ³ He/ ⁴ He in central Panama reveals a distal connection to the GalÃ¡pagos plume. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	12
94	Determining the role of diffusion and basement flux in controlling 4He distribution in sedimentary basin fluids. Earth and Planetary Science Letters, 2021, 574, 117175.	4.4	11
95	Recycled Components in Mantle Plumes Deduced From Variations in Halogens (Cl, Br, and I), Trace Elements, and 3 He/ 4 He Along the Hawaiianâ€Emperor Seamount Chain. Geochemistry, Geophysics, Geosystems, 2019, 20, 277-294.	2.5	10
96	A Role for Subducted Oceanic Crust in Generating the Depleted Midâ€Ocean Ridge Basalt Mantle. Geochemistry, Geophysics, Geosystems, 2020, 21, e2020GC009148.	2.5	10
97	86Kr excess and other noble gases identify a billion-year-old radiogenically-enriched groundwater system. Nature Communications, 2022, 13, .	12.8	10
98	GEOCHEMISTRY: Tiny Tracers Tell Tall Tales. Science, 2002, 296, 1247-1248.	12.6	9
99	Earth holds its breath. Nature, 2007, 449, 294-296.	27.8	9
100	Discovery of underground argon with a low level of radioactive³⁹Ar and possible applications to WIMP dark matter detectors. Journal of Physics: Conference Series, 2008, 120, 042015.	0.4	9
101	Disequilibrium degassing model determination of the 3He concentration and 3He/22Ne of the MORB and OIB mantle sources. Earth and Planetary Science Letters, 2015, 410, 128-139.	4.4	9
102	Earthâ€™s missing argon paradox resolved by recycling of oceanic crust. Nature Geoscience, 2022, 15, 85-90.	12.9	9
103	Tritium Tracers of Rapid Surface Water Ingression into Arsenic-bearing Aquifers in the Lower Mekong Basin, Cambodia. Procedia Earth and Planetary Science, 2017, 17, 845-848.	0.6	8
104	A Novel Method for the Extraction, Purification, and Characterization of Noble Gases in Produced Fluids. Geochemistry, Geophysics, Geosystems, 2019, 20, 5588-5597.	2.5	8
105	Halogen Heterogeneity in the Lithosphere and Evolution of Mantle Halogen Abundances Inferred From Intraplate Mantle Xenoliths. Geochemistry, Geophysics, Geosystems, 2019, 20, 952-973.	2.5	8
106	He, Ne and Ar â€˜snapshotâ€™ of the subcontinental lithospheric mantle from CO2 well gases. Chemical Geology, 2018, 480, 116-127.	3.3	7
107	Recycling of nitrogen and light noble gases in the Central American subduction zone: Constraints from 15N15N. Earth and Planetary Science Letters, 2021, 571, 117112.	4.4	7
108	Noble gas signatures constrain oil-field water as the carrier phase of hydrocarbons occurring in shallow aquifers in the San Joaquin Basin, USA. Chemical Geology, 2021, 584, 120491.	3.3	7

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109	Investigating the effect of enhanced oil recovery on the noble gas signature of casing gases and produced waters from selected California oil fields. Chemical Geology, 2021, 584, 120540.	3.3	6
110	He, Ne, Ar and CO2 systematics of the Rungwe Volcanic Province, Tanzania: Implications for fluid source and dynamics. Chemical Geology, 2021, 586, 120584.	3.3	6
111	Structural geometry and evolution of the Rukwa Rift Basin, Tanzania: Implications for helium potential. Basin Research, 2022, 34, 938-960.	2.7	6
112	Kryptonâ€81 Dating Constrains Timing of Deep Groundwater Flow Activation. Geophysical Research Letters, 2022, 49, .	4.0	6
113	Primitive noble gases sampled from ocean island basalts cannot be from the Earthâ€™s core. Nature Communications, 2022, 13, .	12.8	6
114	The origin, history and role of water in the evolution of the inner Solar System. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20170108.	3.4	5
115	Halogen variations through the quenched margin of a <scp>M</scp>ORB lava: Evidence for direct assimilation of seawater during eruption. Geochemistry, Geophysics, Geosystems, 2017, 18, 2413-2428.	2.5	5
116	Isotopic analysis of natural CO2 fieldsHow long has nature stored CO2 underground?. , 2005, , 1375-1379.		5
117	Noble gas models of mantle structure and reservoir mass transfer. Geophysical Monograph Series, 2005, , 9-26.	0.1	4
118	Heavy halogen geochemistry of martian shergottite meteorites and implications for the halogen composition of the depleted shergottite mantle source. American Mineralogist, 2020, 105, 289-306.	1.9	4
119	The use of natural He, Ne and Ar isotopes as constraints on hydrocarbon transport. Petroleum Geology Conference Proceedings, 1993, 4, 1339-1345.	0.7	3
120	Noble Gases. Encyclopedia of Earth Sciences Series, 2017, , 1-6.	0.1	1
121	Selected isotope applications in cosmochemistry and geochemistry. Nuclear Physics News, 2003, 13, 22-27.	0.4	0
122	A dash of deep nebula on the rocks. Nature, 2012, 486, 40-41.	27.8	0
123	Note: A dual temperature closed loop batch reactor for determining the partitioning of trace gases within CO2-water systems. Review of Scientific Instruments, 2016, 87, 016102.	1.3	0
124	Noble Gases. Encyclopedia of Earth Sciences Series, 2018, , 1003-1008.	0.1	0
125	Helium. Techniques in Dentistry and Oral & Maxillofacial Surgery, 2018, , 1-4.	0.0	0