Charles D Koven

List of Publications by Year
in descending order

131 papers	19,977 citations	22153 59 h-index	12946 131 g-index
187 all docs	187 docs citations	187 times ranked	19328 citing authors

#	Article	IF	Citations
1	Climate change and the permafrost carbon feedback. Nature, 2015, 520, 171-179.	27.8	2,369
2	Greening of the Earth and its drivers. Nature Climate Change, 2016, 6, 791-795.	18.8	1,675
3	Estimated stocks of circumpolar permafrost carbon with quantified uncertainty ranges and identified data gaps. Biogeosciences, 2014, 11, 6573-6593.	3.3	1,079
4	Permafrost carbon-climate feedbacks accelerate global warming. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 14769-14774.	7.1	742
5	The Community Land Model Version 5: Description of New Features, Benchmarking, and Impact of Forcing Uncertainty. Journal of Advances in Modeling Earth Systems, 2019, 11, 4245-4287.	3.8	692
6	Global Carbon Budget 2015. Earth System Science Data, 2015, 7, 349-396.	9.9	616
7	Vegetation demographics in Earth System Models: A review of progress and priorities. Global Change Biology, 2018, 24, 35-54.	9.5	478
8	Global carbon budget 2014. Earth System Science Data, 2015, 7, 47-85.	9.9	463
9	Carbon release through abrupt permafrost thaw. Nature Geoscience, 2020, 13, 138-143.	12.9	434
10	Spring temperature change and its implication in the change of vegetation growth in North America from 1982 to 2006. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 1240-1245.	7.1	432
11	Plant responses to increasing CO ₂ reduce estimates of climate impacts on drought severity. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 10019-10024.	7.1	399
12	The effect of vertically resolved soil biogeochemistry and alternate soil C and N models on C dynamics of CLM4. Biogeosciences, 2013, 10, 7109-7131.	3.3	359
13	Toward more realistic projections of soil carbon dynamics by Earth system models. Global Biogeochemical Cycles, 2016, 30, 40-56.	4.9	343
14	Drivers and mechanisms of tree mortality in moist tropical forests. New Phytologist, 2018, 219, 851-869.	7.3	341
15	Analysis of Permafrost Thermal Dynamics and Response to Climate Change in the CMIP5 Earth System Models. Journal of Climate, 2013, 26, 1877-1900.	3.2	326
16	Global carbon budget 2013. Earth System Science Data, 2014, 6, 235-263.	9.9	311
17	Multi-scale predictions of massive conifer mortality due to chronic temperature rise. Nature Climate Change, 2016, 6, 295-300.	18.8	296
18	Dependence of the evolution of carbon dynamics in the northern permafrost region on the trajectory of climate change. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 3882-3887.	7.1	296

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19	Biogenic carbon and anthropogenic pollutants combine to form a cooling haze over the southeastern United States. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 8835-8840.	7.1	286
20	A framework for benchmarking land models. Biogeosciences, 2012, 9, 3857-3874.	3.3	267
21	Field information links permafrost carbon to physical vulnerabilities of thawing. Geophysical Research Letters, 2012, 39, .	4.0	265
22	An assessment of the carbon balance of Arctic tundra: comparisons among observations, process models, and atmospheric inversions. Biogeosciences, 2012, 9, 3185-3204.	3.3	258
23	Expert assessment of vulnerability of permafrost carbon to climate change. Climatic Change, 2013, 119, 359-374.	3.6	257
24	Carbonâ€“concentration and carbonâ€“climate feedbacks in CMIP6 models and their comparison to CMIP5 models. Biogeosciences, 2020, 17, 4173-4222.	3.3	255
25	Permafrost collapse is accelerating carbon release. Nature, 2019, 569, 32-34.	27.8	237
26	Permafrost carbonâˆ'climate feedback is sensitive to deep soil carbon decomposability but not deep soil nitrogen dynamics. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 3752-3757.	7.1	233
27	Perspectives on the Future of Land Surface Models and the Challenges of Representing Complex Terrestrial Systems. Journal of Advances in Modeling Earth Systems, 2020, 12, e2018MS001453.	3.8	199
28	Higher climatological temperature sensitivity of soil carbon in cold than warm climates. Nature Climate Change, 2017, 7, 817-822.	18.8	195
29	Taking off the training wheels: the properties of a dynamic vegetation model without climate envelopes, CLM4.5(ED). Geoscientific Model Development, 2015, 8, 3593-3619.	3.6	192
30	C4MIP â€" The Coupled Climateâ€"Carbon Cycle Model Intercomparison Project: experimental protocol for CMIP6. Geoscientific Model Development, 2016, 9, 2853-2880.	3.6	186
31	The International Land Model Benchmarking (ILAMB) System: Design, Theory, and Implementation. Journal of Advances in Modeling Earth Systems, 2018, 10, 2731-2754.	3.8	175
32	A simplified, data-constrained approach to estimate the permafrost carbonâ€“climate feedback. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2015, 373, 20140423.	3.4	149
33	A new data set for estimating organic carbon storage to 3 m depth in soils of the northern circumpolar permafrost region. Earth System Science Data, 2013, 5, 393-402.	9.9	148
34	Large inert carbon pool in the terrestrial biosphere during the Last Glacial Maximum. Nature Geoscience, 2012, 5, 74-79.	12.9	145
35	On the formation of highâ€latitude soil carbon stocks: Effects of cryoturbation and insulation by organic matter in a land surface model. Geophysical Research Letters, 2009, 36, .	4.0	132
36	Spatial heterogeneity and environmental predictors of permafrost region soil organic carbon stocks. Science Advances, 2021, 7, .	10.3	130

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37	Global wetland contribution to 2000â€“2012 atmospheric methane growth rate dynamics. Environmental Research Letters, 2017, 12, 094013.	5.2	129
38	Multiple soil nutrient competition between plants, microbes, and mineral surfaces: model development, parameterization, and example applications in several tropical forests. Biogeosciences, 2016, 13, 341-363.	3.3	125
39	Carbon cycle confidence and uncertainty: Exploring variation among soil biogeochemical models. Global Change Biology, 2018, 24, 1563-1579.	9.5	122
40	Variability in the sensitivity among model simulations of permafrost and carbon dynamics in the permafrost region between 1960 and 2009. Global Biogeochemical Cycles, 2016, 30, 1015-1037.	4.9	116
41	Valley formation and methane precipitation rates on Titan. Journal of Geophysical Research, 2006, 111, .	3.3	104
42	Historical and future perspectives of global soil carbon response to climate and land-use changes. Tellus, Series B: Chemical and Physical Meteorology, 2022, 62, 700.	1.6	103
43	The changing carbon cycle at Mauna Loa Observatory. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 4249-4254.	7.1	101
44	Reconciling global-model estimates and country reporting of anthropogenic forest CO2 sinks. Nature Climate Change, 2018, 8, 914-920.	18.8	101
45	How the insulating properties of snow affect soil carbon distribution in the continental panâ€Arctic area. Journal of Geophysical Research, 2012, 117, .	3.3	97
46	Representing leaf and root physiological traits in CLM improves global carbon and nitrogen cycling predictions. Journal of Advances in Modeling Earth Systems, 2016, 8, 598-613.	3.8	93
47	Carbon cycle uncertainty in the Alaskan Arctic. Biogeosciences, 2014, 11, 4271-4288.	3.3	92
48	Climate-CH₄ feedback from wetlands and its interaction with the climate-CO₂ feedback. Biogeosciences, 2011, 8, 2137-2157.	3.3	90
49	Is there warming in the pipeline? A multi-model analysis of the Zero Emissions Commitment from CO₂. Biogeosciences, 2020, 17, 2987-3016.	3.3	87
50	Soil moisture and hydrology projections of the permafrost region â€“ a model intercomparison. Cryosphere, 2020, 14, 445-459.	3.9	85
51	Benchmarking and parameter sensitivity of physiological and vegetation dynamics using the Functionally Assembled Terrestrial Ecosystem Simulator (FATES) at Barro Colorado Island, Panama. Biogeosciences, 2020, 17, 3017-3044.	3.3	82
52	Controls on terrestrial carbon feedbacks by productivity versus turnover in the CMIP5 Earth System Models. Biogeosciences, 2015, 12, 5211-5228.	3.3	81
53	20thÂcentury changes in carbon isotopes and water-use efficiency: tree-ring-based evaluation of the CLM4.5 and LPX-Bern models. Biogeosciences, 2017, 14, 2641-2673.	3.3	81
54	Forest response to rising CO2 drives zonally asymmetric rainfall change over tropical land. Nature Climate Change, 2018, 8, 434-440.	18.8	80

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55	Carbon loss from northern circumpolar permafrost soils amplified by rhizosphere priming. Nature Geoscience, 2020, 13, 560-565.	12.9	72
56	Inferring dust composition from wavelength-dependent absorption in Aerosol Robotic Network (AERONET) data. Journal of Geophysical Research, 2006, 111, .	3.3	71
57	Parametric Controls on Vegetation Responses to Biogeochemical Forcing in the CLM5. Journal of Advances in Modeling Earth Systems, 2019, 11, 2879-2895.	3.8	69
58	Empirical estimates to reduce modeling uncertainties of soil organic carbon in permafrost regions: a review of recent progress and remaining challenges. Environmental Research Letters, 2013, 8, 035020.	5.2	68
59	Effects of Soil Moisture on the Responses of Soil Temperatures to Climate Change in Cold Regions*. Journal of Climate, 2013, 26, 3139-3158.	3.2	68
60	Opportunities and challenges in using remaining carbon budgets to guide climate policy. Nature Geoscience, 2020, 13, 769-779.	12.9	68
61	Estimating the Permafrost-Carbon Climate Response in the CMIP5 Climate Models Using a Simplified Approach. Journal of Climate, 2013, 26, 4897-4909.	3.2	67
62	Matrix approach to land carbon cycle modeling: A case study with the Community Land Model. Global Change Biology, 2018, 24, 1394-1404.	9.5	64
63	PeRL: aÂcircum-Arctic Permafrost Region Pond andÂLakeÂdatabase. Earth System Science Data, 2017, 9, 317-348.	9.9	62
64	A global traitâ€based approach to estimate leaf nitrogen functional allocation from observations. Ecological Applications, 2017, 27, 1421-1434.	3.8	59
65	Beyond Static Benchmarking: Using Experimental Manipulations to Evaluate Land Model Assumptions. Global Biogeochemical Cycles, 2019, 33, 1289-1309.	4.9	59
66	Increased rainfall stimulates permafrost thaw across a variety of Interior Alaskan boreal ecosystems. Npj Climate and Atmospheric Science, 2020, 3, .	6.8	59
67	Modelling sub-grid wetland in the ORCHIDEE global land surface model: evaluation against river discharges and remotely sensed data. Geoscientific Model Development, 2012, 5, 941-962.	3.6	58
68	Land-use and land-cover change carbon emissions between 1901 and 2012 constrained by biomass observations. Biogeosciences, 2017, 14, 5053-5067.	3.3	58
69	An observational constraint on stomatal function in forests: evaluating coupled carbon and water vapor exchange with carbon isotopes in the Community Land Model (CLM4.5). Biogeosciences, 2016, 13, 5183-5204.	3.3	57
70	The Zero Emissions Commitment Model Intercomparison Project (ZECMIP) contribution to C4MIP: quantifying committed climate changes following zero carbon emissions. Geoscientific Model Development, 2019, 12, 4375-4385.	3.6	56
71	CMIP5 Models Predict Rapid and Deep Soil Warming Over the 21st Century. Journal of Geophysical Research G: Biogeosciences, 2020, 125, e2019JG005266.	3.0	56
72	Boreal carbon loss due to poleward shift in low-carbon ecosystems. Nature Geoscience, 2013, 6, 452-456.	12.9	55

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73	Evaluating the Community Land Model (CLM4.5) at a coniferous forest site in northwestern United States using flux and carbon-isotope measurements. Biogeosciences, 2017, 14, 4315-4340.	3.3	54
74	Observed allocations of productivity and biomass, and turnover times in tropical forests are not accurately represented in CMIP5 Earth system models. Environmental Research Letters, 2015, 10, 064017.	5.2	51
75	Hydraulicallyâ€vulnerable trees survive on deepâ€water access during droughts in a tropical forest. New Phytologist, 2021, 231, 1798-1813.	7.3	51
76	CLM4-BeTR, a generic biogeochemical transport and reaction module for CLM4: model development, evaluation, and application. Geoscientific Model Development, 2013, 6, 127-140.	3.6	50
77	A spatial emergent constraint on the sensitivity of soil carbon turnover to global warming. Nature Communications, 2020, 11, 5544.	12.8	50
78	Vulnerability of Amazon forests to storm-driven tree mortality. Environmental Research Letters, 2018, 13, 054021.	5.2	49
79	Identifying global dust source areas using highâ€resolution land surface form. Journal of Geophysical Research, 2008, 113, .	3.3	48
80	A Direct Estimate of the Seasonal Cycle of Evapotranspiration over the Amazon Basin. Journal of Hydrometeorology, 2017, 18, 2173-2185.	1.9	48
81	Terrestrial ecosystem model performance in simulating productivity and its vulnerability to climate change in the northern permafrost region. Journal of Geophysical Research G: Biogeosciences, 2017, 122, 430-446.	3.0	47
82	Characterisation of the Permafrost Carbon Pool. Permafrost and Periglacial Processes, 2013, 24, 146-155.	3.4	46
83	Detecting the permafrost carbon feedback: talik formation and increased cold-season respiration as precursors to sink-to-source transitions. Cryosphere, 2018, 12, 123-144.	3.9	46
84	Earlier leaf-out warms air in the north. Nature Climate Change, 2020, 10, 370-375.	18.8	45
85	Arctic Soil Governs Whether Climate Change Drives Global Losses or Gains in Soil Carbon. Geophysical Research Letters, 2019, 46, 14486-14495.	4.0	44
86	Controls on winter ecosystem respiration in temperate and boreal ecosystems. Biogeosciences, 2011, 8, 2009-2025.	3.3	42
87	Variation in hydroclimate sustains tropical forest biomass and promotes functional diversity. New Phytologist, 2018, 219, 932-946.	7.3	41
88	The terrestrial carbon budget of South and Southeast Asia. Environmental Research Letters, 2016, 11, 105006.	5.2	39
89	Evaluation of airâ€"soil temperature relationships simulated by land surface models during winter across the permafrost region. Cryosphere, 2016, 10, 1721-1737.	3.9	38
90	Warming increased bark beetleâ€induced tree mortality by 30% during an extreme drought in California. Global Change Biology, 2022, 28, 509-523.	9.5	36

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91	Process-level model evaluation: a snow and heat transfer metric. Cryosphere, 2017, 11, 989-996.	3.9	34
92	Detecting regional patterns of changing CO ₂ flux in Alaska. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 7733-7738.	7.1	33
93	Plant Regrowth as a Driver of Recent Enhancement of Terrestrial CO₂ Uptake. Geophysical Research Letters, 2018, 45, 4820-4830.	4.0	32
94	Divergent patterns of experimental and model-derived permafrost ecosystem carbon dynamics in response to Arctic warming. Environmental Research Letters, 2018, 13, 105002.	5.2	31
95	Diagnostic and model dependent uncertainty of simulated Tibetan permafrost area. Cryosphere, 2016, 10, 287-306.	3.9	29
96	Land use change and El NiÃ±o-Southern Oscillation drive decadal carbon balance shifts in Southeast Asia. Nature Communications, 2018, 9, 1154.	12.8	28
97	Role of CO₂, climate and land use in regulating the seasonal amplitude increase of carbon fluxes in terrestrial ecosystems: a multimodel analysis. Biogeosciences, 2016, 13, 5121-5137.	3.3	26
98	Assessment of model estimates of land-atmosphere CO₂ exchange across Northern Eurasia. Biogeosciences, 2015, 12, 4385-4405.	3.3	25
99	Size Distributions of Arctic Waterbodies Reveal Consistent Relations in Their Statistical Moments in Space and Time. Frontiers in Earth Science, 2019, 7, .	1.8	25
100	The carbon cycle in Mexico: past, present and future of C stocks and fluxes. Biogeosciences, 2016, 13, 223-238.	3.3	24
101	A multi-scale comparison of modeled and observed seasonal methane emissions in northern wetlands. Biogeosciences, 2016, 13, 5043-5056.	3.3	24
102	Toward improved model structures for analyzing priming: potential pitfalls of using bulk turnover time. Global Change Biology, 2015, 21, 4298-4302.	9.5	23
103	Plant Physiological Responses to Rising CO₂ Modify Simulated Daily Runoff Intensity With Implications for Globalâ€Scale Flood Risk Assessment. Geophysical Research Letters, 2018, 45, 12,457.	4.0	23
104	The Central Amazon Biomass Sink Under Current and Future Atmospheric CO₂: Predictions From Bigâ€Leaf and Demographic Vegetation Models. Journal of Geophysical Research G: Biogeosciences, 2020, 125, e2019JG005500.	3.0	23
105	Climateâ€Driven Limits to Future Carbon Storage in California's Wildland Ecosystems. AGU Advances, 2021, 2, e2021AV000384.	5.4	21
106	Recent California tree mortality portends future increase in drought-driven forest die-off. Environmental Research Letters, 2020, 15, 124040.	5.2	20
107	Seasonal circulation and Mauna Loa CO2variability. Journal of Geophysical Research, 2006, 111, .	3.3	19
108	Assessing climate change impacts on live fuel moisture and wildfire risk using a hydrodynamic vegetation model. Biogeosciences, 2021, 18, 4005-4020.	3.3	19

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109	The potential for structural errors in emergent constraints. Earth System Dynamics, 2021, 12, 899-918.	7.1	19
110	Observed and Simulated Sensitivities of Spring Greenup to Preseason Climate in Northern Temperate and Boreal Regions. Journal of Geophysical Research G: Biogeosciences, 2018, 123, 60-78.	3.0	18
111	Forest responses to simulated elevated CO₂ under alternate hypotheses of sizeâ€•and ageâ€dependent mortality. Global Change Biology, 2020, 26, 5734-5753.	9.5	18
112	Simulated high-latitude soil thermal dynamics during the past 4 decades. Cryosphere, 2016, 10, 179-192.	3.9	17
113	Species-Specific Shifts in Diurnal Sap Velocity Dynamics and Hysteretic Behavior of Ecophysiological Variables During the 2015â€“2016 El NiÃ±o Event in the Amazon Forest. Frontiers in Plant Science, 2019, 10, 830.	3.6	17
114	Disentangling the Effects of Vapor Pressure Deficit and Soil Water Availability on Canopy Conductance in a Seasonal Tropical Forest During the 2015 El NiÃ±o Drought. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2021JD035004.	3.3	17
115	Multi-century dynamics of the climate and carbon cycle under both high and net negative emissions scenarios. Earth System Dynamics, 2022, 13, 885-909.	7.1	17
116	Estimation of Permafrost SOC Stock and Turnover Time Using a Land Surface Model With Vertical Heterogeneity of Permafrost Soils. Global Biogeochemical Cycles, 2020, 34, e2020GB006585.	4.9	13
117	Heterogeneous spring phenology shifts affected by climate: supportive evidence from two remotely sensed vegetation indices. Environmental Research Communications, 2019, 1, 091004.	2.3	12
118	Non-uniform seasonal warming regulates vegetation greening and atmospheric CO ₂ amplification over northern lands. Environmental Research Letters, 2018, 13, 124008.	5.2	11
119	Assessing impacts of selective logging on water, energy, and carbon budgets and ecosystem dynamics in Amazon forests using the Functionally Assembled Terrestrial Ecosystem Simulator. Biogeosciences, 2020, 17, 4999-5023.	3.3	11
120	Demographic composition, not demographic diversity, predicts biomass and turnover across temperate and tropical forests. Global Change Biology, 2022, 28, 2895-2909.	9.5	8
121	Modeling the Joint Effects of Vegetation Characteristics and Soil Properties on Ecosystem Dynamics in a Panama Tropical Forest. Journal of Advances in Modeling Earth Systems, 2022, 14, .	3.8	8
122	Reconciling Precipitation with Runoff: Observed Hydrological Change in the Midlatitudes. Journal of Hydrometeorology, 2015, 16, 2403-2420.	1.9	7
123	Are Landâ€Use Change Emissions in Southeast Asia Decreasing or Increasing?. Global Biogeochemical Cycles, 2022, 36, .	4.9	7
124	Leaf Trait Plasticity Alters Competitive Ability and Functioning of Simulated Tropical Trees in Response to Elevated Carbon Dioxide. Global Biogeochemical Cycles, 2021, 35, e2020GB006807.	4.9	6
125	Short communication: a new dataset for estimating organic carbon storage to 3 m depth in soils of the northern circumpolar permafrost region. , 0, , .		6
126	Capturing functional strategies and compositional dynamics in vegetation demographic models. Biogeosciences, 2021, 18, 4473-4490.	3.3	5

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127	Soil moisture thresholds explain a shift from light-limited to water-limited sap velocity in the Central Amazon during the 2015â€"16 El NiÃ±o drought. Environmental Research Letters, 2022, 17, 064023.	5.2	5
128	Expanding Use of Plant Trait Observation in Earth System Models. Eos, 2016, 97, .	0.1	4
129	Implementing a New Rubber Plant Functional Type in the Community Land Model (CLM5) Improves Accuracy of Carbon and Water Flux Estimation. Land, 2022, 11, 183.	2.9	3
130	Guidelines for Publicly Archiving Terrestrial Model Data to Enhance Usability, Intercomparison, and Synthesis. Data Science Journal, 2022, 21, 3.	1.3	3
131	The Rainfall Sensitivity of Tropical Net Primary Production in CMIP5 Twentieth- and Twenty-First-Century Simulations*. Journal of Climate, 2015, 28, 9313-9331.	3.2	1