David Keith

List of Publications by Year
in descending order

144 papers	12,325 citations	18482 62 h-index	28297 105 g-index
148 all docs	148 docs citations	148 times ranked	8747 citing authors

#	Article	IF	Citations
1	A Process for Capturing CO2 from the Atmosphere. Joule, 2018, 2, 1573-1594.	24.0	976
2	Why Capture CO ₂ from the Atmosphere?. Science, 2009, 325, 1654-1655.	12.6	594
3	An interferometer for atoms. Physical Review Letters, 1991, 66, 2693-2696.	7.8	487
4	GEOENGINEERING THECLIMATE: History and Prospect. Annual Review of Environment and Resources, 2000, 25, 245-284.	1.2	449
5	Climate Strategy with Co2 Capture from the Air. Climatic Change, 2006, 74, 17-45.	3.6	369
6	Carbon Dioxide Capture from Atmospheric Air Using Sodium Hydroxide Spray. Environmental Science & Technology, 2008, 42, 2728-2735.	10.0	331
7	The influence of large-scale wind power on global climate. Proceedings of the National Academy of Sciences of the United States of America, 2004, 101, 16115-16120.	7.1	255
8	A Case for Climate Engineering. , 2013, , .		250
9	Scaling behavior of convective mixing, with application to geological storage of CO2. AICHE Journal, 2007, 53, 1121-1131.	3.6	203
10	Low-energy sodium hydroxide recovery for CO2 capture from atmospheric airâ€”Thermodynamic analysis. International Journal of Greenhouse Gas Control, 2009, 3, 376-384.	4.6	201
11	The effect of climate change on ozone depletion through changes in stratospheric water vapour. Nature, 1999, 402, 399-401.	27.8	193
12	The economics of large-scale wind power in a carbon constrained world. Energy Policy, 2006, 34, 395-410.	8.8	193
13	Diffraction of Atoms by a Transmission Grating. Physical Review Letters, 1988, 61, 1580-1583.	7.8	175
14	Research on global sun block needed now. Nature, 2010, 463, 426-427.	27.8	173
15	Using CaO- and MgO-rich industrial waste streams for carbon sequestration. Energy Conversion and Management, 2005, 46, 687-699.	9.2	167
16	Compressed air energy storage (CAES) with compressors distributed at heat loads to enable waste heat utilization. Applied Energy, 2013, 103, 165-179.	10.1	158
17	Engineering economic analysis of biomass IGCC with carbon capture and storage. Biomass and Bioenergy, 2005, 29, 440-450.	5.7	157
18	Initial Public Perceptions of Deep Geological and Oceanic Disposal of Carbon Dioxide. Environmental Science & Technology, 2004, 38, 6441-6450.	10.0	149

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19	Subjective Judgments by Climate Experts. Environmental Science & Technology, 1995, 29, 468A-476A.	10.0	143
20	Halving warming with idealized solar geoengineering moderates key climate hazards. Nature Climate Change, 2019, 9, 295-299.	18.8	139
21	Regulating the Ultimate Sink:Â Managing the Risks of Geologic CO2Storage. Environmental Science & Technology, 2003, 37, 3476-3483.	10.0	138
22	Predicting PVT data for CO2â€“brine mixtures for black-oil simulation of CO2 geological storage. International Journal of Greenhouse Gas Control, 2008, 2, 65-77.	4.6	134
23	Stability of a fluid in a horizontal saturated porous layer: effect of non-linear concentration profile, initial, and boundary conditions. Transport in Porous Media, 2006, 65, 193-211.	2.6	132
24	CLIMATE CHANGE:Fossil Fuels Without CO2 Emissions. , 1998, 282, 1053-1054.		131
25	Cost analysis of stratospheric albedo modification delivery systems. Environmental Research Letters, 2012, 7, 034019.	5.2	128
26	Accelerating CO₂ Dissolution in Saline Aquifers for Geological Storage â€" Mechanistic and Sensitivity Studies. Energy & Fuels, 2009, 23, 3328-3336.	5.1	123
27	Reservoir Engineering To Accelerate the Dissolution of CO₂ Stored in Aquifers. Environmental Science & Technology, 2008, 42, 2742-2747.	10.0	122
28	A strategy for introducing hydrogen into transportation. Energy Policy, 2003, 31, 1357-1367.	8.8	119
29	Photophoretic levitation of engineered aerosols for geoengineering. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 16428-16431.	7.1	119
30	An airâ€“liquid contactor for large-scale capture of CO ₂ from air. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2012, 370, 4380-4403.	3.4	119
31	Analytical solution to evaluate salt precipitation during CO2 injection in saline aquifers. International Journal of Greenhouse Gas Control, 2009, 3, 600-611.	4.6	118
32	Public understanding of solar radiation management. Environmental Research Letters, 2011, 6, 044006.	5.2	113
33	Subjective judgements by climate experts. Environmental Science & Technology, 1995, 29, 468A-476A.	10.0	110
34	Improving the way we think about projecting future energy use and emissions of carbon dioxide. Climatic Change, 2008, 90, 189-215.	3.6	110
35	Efficient formation of stratospheric aerosol for climate engineering by emission of condensible vapor from aircraft. Geophysical Research Letters, 2010, 37, .	4.0	109
36	Stratospheric solar geoengineering without ozone loss. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 14910-14914.	7.1	108

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37	End the Deadlock on Governance of Geoengineering Research. Science, 2013, 339, 1278-1279.	12.6	106
38	A temporary, moderate and responsive scenario for solar geoengineering. Nature Climate Change, 2015, 5, 201-206.	18.8	104
39	Solar geoengineering as part of an overall strategy for meeting the 1.5Â°C Paris target. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20160454.	3.4	103
40	Expert Assessments of Future Photovoltaic Technologies. Environmental Science & Technology, 2008, 42, 9031-9038.	10.0	102
41	Expert judgements on the response of the Atlantic meridional overturning circulation to climate change. Climatic Change, 2007, 82, 235-265.	3.6	101
42	A multi-model assessment of regional climate disparities caused by solar geoengineering. Environmental Research Letters, 2014, 9, 074013.	5.2	101
43	Evaluation of potential cost reductions from improved amine-based CO2 capture systems. Energy Policy, 2006, 34, 3765-3772.	8.8	95
44	Compressed air energy storage with waste heat export: An Alberta case study. Energy Conversion and Management, 2014, 78, 114-124.	9.2	95
45	Climate policy under uncertainty: a case for solar geoengineering. Climatic Change, 2013, 121, 431-444.	3.6	94
46	Management of trade-offs in geoengineering through optimal choice of non-uniform radiative forcing. Nature Climate Change, 2013, 3, 365-368.	18.8	92
47	A simple model to account for regional inequalities in the effectiveness of solar radiation management. Climatic Change, 2012, 110, 649-668.	3.6	90
48	On the Climate Impact of Surface Roughness Anomalies. Journals of the Atmospheric Sciences, 2008, 65, 2215-2234.	1.7	87
49	Are global wind power resource estimates overstated?. Environmental Research Letters, 2013, 8, 015021.	5.2	84
50	A serious look at geoengineering. Eos, 1992, 73, 289-289.	0.1	81
51	Carbon neutral hydrocarbons. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2008, 366, 3901-3918.	3.4	81
52	What do people think when they think about solar geoengineering? A review of empirical social science literature, and prospects for future research. Earth's Future, 2016, 4, 536-542.	6.3	80
53	Unmask temporal trade-offs in climate policy debates. Science, 2017, 356, 492-493.	12.6	80
54	Assessment of Potential Carbon Dioxide Reductions Due to Biomassâ^'Coal Cofiring in the United States. Environmental Science & Technology, 2003, 37, 5081-5089.	10.0	79

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55	Solar geoengineering using solid aerosol in the stratosphere. Atmospheric Chemistry and Physics, 2015, 15, 11835-11859.	4.9	77
56	Land Use Greenhouse Gas Emissions from Conventional Oil Production and Oil Sands. Environmental Science & Technology, 2010, 44, 8766-8772.	10.0	76
57	Elicitation of Expert Judgments of Aerosol Forcing. Climatic Change, 2006, 75, 195-214.	3.6	75
58	Improved aerosol radiative properties as a foundation for solar geoengineering risk assessment. Geophysical Research Letters, 2016, 43, 7758-7766.	4.0	74
59	Stratospheric controlled perturbation experiment: a small-scale experiment to improve understanding of the risks of solar geoengineering. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20140059.	3.4	73
60	Expert judgments about transient climate response to alternative future trajectories of radiative forcing. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 12451-12456.	7.1	71
61	Dynamics of the coupled humanâ€"climate system resulting from closed-loop control of solar geoengineering. Climate Dynamics, 2014, 43, 243-258.	3.8	71
62	Fossil electricity and CO2 sequestration: how natural gas prices, initial conditions and retrofits determine the cost of controlling CO2 emissions. Energy Policy, 2004, 32, 367-382.	8.8	70
63	Climatic Impacts of Wind Power. Joule, 2018, 2, 2618-2632.	24.0	70
64	When is it appropriate to combine expert judgments?. Climatic Change, 1996, 33, 139-143.	3.6	69
65	Solar geoengineering could substantially reduce climate risksâ€"A research hypothesis for the next decade. Earth's Future, 2016, 4, 549-559.	6.3	67
66	Field experiments on solar geoengineering: report of a workshop exploring a representative research portfolio. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20140175.	3.4	66
67	How much bulk energy storage is needed to decarbonize electricity?. Energy and Environmental Science, 2015, 8, 3409-3417.	30.8	66
68	ENVIRONMENTAL SCIENCE: Enhanced: Rethinking Hydrogen Cars. Science, 2003, 301, 315-316.	12.6	65
69	Anticipating public attitudes toward underground CO2 storage. International Journal of Greenhouse Gas Control, 2009, 3, 641-651.	4.6	65
70	Quantifying land use of oil sands production: a life cycle perspective. Environmental Research Letters, 2009, 4, 024004.	5.2	64
71	Geoengineering. Nature, 2001, 409, 420-420.	27.8	63
72	Carbon storage: the economic efficiency of storing CO 2 in leaky reservoirs. Clean Technologies and Environmental Policy, 2003, 5, 181-189.	4.1	61

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73	Solar geoengineering to limit the rate of temperature change. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2014, 372, 20140134.	3.4	61
74	Low energy packed tower and caustic recovery for direct capture of CO2 from air. Energy Procedia, 2009, 1, 1535-1542.	1.8	60
75	Carbon Capture Retrofits and the Cost of Regulatory Uncertainty. Energy Journal, 2007, 28, 101-128.	1.7	60
76	Observation-based solar and wind power capacity factors and power densities. Environmental Research Letters, 2018, 13, 104008.	5.2	59
77	Stratosphere-troposphere exchange: Inferences from the isotopic composition of water vapor. Journal of Geophysical Research, 2000, 105, 15167-15173.	3.3	58
78	Two methods for estimating limits to large-scale wind power generation. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11169-11174.	7.1	57
79	Solar geoengineering reduces atmospheric carbon burden. Nature Climate Change, 2017, 7, 617-619.	18.8	56
80	Geomechanical modeling for CO2 storage in Nisku aquifer in Wabamun Lake area in Canada. International Journal of Greenhouse Gas Control, 2012, 10, 113-122.	4.6	53
81	Solar Geoengineering and Democracy. Global Environmental Politics, 2018, 18, 5-24.	3.0	52
82	Stopping Solar Geoengineering Through Technical Means: A Preliminary Assessment of Counterâ€Geoengineering. Earth's Future, 2018, 6, 1058-1065.	6.3	52
83	The Costs of Wind's Variability: Is There a Threshold?. Electricity Journal, 2005, 18, 69-77.	2.5	49
84	Outdoor Prototype Results for Direct Atmospheric Capture of Carbon Dioxide. Energy Procedia, 2013, 37, 6079-6095.	1.8	49
85	Public engagement on solar radiation management and why it needs to happen now. Climatic Change, 2013, 121, 567-577.	3.6	49
86	Tailoring Meridional and Seasonal Radiative Forcing by Sulfate Aerosol Solar Geoengineering. Geophysical Research Letters, 2018, 45, 1030-1039.	4.0	48
87	Quantifying the impact of sulfate geoengineering on mortality from air quality and UV-B exposure. Atmospheric Environment, 2018, 187, 424-434.	4.1	48
88	Biomass with capture: negative emissions within social and environmental constraints: an editorial comment. Climatic Change, 2008, 87, 321-328.	3.6	47
89	Can we test geoengineering?. Energy and Environmental Science, 2011, 4, 5044.	30.8	47
90	The effect of natural flow of aquifers and associated dispersion on the onset of buoyancyâ€driven convection in a saturated porous medium. AICHE Journal, 2009, 55, 475-485.	3.6	43

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91	Feasibility of Injecting Large Volumes of CO2 into Aquifers. Energy Procedia, 2009, 1, 3113-3120.	1.8	40
92	Assessing geochemical carbon management. Climatic Change, 2008, 90, 217-242.	3.6	39
93	Regulating the Geological Sequestration of CO₂. Environmental Science & Technology, 2008, 42, 2718-2722.	10.0	38
94	Atom optics using microfabricated structures. Applied Physics B, Photophysics and Laser Chemistry, 1992, 54, 369-374.	1.5	29
95	Sinks, Energy Crops and Land Use: Coherent Climate Policy Demands an Integrated Analysis of Biomass. Climatic Change, 2001, 49, 1-10.	3.6	28
96	Meridional energy transport: uncertainty in zonal means. Tellus, Series A: Dynamic Meteorology and Oceanography, 1995, 47, 30-44.	1.7	27
97	Halving warming with stratospheric aerosol geoengineering moderates policy-relevant climate hazards. Environmental Research Letters, 2020, 15, 044011.	5.2	25
98	The promise of negative emissions. Science, 2016, 354, 714-714.	12.6	24
99	Free-standing gratings and lenses for atom optics. Journal of Vacuum Science & Technology an Official Journal of the American Vacuum Society B, Microelectronics Processing and Phenomena, 1991, 9, 2846.	1.6	23
100	Regulating the Underground Injection of CO2. Environmental Science & Technology, 2005, 39, 499A-505A.	10.0	22
101	Effectiveness of stratospheric solar-radiation management as a function of climate sensitivity. Nature Climate Change, 2012, 2, 92-96.	18.8	22
102	Exploring accumulation-mode H₂SO₄ versus SO₂ stratospheric sulfate geoengineering in a sectional aerosolâ€“chemistryâ€“climate model. Atmospheric Chemistry and Physics, 2019, 19, 4877-4897.	4.9	22
103	Accurate Spectrally Resolved Infrared Radiance Observation from Space: Implications for the Detection of Decade-to-Centuryâ€"Scale Climatic Change. Journal of Climate, 2001, 14, 979-990.	3.2	21
104	Social science research to inform solar geoengineering. Science, 2021, 374, 815-818.	12.6	21
105	Leakage detection and characterization through pressure monitoring. Energy Procedia, 2011, 4, 3534-3541.	1.8	20
106	Evolution of hydrogen sulfide in sour saline aquifers during carbon dioxide sequestration. International Journal of Greenhouse Gas Control, 2011, 5, 347-355.	4.6	20
107	Solar geoengineering can alleviate climate change pressures on crop yields. Nature Food, 2021, 2, 373-381.	14.0	20
108	Toward constructive disagreement about geoengineering. Science, 2021, 374, 812-815.	12.6	18

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109	Carbon-cycle feedbacks increase the likelihood of a warmer future. Geophysical Research Letters, 2007, 34, .	4.0	17
110	Production of Sulfates Onboard an Aircraft: Implications for the Cost and Feasibility of Stratospheric Solar Geoengineering. Earth and Space Science, 2018, 5, 150-162.	2.6	16
111	Climate engineering responses to climate emergencies. IOP Conference Series: Earth and Environmental Science, 2009, 6, 452015.	0.3	15
112	Multilateral parametric climate risk insurance: a tool to facilitate agreement about deployment of solar geoengineering?. Climate Policy, 2019, 19, 820-826.	5.1	15
113	Bury, Burn or Both: A Two-for-One Deal on Biomass Carbon and Energy. Climatic Change, 2002, 54, 375-377.	3.6	14
114	Analytical Solution to Evaluate Salt Precipitation during CO2 Injection in Saline Aquifers. Energy Procedia, 2009, 1, 1775-1782.	1.8	14
115	The Truth About Dirty Oil: Is CCS the Answer?. Environmental Science & Technology, 2010, 44, 6010-6015.	10.0	14
116	Analytical models for determining pressure change in an overlying aquifer due to leakage. Energy Procedia, 2011, 4, 3833-3840.	1.8	14
117	Brief communication: Understanding solar geoengineering's potential to limit sea level rise requires attention from cryosphere experts. Cryosphere, 2018, 12, 2501-2513.	3.9	14
118	The Real Cost of Wind Energy. Science, 2001, 294, 1000-1003.	12.6	13
119	An interactive stratospheric aerosol model intercomparison of solar geoengineering by stratospheric injection of SO₂ or accumulation-mode sulfuric acid aerosols. Atmospheric Chemistry and Physics, 2022, 22, 2955-2973.	4.9	13
120	Electricity from Fossil Fuels without CO2Emissions: Assessing the Costs of Carbon Dioxide Capture and Sequestration in U.S. Electricity Markets. Journal of the Air and Waste Management Association, 2001, 51, 1452-1459.	1.9	12
121	Process design and costing of an air-contactor for air-capture. Energy Procedia, 2011, 4, 2861-2868.	1.8	12
122	Numerical model of a multiple-grating interferometer. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1992, 9, 1601.	1.5	11
123	An overview of the Wabamun Area CO2 Sequestration Project (WASP). Energy Procedia, 2009, 1, 2817-2824.	1.8	11
124	Experimental reaction rates constrain estimates of ozone response to calcium carbonate geoengineering. Communications Earth & Environment, 2020, 1, .	6.8	10
125	LEED, Energy Savings, and Carbon Abatement: Related but Not Synonymous. Environmental Science & Technology, 2011, 45, 1757-1758.	10.0	9
126	Estimating Impacts and Tradeâ€offs in Solar Geoengineering Scenarios With a Moist Energy Balance Model. Geophysical Research Letters, 2020, 47, e2020GL087290.	4.0	9

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127	Elicitation of US and Chinese expert judgments show consistent views on solar geoengineering. Humanities and Social Sciences Communications, 2021, 8, .	2.9	9
128	Mortality tradeoff between air quality and skin cancer from changes in stratospheric ozone. Environmental Research Letters, 2018, 13, 034035.	5.2	8
129	OPTIMAL CLIMATE POLICY IN 3D: MITIGATION, CARBON REMOVAL, AND SOLAR GEOENGINEERING. Climate Change Economics, 2021, 12, .	5.0	8
130	Airborne interferometer for atmospheric emission and solar absorption. Applied Optics, 2001, 40, 5463.	2.1	7
131	Designing a Radiative Antidote to CO₂. Geophysical Research Letters, 2021, 48, .	4.0	7
132	Geoengineering: The world's largest control problem. , 2014, , .		6
133	Solar geoengineering research on the U.S. policy agenda: when might its time come?. Environmental Politics, 2022, 31, 498-518.	5.4	6
134	Hydrogen as a Transportation Fuel. Environment, 2001, 43, 43-45.	1.4	5
135	Risk associated with H2S evolution in sour aquifers during CO2 injection. Energy Procedia, 2011, 4, 4117-4123.	1.8	5
136	An Economic Anatomy of Optimal Climate Policy. SSRN Electronic Journal, 0, , .	0.4	5
137	Aerosol Dynamics in the Near Field of the SCoPEx Stratospheric Balloon Experiment. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2020JD033438.	3.3	3
138	Developing a Plumeâ€inâ€Grid Model for Plume Evolution in the Stratosphere. Journal of Advances in Modeling Earth Systems, 2022, 14, .	3.8	3
139	The Fate of an Engineered Planet. Scientific American, 2012, 308, 34-36.	1.0	2
140	The Wabamun Area Sequestration Project (WASP): A multidisciplinary study of gigaton scale CO2 storage in a deep saline carbonate aquifer. Energy Procedia, 2011, 4, 4793-4797.	1.8	1
141	Modeling the effects of climate engineering. Science, 2016, 352, 1526-1527.	12.6	1
142	Carbon storage: the economic efficiency of storing CO2 in leaky reservoirs. , 2004, , 165-182.		1
143	Parametric Insurance for Solar Geoengineering: Insights from the Pacific Catastrophe Risk Assessment and Financing Initiative. Global Policy, 2021, 12, 97-107.	1.7	1
144	The value of information about solar geoengineering and the two-sided cost of bias. Climate Policy, 2023, 23, 355-365.	5.1	0