Trevor F Keenan

List of Publications by Year in Descending Order

122 papers	8,818 citations	51 h-index	93 g-index
143 ext. papers	11,465 ext. citations	12.2 avg, IF	6.47 L-index

#	Paper	IF	Citations
122	Rising CO and warming reduce global canopy demand for nitrogen.. *New Phytologist*, **2022**,	9.8	4
121	CO fertilization of terrestrial photosynthesis inferred from site to global scales.. *Proceedings of the National Academy of Sciences of the United States of America*, **2022**, 119, e2115627119	11.5	3
120	Tropical extreme droughts drive long-term increase in atmospheric CO growth rate variability.. *Nature Communications*, **2022**, 13, 1193	17.4	0
119	The limits of forest carbon sequestration.. *Science*, **2022**, 376, 692-693	33.3	0
118	Elevated CO moderates the impact of climate change on future bamboo distribution in Madagascar. *Science of the Total Environment*, **2021**, 810, 152235	10.2	0
117	Multifaceted characteristics of dryland aridity changes in a warming world. *Nature Reviews Earth & Environment*, **2021**, 2, 232-250	30.2	57
116	A trade-off between plant and soil carbon storage under elevated CO. *Nature*, **2021**, 591, 599-603	50.4	78
115	A reporting format for leaf-level gas exchange data and metadata. *Ecological Informatics*, **2021**, 61, 101232	4.2	11
114	Substantial hysteresis in emergent temperature sensitivity of global wetland CH emissions. *Nature Communications*, **2021**, 12, 2266	17.4	10
113	Reflections and projections on a decade of climate science. *Nature Climate Change*, **2021**, 11, 279-285	21.4	3
112	Midwest US Croplands Determine Model Divergence in North American Carbon Fluxes. *AGU Advances*, **2021**, 2, e2020AV000310	5.4	2
111	Integrating the evidence for a terrestrial carbon sink caused by increasing atmospheric CO. *New Phytologist*, **2021**, 229, 2413-2445	9.8	94
110	Once Upon a Time, in AmeriFlux. *Journal of Geophysical Research G: Biogeosciences*, **2021**, 126, e2020JG006148	3.7	2
109	Ten new insights in climate science 2020 – a horizon scan. *Global Sustainability*, **2021**, 4,	5.4	7
108	Soil moisture–atmosphere feedbacks mitigate declining water availability in drylands. *Nature Climate Change*, **2021**, 11, 38-44	21.4	41
107	Eco-evolutionary optimality as a means to improve vegetation and land-surface models. *New Phytologist*, **2021**, 231, 2125-2141	9.8	10
106	Global variation in the fraction of leaf nitrogen allocated to photosynthesis. *Nature Communications*, **2021**, 12, 4866	17.4	5

105	The three major axes of terrestrial ecosystem function. *Nature*, **2021**, 598, 468-472	50.4	8
104	Exacerbated drought impacts on global ecosystems due to structural overshoot. *Nature Ecology and Evolution*, **2021**, 5, 1490-1498	12.3	10
103	Comment on "Recent global decline of CO fertilization effects on vegetation photosynthesis". *Science*, **2021**, 373, eabg4420	33.3	7
102	A constraint on historic growth in global photosynthesis due to increasing CO. *Nature*, **2021**, 600, 253-258	50.4	5
101	Mechanisms underlying leaf photosynthetic acclimation to warming and elevated CO as inferred from least-cost optimality theory. *Global Change Biology*, **2020**, 26, 5202-5216	11.4	22
100	Partitioning net carbon dioxide fluxes into photosynthesis and respiration using neural networks. *Global Change Biology*, **2020**, 26, 5235-5253	11.4	18
99	P-model v1.0: an optimality-based light use efficiency model for simulating ecosystem gross primary production. *Geoscientific Model Development*, **2020**, 13, 1545-1581	6.3	32
98	Acclimation of leaf respiration consistent with optimal photosynthetic capacity. *Global Change Biology*, **2020**, 26, 2573	11.4	37
97	Contrasting Regional Carbon Cycle Responses to Seasonal Climate Anomalies Across the East-West Divide of Temperate North America. *Global Biogeochemical Cycles*, **2020**, 34, e2020GB006598	5.9	6
96	An optimality-based model explains seasonal variation in C3 plant photosynthetic capacity. *Global Change Biology*, **2020**, 26, 6493-6510	11.4	14
95	Carbon budget of the Harvard Forest Long-Term Ecological Research site: pattern, process, and response to global change. *Ecological Monographs*, **2020**, 90, e01423	9	26
94	Global evidence for the acclimation of ecosystem photosynthesis to light. *Nature Ecology and Evolution*, **2020**, 4, 1351-1357	12.3	7
93	Incorporating Spatial Variations in Parameters for Improvements of an Evapotranspiration Model. *Journal of Geophysical Research G: Biogeosciences*, **2020**, 125, e2019JG005504	3.7	3
92	On quantifying the apparent temperature sensitivity of plant phenology. *New Phytologist*, **2020**, 225, 1033-1040	9.8	27
91	Ecosystem aridity and atmospheric CO. *Science*, **2020**, 368, 251-252	33.3	7
90	Field-experiment constraints on the enhancement of the terrestrial carbon sink by CO2 fertilization. *Nature Geoscience*, **2019**, 12, 809-814	18.3	33
89	P-model v1.0: An optimality-based light use efficiency model for simulating ecosystem gross primary production **2019**,		1
88	Recent Warming Has Resulted in Smaller Gains in Net Carbon Uptake in Northern High Latitudes. *Journal of Climate*, **2019**, 32, 5849-5863	4.4	3

87	Improved estimates of global terrestrial photosynthesis using information on leaf chlorophyll content. *Global Change Biology*, **2019**, 25, 2499-2514	11.4	50
86	Leaf age effects on the spectral predictability of leaf traits in Amazonian canopy trees. *Science of the Total Environment*, **2019**, 666, 1301-1315	10.2	12
85	Air temperature optima of vegetation productivity across global biomes. *Nature Ecology and Evolution*, **2019**, 3, 772-779	12.3	128
84	Drought impacts on terrestrial primary production underestimated by satellite monitoring. *Nature Geoscience*, **2019**, 12, 264-270	18.3	154
83	Observed and modelled historical trends in the water-use efficiency of plants and ecosystems. *Global Change Biology*, **2019**, 25, 2242-2257	11.4	49
82	Widespread inhibition of daytime ecosystem respiration. *Nature Ecology and Evolution*, **2019**, 3, 407-415	12.3	60
81	Growth and opportunities in networked synthesis through AmeriFlux. *New Phytologist*, **2019**, 222, 1685-1687	9.8	4
80	Nitrogen and phosphorus constrain the CO2 fertilization of global plant biomass. *Nature Climate Change*, **2019**, 9, 684-689	21.4	125
79	FLUXNET-CH4 Synthesis Activity: Objectives, Observations, and Future Directions. *Bulletin of the American Meteorological Society*, **2019**, 100, 2607-2632	6.1	77
78	Global photosynthetic capacity is optimized to the environment. *Ecology Letters*, **2019**, 22, 506-517	10	80
77	Merging a mechanistic enzymatic model of soil heterotrophic respiration into an ecosystem model in two AmeriFlux sites of northeastern USA. *Agricultural and Forest Meteorology*, **2018**, 252, 155-166	5.8	27
76	Quantifying soil moisture impacts on light use efficiency across biomes. *New Phytologist*, **2018**, 218, 1430-1449	9.8	103
75	Carbon fluxes and interannual drivers in a temperate forest ecosystem assessed through comparison of top-down and bottom-up approaches. *Agricultural and Forest Meteorology*, **2018**, 256-257, 420-430	5.8	22
74	Drought timing influences the legacy of tree growth recovery. *Global Change Biology*, **2018**, 24, 3546-3559	11.4	83
73	Tracking vegetation phenology across diverse North American biomes using PhenoCam imagery. *Scientific Data*, **2018**, 5, 180028	8.2	187
72	Greening of the land surface in the world's cold regions consistent with recent warming. *Nature Climate Change*, **2018**, 8, 825-828	21.4	78
71	Model-based analysis of the impact of diffuse radiation on CO2 exchange in a temperate deciduous forest. *Agricultural and Forest Meteorology*, **2018**, 249, 377-389	5.8	23
70	The impact of the 2015/2016 El Niño on global photosynthesis using satellite remote sensing. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2018**, 373,	5.8	20

69	The Terrestrial Carbon Sink. *Annual Review of Environment and Resources*, **2018**, 43, 219-243	17.2	83
68	Synthetic ozone deposition and stomatal uptake at flux tower sites. *Biogeosciences*, **2018**, 15, 5395-5413	4.6	14
67	Thinning Can Reduce Losses in Carbon Use Efficiency and Carbon Stocks in Managed Forests Under Warmer Climate. *Journal of Advances in Modeling Earth Systems*, **2018**, 10, 2427-2452	7.1	31
66	Climate controls over ecosystem metabolism: insights from a fifteen-year inductive artificial neural network synthesis for a subalpine forest. *Oecologia*, **2017**, 184, 25-41	2.9	17
65	Forest Eco-Physiological Models: Water Use and Carbon Sequestration. *Managing Forest Ecosystems* , **2017**, 81-102	0.7	7
64	Interannual variability of ecosystem carbon exchange: From observation to prediction. *Global Ecology and Biogeography*, **2017**, 26, 1225-1237	6.1	42
63	The impact of alternative trait-scaling hypotheses for the maximum photosynthetic carboxylation rate (V) on global gross primary production. *New Phytologist*, **2017**, 215, 1370-1386	9.8	82
62	Photosynthetic responses to altitude: an explanation based on optimality principles. *New Phytologist*, **2017**, 213, 976-982	9.8	45
61	Ecosystem fluxes of hydrogen in a mid-latitude forest driven by soil microorganisms and plants. *Global Change Biology*, **2017**, 23, 906-919	11.4	11
60	Linking plant functional trait plasticity and the large increase in forest water use efficiency. *Journal of Geophysical Research G: Biogeosciences*, **2017**, 122, 2393-2408	3.7	35
59	Hunting Data Rogues at Scale: Data Quality Control for Observational Data in Research Infrastructures **2017**,		3
58	Towards a universal model for carbon dioxide uptake by plants. *Nature Plants*, **2017**, 3, 734-741	11.5	139
57	Reduced streamflow in water-stressed climates consistent with CO2 effects on vegetation. *Nature Climate Change*, **2016**, 6, 75-78	21.4	146
56	Global leaf trait estimates biased due to plasticity in the shade. *Nature Plants*, **2016**, 3, 16201	11.5	83
55	Recent pause in the growth rate of atmospheric CO due to enhanced terrestrial carbon uptake. *Nature Communications*, **2016**, 7, 13428	17.4	195
54	Limited effect of ozone reductions on the 20-year photosynthesis trend at Harvard forest. *Global Change Biology*, **2016**, 22, 3750-3759	11.4	15
53	Terrestrial Carbon Cycle Variability. *F1000Research*, **2016**, 5,	3.6	33
52	Carbon uptake and water use in woodlands and forests in southern Australia during an extreme heat wave event in the Angry Summer of 2012/2013. *Biogeosciences*, **2016**, 13, 5947-5964	4.6	39

51	Reviews and syntheses: Australian vegetation phenology: new insights from satellite remote sensing and digital repeat photography. *Biogeosciences*, **2016**, 13, 5085-5102	4.6	55
50	Short-term favorable weather conditions are an important control of interannual variability in carbon and water fluxes. *Journal of Geophysical Research G: Biogeosciences*, **2016**, 121, 2186-2198	3.7	42
49	Vegetation plays an important role in mediating future water resources. *Environmental Research Letters*, **2016**, 11, 094022	6.2	14
48	Productivity of North American grasslands is increased under future climate scenarios despite rising aridity. *Nature Climate Change*, **2016**, 6, 710-714	21.4	99
47	Warm spring reduced carbon cycle impact of the 2012 US summer drought. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 5880-5	11.5	232
46	Satellite based estimates underestimate the effect of CO2 fertilization on net primary productivity. *Nature Climate Change*, **2016**, 6, 892-893	21.4	52
45	Phenology: Spring greening in a warming world. *Nature*, **2015**, 526, 48-9	50.4	15
44	A worldwide analysis of within-canopy variations in leaf structural, chemical and physiological traits across plant functional types. *New Phytologist*, **2015**, 205, 973-993	9.8	228
43	Predictability of the terrestrial carbon cycle. *Global Change Biology*, **2015**, 21, 1737-51	11.4	136
42	Influence of ENSO and the NAO on terrestrial carbon uptake in the Texas-northern Mexico region. *Global Biogeochemical Cycles*, **2015**, 29, 1247-1265	5.9	26
41	Probing the past 30-year phenology trend of US deciduous forests. *Biogeosciences*, **2015**, 12, 4693-4709	4.6	34
40	Reassessing global change research priorities in mediterranean terrestrial ecosystems: how far have we come and where do we go from here?. *Global Ecology and Biogeography*, **2015**, 24, 25-43	6.1	95
39	The timing of autumn senescence is affected by the timing of spring phenology: implications for predictive models. *Global Change Biology*, **2015**, 21, 2634-2641	11.4	172
38	Photosynthetic responses to stress in Mediterranean evergreens: Mechanisms and models. *Environmental and Experimental Botany*, **2014**, 103, 24-41	5.9	63
37	Tracking forest phenology and seasonal physiology using digital repeat photography: a critical assessment **2014**, 24, 1478-89		153
36	Net carbon uptake has increased through warming-induced changes in temperate forest phenology. *Nature Climate Change*, **2014**, 4, 598-604	21.4	442
35	The role of data assimilation in predictive ecology. *Ecosphere*, **2014**, 5, art65	3.1	52
34	Keenan et al. reply. *Nature*, **2014**, 507, E2-3	50.4	4

33	Forest ecosystem changes from annual methane source to sink depending on late summer water balance. *Geophysical Research Letters*, **2014**, 41, 673-679	4.9	36
32	A tale of two springs: using recent climate anomalies to characterize the sensitivity of temperate forest phenology to climate change. *Environmental Research Letters*, **2014**, 9, 054006	6.2	67
31	Cork oak physiological responses to manipulated water availability in a Mediterranean woodland. *Agricultural and Forest Meteorology*, **2014**, 184, 230-242	5.8	56
30	A fully integrated isoprenoid emissions model coupling emissions to photosynthetic characteristics. *Plant, Cell and Environment*, **2014**, 37, 1965-80	8.4	51
29	Increase in forest water-use efficiency as atmospheric carbon dioxide concentrations rise. *Nature*, **2013**, 499, 324-7	50.4	719
28	Drought Influences the Accuracy of Simulated Ecosystem Fluxes: A Model-Data Meta-analysis for Mediterranean Oak Woodlands. *Ecosystems*, **2013**, 16, 749-764	3.9	37
27	Evaluation of continental carbon cycle simulations with North American flux tower observations. *Ecological Monographs*, **2013**, 83, 531-556	9	63
26	Age, allocation and availability of nonstructural carbon in mature red maple trees. *New Phytologist*, **2013**, 200, 1145-55	9.8	129
25	Rate my data: quantifying the value of ecological data for the development of models of the terrestrial carbon cycle **2013**, 23, 273-86		63
24	Seasonal dynamics and age of stemwood nonstructural carbohydrates in temperate forest trees. *New Phytologist*, **2013**, 197, 850-861	9.8	247
23	Geographical patterns of congruence and incongruence between correlative species distribution models and a process-based ecophysiological growth model. *Journal of Biogeography*, **2013**, 40, 1928-1938	4.1	19
22	Climate change, phenology, and phenological control of vegetation feedbacks to the climate system. *Agricultural and Forest Meteorology*, **2013**, 169, 156-173	5.8	1121
21	A unifying conceptual model for the environmental responses of isoprene emissions from plants. *Annals of Botany*, **2013**, 112, 1223-38	4.1	54
20	Using model-data fusion to interpret past trends, and quantify uncertainties in future projections, of terrestrial ecosystem carbon cycling. *Global Change Biology*, **2012**, 18, 2555-2569	11.4	135
19	Ecological impacts of a widespread frost event following early spring leaf-out. *Global Change Biology*, **2012**, 18, 2365-2377	11.4	168
18	Terrestrial biosphere model performance for inter-annual variability of land-atmosphere CO2 exchange. *Global Change Biology*, **2012**, 18, 1971-1987	11.4	191
17	On the uncertainty of phenological responses to climate change, and implications for a terrestrial biosphere model. *Biogeosciences*, **2012**, 9, 2063-2083	4.6	115
16	Measures of light in studies on light-driven plant plasticity in artificial environments. *Frontiers in Plant Science*, **2012**, 3, 156	6.2	11

15	Circadian control of global isoprene emissions. *Nature Geoscience*, **2012**, 5, 435-435	18.3	10
14	Predicting the future of forests in the Mediterranean under climate change, with niche- and process-based models: CO2 matters!. *Global Change Biology*, **2011**, 17, 565-579	11.4	155
13	Overlooking the canopy: The importance of canopy structure in scaling isoprenoid emissions from the leaf to the landscape. *Ecological Modelling*, **2011**, 222, 737-747	3	20
12	The model-data fusion pitfall: assuming certainty in an uncertain world. *Oecologia*, **2011**, 167, 587-97	2.9	91
11	The importance of mesophyll conductance in regulating forest ecosystem productivity during drought periods. *Global Change Biology*, **2010**, 16, 1019-1034	11.4	69
10	Process-based simulation of seasonality and drought stress in monoterpene emission models. *Biogeosciences*, **2010**, 7, 257-274	4.6	27
9	Soil water stress and coupled photosynthesis–conductance models: Bridging the gap between conflicting reports on the relative roles of stomatal, mesophyll conductance and biochemical limitations to photosynthesis. *Agricultural and Forest Meteorology*, **2010**, 150, 443-453	5.8	110
8	Improved understanding of drought controls on seasonal variation in Mediterranean forest canopy CO₂ and water fluxes through combined in situ measurements and ecosystem modelling. *Biogeosciences*, **2009**, 6, 1423-1444	4.6	75
7	Assessing the resilience of Mediterranean holm oaks to disturbances using selective thinning. *Acta Oecologica*, **2009**, 35, 849-854	1.7	35
6	Seasonality of monoterpene emission potentials in Quercus ilex and Pinus pinea: Implications for regional VOC emissions modeling. *Journal of Geophysical Research*, **2009**, 114,		36
5	Process based inventory of isoprenoid emissions from European forests: model comparisons, current knowledge and uncertainties. *Atmospheric Chemistry and Physics*, **2009**, 9, 4053-4076	6.8	73
4	Probing the past 30 year phenology trend of US deciduous forests		3
3	On the uncertainty of phenological responses to climate change and its implication for terrestrial biosphere models		7
2	A universal model for carbon dioxide uptake by plants		3
1	Large divergence in tropical hydrological projections caused by model spread in vegetation responses to elevated CO 2. *Earth's Future*,	7.9	1