Jaupart Claude

List of Publications by Year
in descending order

169 papers	13,338 citations	20817 60 h-index	24258 110 g-index
178 all docs	178 docs citations	178 times ranked	6516 citing authors

#	Article	IF	Citations
1	The heat flow through oceanic and continental crust and the heat loss of the Earth. Reviews of Geophysics, 1980, 18, 269-311.	23.0	1,078
2	On causal links between flood basalts and continental breakup. Earth and Planetary Science Letters, 1999, 166, 177-195.	4.4	659
3	Pressure, gas content and eruption periodicity of a shallow, crystallising magma chamber. Earth and Planetary Science Letters, 1989, 92, 107-123.	4.4	435
4	Gas content, eruption rate and instabilities of eruption regime in silicic volcanoes. Earth and Planetary Science Letters, 1991, 102, 413-429.	4.4	398
5	The chemical composition of the Earth: Enstatite chondrite models. Earth and Planetary Science Letters, 2010, 293, 259-268.	4.4	363
6	Oceans and continents: Similarities and differences in the mechanisms of heat loss. Journal of Geophysical Research, 1981, 86, 11535-11552.	3.3	349
7	Transient high-Rayleigh-number thermal convection with large viscosity variations. Journal of Fluid Mechanics, 1993, 253, 141.	3.4	336
8	Laboratory models of Hawaiian and Strombolian eruptions. Nature, 1988, 331, 58-60.	27.8	292
9	The thermal structure and thickness of continental roots. Lithos, 1999, 48, 93-114.	1.4	286
10	The generation and collapse of a foam layer at the roof of a basaltic magma chamber. Journal of Fluid Mechanics, 1989, 203, 347-380.	3.4	269
11	Oscillatory zoning: a pathological case of crystal growth. Nature, 1981, 294, 223-228.	27.8	232
12	Compositional convection in a reactive crystalline mush and melt differentiation. Journal of Geophysical Research, 1992, 97, 6735-6756.	3.3	220
13	Separated twoâ€phase flow and basaltic eruptions. Journal of Geophysical Research, 1986, 91, 12842-12860.	3.3	211
14	Onset of thermal convection in fluids with temperature-dependent viscosity: Application to the oceanic mantle. Journal of Geophysical Research, 1994, 99, 19853-19866.	3.3	207
15	Fragmentation of magma during Plinian volcanic eruptions. Bulletin of Volcanology, 1996, 58, 144-162.	3.0	193
16	The next-generation liquid-scintillator neutrino observatory LENA. Astroparticle Physics, 2012, 35, 685-732.	4.3	181
17	Thermal evolution of the Earth: Secular changes and fluctuations of plate characteristics. Earth and Planetary Science Letters, 2007, 260, 465-481.	4.4	174
18	Degassing during magma ascent in the Mule Creek vent (USA). Bulletin of Volcanology, 1996, 58, 117-130.	3.0	169

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19	Heat flow and thickness of the lithosphere in the Canadian Shield. Journal of Geophysical Research, 1998, 103, 15269-15286.	3.3	167
20	On the interaction between convection and crystallization in cooling magma chambers. Earth and Planetary Science Letters, 1986, 77, 345-361.	4.4	165
21	The effect of edifice load on magma ascent beneath a volcano. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2000, 358, 1515-1532.	3.4	160
22	High heat flow in southern Tibet. Nature, 1984, 307, 32-36.	27.8	155
23	Variations of surface heat flow and lithospheric thermal structure beneath the North American craton. Earth and Planetary Science Letters, 2004, 223, 65-77.	4.4	152
24	Dynamics of degassing at Kilauea Volcano, Hawaii. Journal of Geophysical Research, 1990, 95, 2793-2809.	3.3	149
25	Heat flow and structure of the lithosphere in the Eastern Canadian Shield. Journal of Geophysical Research, 1991, 96, 19941-19963.	3.3	147
26	The size distribution of pyroclasts and the fragmentation sequence in explosive volcanic eruptions. Journal of Geophysical Research, 1998, 103, 29759-29779.	3.3	143
27	Magma storage and horizontal dyke injection beneath a volcanic edifice. Earth and Planetary Science Letters, 2004, 221, 245-262.	4.4	143
28	On the vesicularity of pumice. Journal of Geophysical Research, 1994, 99, 15633.	3.3	126
29	Radiogenic heat production, thermal regime and evolution of continental crust. Tectonophysics, 2013, 609, 524-534.	2.2	125
30	Ascent and emplacement of buoyant magma bodies in brittle-ductile upper crust. Journal of Geophysical Research, 2003, 108, .	3.3	122
31	Nucleation, crystal growth and the thermal regime of cooling magmas. Journal of Geophysical Research, 1984, 89, 10161-10177.	3.3	118
32	On the effect of continents on mantle convection. Journal of Geophysical Research, 1995, 100, 24217-24238.	3.3	115
33	Dynamics of differentiation in magma reservoirs. Journal of Geophysical Research, 1995, 100, 17615-17636.	3.3	113
34	Heat focussing, granite genesis and inverted metamorphic gradients in continental collision zones. Earth and Planetary Science Letters, 1985, 73, 385-397.	4.4	106
35	Thermal control on post-orogenic extension in collision belts. Earth and Planetary Science Letters, 1988, 89, 48-62.	4.4	103
36	Radiogenic heat production in the continental crust. Lithos, 2016, 262, 398-427.	1.4	102

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37	The vertical distribution of radiogenic heat production in the Precambrian crust of Norway and Sweden: Geothermal implications. Geophysical Research Letters, 1987, 14, 260-263.	4.0	100
38	Magma chamber behavior beneath a volcanic edifice. Journal of Geophysical Research, 2003, 108, .	3.3	100
39	The kinetics of nucleation and crystal growth and scaling laws for magmatic crystallization. Contributions To Mineralogy and Petrology, 1987, 96, 24-34.	3.1	95
40	Conditions for the arrest of a vertical propagating dyke. Bulletin of Volcanology, 2011, 73, 191-204.	3.0	89
41	Heat flow studies: Constraints on the distribution of uranium, thorium and potassium in the continental crust. Earth and Planetary Science Letters, 1981, 52, 328-344.	4.4	87
42	Compositional convection in viscous melts. Nature, 1989, 338, 571-574.	27.8	87
43	On the variations of flow rate in non-explosive lava eruptions. Earth and Planetary Science Letters, 1993, 114, 505-516.	4.4	87
44	The planform of compositional convection and chimney formation in a mushy layer. Nature, 1992, 359, 406-408.	27.8	86
45	Temperatures, Heat and Energy in the Mantle of the Earth. , 2007, , 253-303.		86
46	The stagnant bottom layer of convecting magma chambers. Earth and Planetary Science Letters, 1986, 80, 183-199.	4.4	85
47	Heat flow and deep thermal structure near the southeastern edge of the Canadian Shield. Canadian Journal of Earth Sciences, 2000, 37, 399-414.	1.3	84
48	Measuring Heat Flux and Structure Functions of Temperature Fluctuations with an Acoustic Doppler Sodar. Journal of Applied Meteorology, 1980, 19, 199-205.	1.1	80
49	Temperatures, Heat, and Energy in the Mantle of the Earth. , 2015, , 223-270.		79
50	Thermal evolution of cratonic roots. Lithos, 2009, 109, 47-60.	1.4	78
51	Temperatures, Heat and Energy in the Mantle of the Earth. , 2007, , 253-303.		77
52	Laminar starting plumes in high-Prandtl-number fluids. Journal of Fluid Mechanics, 2003, 478, 287-298.	3.4	76
53	Steady-state operation of Stromboli volcano, Italy: constraints on the feeding system. Bulletin of Volcanology, 1992, 54, 535-541.	3.0	75
54	Heat Flow and Thermal Structure of the Lithosphere. , 2007, , 217-251.		72

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55	The generation of gas overpressure in volcanic eruptions. Earth and Planetary Science Letters, 1999, 166, 57-70.	4.4	71
56	Horizontal heat transfer due to radioactivity contrasts: causes and consequences of the linear heat flow relation. Geophysical Journal International, 1983, 75, 411-435.	2.4	70
57	Influence of cooling on lava-flow dynamics. Geology, 1993, 21, 335.	4.4	70
58	Gas loss from magmas through conduit walls during eruption. Geological Society Special Publication, 1998, 145, 73-90.	1.3	70
59	Dike propagation through layered rocks. Journal of Geophysical Research, 2009, 114, .	3.3	69
60	Heat flow, gravity and structure of the Abitibi belt, Superior Province, Canada: Implications for mantle heat flow. Earth and Planetary Science Letters, 1994, 122, 103-123.	4.4	68
61	Convective instabilities in a variable viscosity fluid cooled from above. Physics of the Earth and Planetary Interiors, 1985, 39, 14-32.	1.9	66
62	A lithospheric instability origin for the Cameroon Volcanic Line. Earth and Planetary Science Letters, 2012, 335-336, 80-87.	4.4	66
63	Lithosphere structure beneath the Phanerozoic intracratonic basins of North America. Earth and Planetary Science Letters, 2000, 178, 139-149.	4.4	63
64	Crustal heat production in the Superior Province, Canadian Shield, and in North America inferred from heat flow data. Journal of Geophysical Research, 2006, 111, .	3.3	63
65	A thermal model for the distribution in space and time of the Himalayan granites. Earth and Planetary Science Letters, 1987, 84, 87-99.	4.4	62
66	Thermal convection in lava lakes. Geophysical Research Letters, 1993, 20, 1827-1830.	4.0	62
67	A detailed study of the distribution of heat flow and radioactivity in New Hampshire (U.S.A.). Earth and Planetary Science Letters, 1982, 59, 267-287.	4.4	59
68	Large-scale crustal heterogeneities and lithospheric strength in cratons. Earth and Planetary Science Letters, 1998, 164, 205-219.	4.4	59
69	Constraints on Crustal Heat Production from Heat Flow Data. , 2003, , 65-84.		59
70	Some consequences of volcanic edifice destruction for eruption conditions. Journal of Volcanology and Geothermal Research, 2005, 145, 68-80.	2.1	59
71	The impact of a volcanic edifice on intrusive and eruptive activity. Earth and Planetary Science Letters, 2014, 408, 1-8.	4.4	59
72	The production of chemically stratified and adcumulate plutonic igneous rocks. Mineralogical Magazine, 1996, 60, 99-114.	1.4	57

#	Article	IF	Citations
73	Expansion and quenching of vesicular magma fragments in Plinian eruptions. Journal of Geophysical Research, 1997, 102, 12187-12203.	3.3	56
74	Constraints on cooling rates and permeabilities of pumice in an explosive eruption jet from colour and magnetic mineralogy. Journal of Volcanology and Geothermal Research, 1998, 86, 79-91.	2.1	56
75	Physical models of volcanic eruptions. Chemical Geology, 1996, 128, 217-227.	3.3	55
76	Surface heat flow, crustal temperatures and mantle heat flow in the Proterozoic Trans-Hudson Orogen, Canadian Shield. Journal of Geophysical Research, 2002, 107, ETG 7-1-ETG 7-19.	3.3	53
77	Transient geotherms in Archean continental lithosphere: New constraints on thickness and heat production of the subcontinental lithospheric mantle. Journal of Geophysical Research, 2007, 112, .	3.3	51
78	Breathing of the Nevado del Ruiz volcano reservoir, Colombia, inferred from repeated seismic tomography. Scientific Reports, 2017, 7, 46094.	3.3	49
79	New heat flow density and radiogenic heat production data in the Canadian Shield and the Quebec Appalachians. Canadian Journal of Earth Sciences, 1989, 26, 845-852.	1.3	48
80	Heat flow in the Trans-Hudson Orogen of the Canadian Shield: Implications for Proterozoic continental growth. Journal of Geophysical Research, 1999, 104, 29007-29024.	3.3	47
81	Ultra-rapid formation of large volumes of evolved magma. Earth and Planetary Science Letters, 2006, 250, 38-52.	4.4	47
82	The feeder system of the Toba supervolcano from the slab to the shallow reservoir. Nature Communications, 2016, 7, 12228.	12.8	47
83	Heat flow variations in the Grenville Province, Canada. Earth and Planetary Science Letters, 1995, 136, 447-460.	4.4	45
84	Low mantle heat flow at the edge of the North American Continent, Voisey Bay, Labrador. Geophysical Research Letters, 2000, 27, 823-826.	4.0	45
85	Stagnant layers at the bottom of convecting magma chambers. Nature, 1984, 308, 535-538.	27.8	44
86	On the thermal structure of the southern Tibetan crust. Geophysical Journal International, 1985, 81, 131-155.	2.4	44
87	Chapter 11a. PHYSICAL ASPECTS OF MAGMA DEGASSING I. Experimental and theoretical constraints on vesiculation. , 1994, , 413-446.		44
88	Secular cooling and thermal structure of continental lithosphere. Earth and Planetary Science Letters, 2007, 257, 83-96.	4.4	38
89	The building and stabilization of an Archean Craton in the Superior Province, Canada, from a heat flow perspective. Journal of Geophysical Research: Solid Earth, 2014, 119, 9130-9155.	3.4	38
90	Magma degassing and intermittent lava dome growth. Geophysical Research Letters, 2008, 35, .	4.0	37

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91	Low heat flux and large variations of lithospheric thickness in the Canadian Shield. Journal of Geophysical Research, 2010, 115, .	3.3	36
92	Rise of volcanic plumes to the stratosphere aided by penetrative convection above large lava flows. Earth and Planetary Science Letters, 2011, 301, 171-178.	4.4	36
93	Dike propagation through an elastic plate. Journal of Geophysical Research, 1998, 103, 18295-18314.	3.3	35
94	Instability of a chemically dense layer heated from below and overlain by a deep less viscous fluid. Journal of Fluid Mechanics, 2007, 572, 433-469.	3.4	35
95	On the relationship between cycles of eruptive activity and growth of a volcanic edifice. Journal of Volcanology and Geothermal Research, 2010, 194, 150-164.	2.1	35
96	Marginal stability of atmospheric eruption columns and pyroclastic flow generation. Journal of Geophysical Research, 2001, 106, 21785-21798.	3.3	34
97	Caldera formation by magma withdrawal from a reservoir beneath a volcanic edifice. Earth and Planetary Science Letters, 2005, 230, 273-287.	4.4	34
98	Generation of continental rifts, basins, and swells by lithosphere instabilities. Journal of Geophysical Research: Solid Earth, 2013, 118, 3080-3100.	3.4	34
99	Continental tectonics and continental kinetics. Earth and Planetary Science Letters, 1985, 74, 171-186.	4.4	33
100	High heat flow in the trans-Hudson Orogen, Central Canadian Shield. Geophysical Research Letters, 1996, 23, 3027-3030.	4.0	32
101	Ascent and decompression of viscous vesicular magma in a volcanic conduit. Journal of Geophysical Research, 2001, 106, 16223-16240.	3.3	32
102	Heat Flow and Thermal Structure of the Lithosphere. , 2015, , 217-253.		32
103	Eruption at Le Piton de la Fournaise volcano on 3 February 1981. Nature, 1982, 297, 395-397.	27.8	31
104	Heat flow and deep lithospheric thermal structure at Lac de Gras, Slave Province, Canada. Geophysical Research Letters, 2004, 31, n/a-n/a.	4.0	31
105	Simple fluid dynamic models of volcanic rift zones. Earth and Planetary Science Letters, 1995, 136, 223-240.	4.4	30
106	Lava flow shapes and dimensions as reflections of magma system conditions. Journal of Volcanology and Geothermal Research, 1997, 78, 31-50.	2.1	30
107	Upper mantle velocity-temperature conversion and composition determined from seismic refraction and heat flow. Journal of Geophysical Research, 2006, 111, .	3.3	29
108	Lowâ€Frequency Earthquakes and Pore Pressure Transients in Subduction Zones. Geophysical Research Letters, 2018, 45, 11,083.	4.0	29

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109	Two models for the formation of magma reservoirs by small increments. Tectonophysics, 2011, 500, 34-49.	2.2	28
110	Temperatures at the base of the Laurentide Ice Sheet inferred from borehole temperature data. Geophysical Research Letters, 2003, 30, .	4.0	27
111	Heat Flow and Thermal Structure of the Lithosphere. , 2007, , 217-251.		27
112	Geoneutrinos and the energy budget of the Earth. Journal of Geodynamics, 2012, 54, 43-54.	1.6	27
113	Lithospheric structure of the Canadian Shield inferred from inversion of surface-wave dispersion with thermodynamic a priori constraints. Geological Society Special Publication, 2004, 239, 175-194.	1.3	25
114	Heat flow, thermal regime, and elastic thickness of the lithosphere in the Trans-Hudson Orogen. Canadian Journal of Earth Sciences, 2005, 42, 517-532.	1.3	25
115	Constraints on Crustal Heat Production from Heat Flow Data. , 2014, , 53-73.		25
116	Penetration of mantle plumes through depleted lithosphere. Journal of Geophysical Research, 2005, 110, .	3.3	24
117	Dynamics of magma flow near the vent: Implications for dome eruptions. Earth and Planetary Science Letters, 2009, 279, 185-196.	4.4	24
118	Magma expansion and fragmentation in a propagating dyke. Earth and Planetary Science Letters, 2011, 301, 146-152.	4.4	24
119	Likelihood of basaltic eruptions as a function of volatile content and volcanic edifice size. Journal of Volcanology and Geothermal Research, 2004, 137, 201-217.	2.1	23
120	Enhanced crustal geo-neutrino production near the Sudbury Neutrino Observatory, Ontario, Canada. Earth and Planetary Science Letters, 2009, 288, 301-308.	4.4	22
121	Temperature and rheological properties of the mantle beneath the North American craton from an analysis of heat flux and seismic data. Journal of Geophysical Research, 2011, 116, .	3.3	22
122	Heat flow in the western Superior Province of the Canadian shield. Geophysical Research Letters, 2003, 30, .	4.0	20
123	Nonequilibrium temperatures and cooling rates in thick continental lithosphere. Geophysical Research Letters, 2004, 31, .	4.0	20
124	Variations of strength and localized deformation in cratons: The 1.9ÂGa Kapuskasing uplift, Superior Province, Canada. Earth and Planetary Science Letters, 2006, 249, 216-228.	4.4	20
125	Thermal regime of the lithosphere in the Canadian ShieldThis article is one of a series of papers published in this Special Issue on the themeLithoprobe â€" parameters, processes, and the evolution of a continent.. Canadian Journal of Earth Sciences, 2010, 47, 389-408.	1.3	20
126	Geochemical evidence for high volatile fluxes from the mantle at the end of the Archaean. Nature, 2019, 575, 485-488.	27.8	20

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127	Microwave-heating laboratory experiments for planetary mantle convection. Journal of Fluid Mechanics, 2015, 777, 50-67.	3.4	19
128	Archean thermal regime and stabilization of the cratons. Geophysical Monograph Series, 2006, , 61-73.	0.1	17
129	The instability of continental passive margins and its effect on continental topography and heat flow. Journal of Geophysical Research: Solid Earth, 2013, 118, 1817-1836.	3.4	16
130	Post-orogenic thermal evolution of newborn Archean continents. Earth and Planetary Science Letters, 2015, 432, 36-45.	4.4	16
131	Heat flow in the Nipigon arm of the Keweenawan rift, northwestern Ontario, Canada. Geophysical Research Letters, 2004, 31, .	4.0	15
132	Marginal stability of thick continental lithosphere. Geophysical Research Letters, 2004, 31, .	4.0	15
133	Effects of compressibility on the flow of lava. Bulletin of Volcanology, 1991, 54, 1-9.	3.0	14
134	The initiation of subduction by crustal extension at a continental margin. Geophysical Journal International, 2012, 188, 779-797.	2.4	14
135	Fundamentals of laminar free convection in internally heated fluids at values of the Rayleighâ€“Roberts number up to. Journal of Fluid Mechanics, 2018, 846, 966-998.	3.4	14
136	CHAPTER 8. DYNAMICS OF ERUPTIVE PHENOMENA. , 1990, , 213-238.		13
137	The thermal structure and thickness of continental roots. Developments in Geotectonics, 1999, , 93-114.	0.3	13
138	Simultaneous inversion of gravity and heat flow data: constraints on thermal regime, rheology and evolution of the Canadian Shield crustâ˜†. Journal of Geodynamics, 2002, 34, 11-30.	1.6	13
139	The fate of mafic and ultramafic intrusions in the continental crust. Earth and Planetary Science Letters, 2016, 453, 131-140.	4.4	13
140	Convection in an internally heated stratified heterogeneous reservoir. Journal of Fluid Mechanics, 2019, 870, 67-105.	3.4	13
141	Episodicity and Migration of Low Frequency Earthquakes Modeled With Fast Fluid Pressure Transients in the Permeable Subduction Interface. Journal of Geophysical Research: Solid Earth, 2021, 126, e2021JB021894.	3.4	13
142	Seismic tremor reveals active trans-crustal magmatic system beneath Kamchatka volcanoes. Science Advances, 2022, 8, eabj1571.	10.3	13
143	Heat flow constraints on the mafic character of Archean continental crust. Earth and Planetary Science Letters, 2021, 571, 117091.	4.4	12
144	The distributions of slip rate and ductile deformation in a strike-slip shear zone. Geophysical Journal International, 2002, 148, 179-192.	2.4	11

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145	Postemplacement dynamics of basaltic intrusions in the continental crust. Journal of Geophysical Research: Solid Earth, 2017, 122, 966-987.	3.4	11
146	Folding in regions of extension. Geophysical Journal International, 2011, 185, 1120-1134.	2.4	10
147	Microwave-based laboratory experiments for internally-heated mantle convection. AIP Conference Proceedings, 2013, , .	0.4	10
148	Influence of cooling on lava-flow dynamics: Comment and Reply. Geology, 1994, 22, 93.	4.4	8
149	The effects of alteration and the interpretation of heat flow and radioactivity dataâ€"a reply to R.U.M. Rao. Earth and Planetary Science Letters, 1983, 62, 430-438.	4.4	7
150	What the mantle sees: The Effects of continents on mantle heat flow. Geophysical Monograph Series, 2000, , 95-112.	0.1	7
151	The Earthâ€™s mantle in a microwave oven: thermal convection driven by a heterogeneous distribution of heat sources. Experiments in Fluids, 2017, 58, 1.	2.4	7
152	Characteristic Dimensions and Times for Dynamic Crystallization. , 1987, , 613-639.		7
153	The impact of vent geometry on the growth of lava domes. Geophysical Journal International, 0, , .	2.4	5
154	CHAPTER 5. PHYSICAL PROCESSES IN THE EVOLUTION OF MAGMAS. , 1990, , 125-152.		4
155	The Sudbury Huronian heat flow anomaly, Ontario, Canada. Precambrian Research, 2017, 295, 187-202.	2.7	2
156	Towards Scaling Laws for the Interpretation of Igneous Structures. , 1987, , 327-347.		2
157	Convection and Macrosegregation in Magma Chambers. , 1992, , 241-260.		2
158	The flow of gas and lava: A review of dynamic models for volcanic eruptions. Chemical Geology, 1988, 70, 38.	3.3	1
159	Variations of surface heat flow and lithospheric thermal structure beneath the North American craton. Earth and Planetary Science Letters, 2004, 223, 65-65.	4.4	1
160	Microwave-based, internally-heated convection: New perspectives for the heterogeneous case. AIP Conference Proceedings, 2015, , .	0.4	1
161	Lithosphere, Continental: Thermal Structure. Encyclopedia of Earth Sciences Series, 2021, , 872-884.	0.1	1
162	Energy Budget of the Earth. Encyclopedia of Earth Sciences Series, 2021, , 361-368.	0.1	1

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163	New Experiments on Compositional Convection. , 1992, , 155-158.		1
164	Reply [to â€œComment on â€˜Compositional convection in a reactive crystalline mush and melt differentiationâ€™ by Stephen Tait and Claude Jaupartâ€]. Journal of Geophysical Research, 1994, 99, 11919-11921.	3.3	0
165	The Formation of Continental Crust from a Physics Perspective. Geochemistry International, 2018, 56, 1289-1321.	0.7	0
166	Radiogenic Heat Production in the Continental Crust. Encyclopedia of Earth Sciences Series, 2021, , 1298-1303.	0.1	0
167	Energy Budget of the Earth. Encyclopedia of Earth Sciences Series, 2020, , 1-9.	0.1	0
168	Radiogenic Heat Production in the Continental Crust. Encyclopedia of Earth Sciences Series, 2020, , 1-7.	0.1	0
169	Interactive simulation of plume and pyroclastic volcanic ejections. Proceedings of the ACM on Computer Graphics and Interactive Techniques, 2022, 5, 1-15.	1.6	0