Richard Carlson

List of Publications by Year
in descending order

87 papers	7,139 citations	41344 49 h-index	54911 84 g-index
88 all docs	88 docs citations	88 times ranked	3767 citing authors

#	Article	IF	Citations
1	142Nd Evidence for Early (>4.53 Ga) Global Differentiation of the Silicate Earth. Science, 2005, 309, 576-581.	12.6	571
2	Physical, chemical, and chronological characteristics of continental mantle. Reviews of Geophysics, 2005, 43, .	23.0	408
3	Neodymium-142 Evidence for Hadean Mafic Crust. Science, 2008, 321, 1828-1831.	12.6	301
4	Osmium Recycling in Subduction Zones. Science, 1996, 272, 861-863.	12.6	248
5	Trace element fractionation during dehydration of eclogites from high-pressure terranes and the implications for element fluxes in subduction zones. Chemical Geology, 2000, 163, 65-99.	3.3	238
6	Residual platinum-group minerals from highly depleted harzburgites of the Lherz massif (France) and their role in HSE fractionation of the mantle. Geochimica Et Cosmochimica Acta, 2007, 71, 3082-3097.	3.9	228
7	Chondrite Barium, Neodymium, and Samarium Isotopic Heterogeneity and Early Earth Differentiation. Science, 2007, 316, 1175-1178.	12.6	213
8	Contributors to chromium isotope variation of meteorites. Geochimica Et Cosmochimica Acta, 2010, 74, 1122-1145.	3.9	212
9	Chronological evidence that the Moon is either young or did not have a global magma ocean. Nature, 2011, 477, 70-72.	27.8	202
10	Isotopic constraints on Columbia River flood basalt genesis and the nature of the subcontinental mantle. Geochimica Et Cosmochimica Acta, 1984, 48, 2357-2372.	3.9	200
11	The age of ferroan anorthosite 60025: oldest crust on a young Moon?. Earth and Planetary Science Letters, 1988, 90, 119-130.	4.4	177
12	Evidence from Reâ€"Os isotopes for plumeâ€"lithosphere mixing in Karoo flood basalt genesis. Nature, 1992, 359, 718-721.	27.8	166
13	Crustal genesis on the Oregon Plateau. Journal of Geophysical Research, 1987, 92, 6191-6206.	3.3	150
14	Formation age and metamorphic history of the Nuvvuagittuq Greenstone Belt. Precambrian Research, 2012, 220-221, 23-44.	2.7	134
15	Archean emplacement of eclogitic components into the lithospheric mantle during formation of the Kaapvaal Craton. Geophysical Research Letters, 2001, 28, 2509-2512.	4.0	133
16	Implications of the Nuvvuagittuq Greenstone Belt for the Formation of Earth's Early Crust. Journal of Petrology, 2011, 52, 985-1009.	2.8	133
17	Application of the Ptâ€"Reâ€"Os isotopic systems to mantle geochemistry and geochronology. Lithos, 2005, 82, 249-272.	1.4	131
18	Preservation of Earth-forming events in the tungsten isotopic composition of modern flood basalts. Science, 2016, 352, 809-812.	12.6	130

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19	Physical and chemical evidence on the cause and source characteristics of flood basalt volcanism. Australian Journal of Earth Sciences, 1991, 38, 525-544.	1.0	126
20	Timing of Precambrian melt depletion and Phanerozoic refertilization events in the lithospheric mantle of the Wyoming Craton and adjacent Central Plains Orogen. Lithos, 2004, 77, 453-472.	1.4	125
21	The large-scale structure of convection in the Earth's mantle. Nature, 1990, 344, 209-215.	27.8	119
22	Silica and volatile-element metasomatism of Archean mantle: a xenolith-scale example from the Kaapvaal Craton. Contributions To Mineralogy and Petrology, 2005, 150, 251-267.	3.1	114
23	Chemical and Os isotopic study of Cretaceous potassic rocks from Southern Brazil. Contributions To Mineralogy and Petrology, 1996, 125, 393-405.	3.1	112
24	A subduction wedge origin for Paleoarchean peridotitic diamonds and harzburgites from the Panda kimberlite, Slave craton: evidence from Reâ€"Os isotope systematics. Contributions To Mineralogy and Petrology, 2006, 152, 275-294.	3.1	110
25	A highly depleted moon or a non-magma ocean origin for the lunar crust?. Earth and Planetary Science Letters, 2007, 262, 505-516.	4.4	105
26	Threeâ€dimensional seismic velocity structure of the northwestern United States. Geophysical Research Letters, 2008, 35, .	4.0	101
27	Isotopic constraints on time scales and mechanisms of slab material transport in the mantle wedge: evidence from the Simcoe mantle xenoliths, Washington, USA. Chemical Geology, 1999, 160, 387-407.	3.3	87
28	Half a billion years of reworking of Hadean mafic crust to produce the Nuvvuagittuq Eoarchean felsic crust. Earth and Planetary Science Letters, 2013, 379, 13-25.	4.4	82
29	How Did Early Earth Become Our Modern World?. Annual Review of Earth and Planetary Sciences, 2014, 42, 151-178.	11.0	82
30	Rb-Sr, Sm-Nd and Lu-Hf isotope systematics of the lunar Mg-suite: the age of the lunar crust and its relation to the time of Moon formation. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20130246.	3.4	78
31	A comparison of Siberian meimechites and kimberlites: Implications for the source of high-Mg alkalic magmas and flood basalts. Geochemistry, Geophysics, Geosystems, 2006, 7, n/a-n/a.	2.5	77
32	Program to study crust and mantle of the Archean craton in southern Africa. Eos, 1996, 77, 273.	0.1	76
33	Petrology of kamafugites and kimberlites from the Alto ParanaÃba Alkaline Province, Minas Gerais, Brazil. Contributions To Mineralogy and Petrology, 2001, 142, 163-177.	3.1	74
34	Isotopic (Sr, Nd, Pb, and Os) composition of highly magnesian dikes of Vestfjella, western Dronning Maud Land, Antarctica: A key to the origins of the Jurassic Karoo large igneous province?. Chemical Geology, 2010, 277, 227-244.	3.3	74
35	Chemical and isotopic relationships between peridotite xenoliths and maficâ€"ultrapotassic rocks from Southern Brazil. Chemical Geology, 2007, 242, 415-434.	3.3	67
36	Os isotopic variation in basalts from Haleakala Volcano, Maui, Hawaii: A record of magmatic processes in oceanic mantle and crust. Earth and Planetary Science Letters, 1994, 128, 287-301.	4.4	66

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37	Composition of the Earth's interior: the importance of early events. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 4077-4103.	3.4	66
38	Building Archean cratons from Hadean mafic crust. Science, 2017, 355, 1199-1202.	12.6	66
39	Factors influencing the precision and accuracy of Nd isotope measurements by thermal ionization mass spectrometry. Chemical Geology, 2018, 476, 493-514.	3.3	66
40	Old Smâ€"Nd ages for cumulate eucrites and redetermination of the solar system initial 146Sm/144Sm ratio. Earth and Planetary Science Letters, 2010, 291, 172-181.	4.4	64
41	Smâ€"Nd age and isotopic systematics of the bimodal suite, ancient gneiss complex, Swaziland. Nature, 1983, 305, 701-704.	27.8	63
42	Crustal structure beneath the High Lava Plains of eastern Oregon and surrounding regions from receiver function analysis. Journal of Geophysical Research, 2011, 116, .	3.3	62
43	Radiogenic Os in primitive basalts from the northwestern U.S.A.: Implications for petrogenesis. Earth and Planetary Science Letters, 1997, 150, 103-116.	4.4	61
44	Extremely depleted lithospheric mantle and diamonds beneath the southern Zimbabwe Craton. Lithos, 2009, 112, 1120-1132.	1.4	61
45	Depths and temperatures of <10.5â€‰Ma mantle melting and the lithosphereâ€asthenosphere boundary below southern Oregon and northern California. Geochemistry, Geophysics, Geosystems, 2013, 14, 864-879.	2.5	56
46	Mantle dynamics beneath the Pacific Northwest and the generation of voluminous backâ€arc volcanism. Geochemistry, Geophysics, Geosystems, 2012, 13, .	2.5	54
47	The age and history of the lithospheric mantle of the Siberian craton: Reâ€"Os and PGE study of peridotite xenoliths from the Obnazhennaya kimberlite. Earth and Planetary Science Letters, 2015, 428, 108-119.	4.4	54
48	Petrogenesis and tectonics of the Acasta Gneiss Complex derived from integrated petrology and 142Nd and 182W extinct nuclide-geochemistry. Earth and Planetary Science Letters, 2018, 494, 12-22.	4.4	53
49	Olivine-poor sources for mantle-derived magmas: Os and Hf isotopic evidence from potassic magmas of the Colorado Plateau. Geochemistry, Geophysics, Geosystems, 2001, 2, n/a-n/a.	2.5	51
50	Hadean silicate differentiation preserved by anomalous 142Nd/144Nd ratios in the RÃ©union hotspot source. Nature, 2018, 555, 89-93.	27.8	51
51	Homogeneous superchondritic ¹⁴²Nd/¹⁴⁴Nd in the midâ€ocean ridge basalt and ocean island basalt mantle. Geochemistry, Geophysics, Geosystems, 2012, 13, .	2.5	46
52	The chromium isotopic composition of Almahata Sitta. Meteoritics and Planetary Science, 2010, 45, 1771-1777.	1.6	44
53	Fe-rich Dunite Xenoliths from South African Kimberlites: Cumulates from Karoo Flood Basalts. Journal of Petrology, 2007, 48, 1387-1409.	2.8	41
54	The nature of Earthâ€™s first crust. Chemical Geology, 2019, 530, 119321.	3.3	40

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55	Smâ€“Nd systematics of lunar ferroan anorthositic suite rocks: Constraints on lunar crust formation. Geochimica Et Cosmochimica Acta, 2015, 148, 203-218.	3.9	36
56	Nitrile, Latex, Neoprene and Vinyl Gloves: A Primary Source of Contamination for Trace Element and Zn Isotopic Analyses in Geological and Biological Samples. Geostandards and Geoanalytical Research, 2017, 41, 367-380.	3.1	36
57	Short-lived radionuclides as monitors of early crustâ€“mantle differentiation on the terrestrial planets. Earth and Planetary Science Letters, 2009, 279, 147-156.	4.4	34
58	147,146Smâ€“143,142Nd, 176Luâ€“176Hf, and 87Rbâ€“87Sr systematics in the angrites: Implications for chronology and processes on the angrite parent body. Geochimica Et Cosmochimica Acta, 2015, 171, 80-99.	3.9	34
59	Nucleosynthetic isotope anomalies and their cosmochemical significance. Geochemical Journal, 2016, 50, 43-65.	1.0	33
60	The origin of Patagonia revealed by Re-Os systematics of mantle xenoliths. Precambrian Research, 2017, 294, 15-32.	2.7	31
61	Compositional characteristics of the MORB mantle and bulk silicate earth based on spinel peridotites from the Tariat Region, Mongolia. Geochimica Et Cosmochimica Acta, 2019, 257, 206-223.	3.9	30
62	Nonchondritic ¹⁴²Nd in suboceanic mantle peridotites. Geochemistry, Geophysics, Geosystems, 2011, 12, .	2.5	23
63	Tungsten-182 evidence for an ancient kimberlite source. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	21
64	Tungsten Isotope Composition of Archean Crustal Reservoirs and Implications for Terrestrial Î¼¹⁸²W Evolution. Geochemistry, Geophysics, Geosystems, 2020, 21, e2020GC009155.	2.5	20
65	142Nd/144Nd inferences on the nature and origin of the source of high 3He/4He magmas. Earth and Planetary Science Letters, 2017, 472, 62-68.	4.4	17
66	Chemical Separation of Tungsten and Other Trace Elements for <scp>TIMS</scp> Isotope Ratio Measurements Using Organic Acids. Geostandards and Geoanalytical Research, 2019, 43, 245-259.	3.1	16
67	Feedstocks of the Terrestrial Planets. Space Science Reviews, 2018, 214, 1.	8.1	15
68	Combined Lithophileâ€Siderophile Isotopic Constraints on Hadean Processes Preserved in Ocean Island Basalt Sources. Geochemistry, Geophysics, Geosystems, 2021, 22, e2020GC009479.	2.5	15
69	Analysis of lunar samples: Implications for planet formation and evolution. Science, 2019, 365, 240-243.	12.6	14
70	Microstructures, Water Contents, and Seismic Properties of the Mantle Lithosphere Beneath the Northern Limit of the Hangay Dome, Mongolia. Geochemistry, Geophysics, Geosystems, 2019, 20, 183-207.	2.5	14
71	Response to Comment on â€œNeodymium-142 Evidence for Hadean Mafic Crustâ€ Science, 2009, 325, 267-267.	12.6	13
72	Vanadium isotope composition of the Bulk Silicate Earth: Constraints from peridotites and komatiites. Geochimica Et Cosmochimica Acta, 2019, 259, 288-301.	3.9	13

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73	Origin of Primitive Tholeiitic and Calcâ€Alkaline Basalts at Newberry Volcano, Oregon. Geochemistry, Geophysics, Geosystems, 2018, 19, 1360-1377.	2.5	11
74	Changing Mantle Sources and the Effects of Crustal Passage on the Steens Basalt, SE Oregon: Chemical and Isotopic Constraints. Geochemistry, Geophysics, Geosystems, 2020, 21, e2020GC008910.	2.5	10
75	A matter of give and take. Nature, 1992, 359, 16-17.	27.8	7
76	GEOLOGY: Enhanced: Osmium Remembers. Science, 2002, 296, 475-477.	12.6	6
77	The Nuvvuagittuq Greenstone Belt. , 2019, , 349-374.		6
78	Layer cake or plum pudding?. Nature, 1988, 334, 380-381.	27.8	5
79	Melting of wet lithosphere. Nature, 1992, 358, 20-21.	27.8	4
80	A crustal life preserver. Nature, 1995, 376, 116-117.	27.8	4
81	A conduit to the core. Nature, 1998, 394, 11-12.	27.8	3
82	A new recipe for Earth formation. Nature, 2015, 520, 299-300.	27.8	3
83	Where has all the old crust gone?. Nature, 1996, 379, 581-582.	27.8	2
84	Geophysics: Magma oceanography and the early evolution of the Earth. Nature, 1983, 305, 390-390.	27.8	1
85	The endmember stew. Nature, 1990, 348, 17-18.	27.8	1
86	How the Earth's mantle could lie about its age. Nature, 1993, 362, 701-702.	27.8	1
87	Earth's building blocks. Nature, 2017, 541, 468-469.	27.8	1