Markus Reichstein

List of Publications by Year
in descending order

304 papers	62,024 citations	1606 105 h-index	1022 235 g-index
365 all docs	365 docs citations	365 times ranked	38476 citing authors

#	Article	IF	Citations
1	Europe-wide reduction in primary productivity caused by the heat and drought in 2003. Nature, 2005, 437, 529-533.	13.7	3,245
2	On the separation of net ecosystem exchange into assimilation and ecosystem respiration: review and improved algorithm. Global Change Biology, 2005, 11, 1424-1439.	4.2	2,778
3	Deep learning and process understanding for data-driven Earth system science. Nature, 2019, 566, 195-204.	13.7	2,176
4	Terrestrial Gross Carbon Dioxide Uptake: Global Distribution and Covariation with Climate. Science, 2010, 329, 834-838.	6.0	2,056
5	TRY â€“ a global database of plant traits. Global Change Biology, 2011, 17, 2905-2935.	4.2	2,002
6	Recent decline in the global land evapotranspiration trend due to limited moisture supply. Nature, 2010, 467, 951-954.	13.7	1,771
7	Climate extremes and the carbon cycle. Nature, 2013, 500, 287-295.	13.7	1,357
8	Reduction of forest soil respiration in response to nitrogen deposition. Nature Geoscience, 2010, 3, 315-322.	5.4	1,254
9	Terrestrial ecosystem carbon dynamics and climate feedbacks. Nature, 2008, 451, 289-292.	13.7	1,245
10	Towards a standardized processing of Net Ecosystem Exchange measured with eddy covariance technique: algorithms and uncertainty estimation. Biogeosciences, 2006, 3, 571-583.	1.3	1,206
11	Modelling the role of agriculture for the 20th century global terrestrial carbon balance. Global Change Biology, 2007, 13, 679-706.	4.2	1,133
12	Changes in Climate Extremes and their Impacts on the Natural Physical Environment. , 2012, , 109-230.		1,080
13	TRY plant trait database â€“ enhanced coverage and open access. Global Change Biology, 2020, 26, 119-188.	4.2	1,038
14	The dominant role of semi-arid ecosystems in the trend and variability of the land CO ₂ sink. Science, 2015, 348, 895-899.	6.0	1,002
15	Consequences of More Extreme Precipitation Regimes for Terrestrial Ecosystems. BioScience, 2008, 58, 811-821.	2.2	959
16	Global patterns of land-atmosphere fluxes of carbon dioxide, latent heat, and sensible heat derived from eddy covariance, satellite, and meteorological observations. Journal of Geophysical Research, 2011, 116, .	3.3	933
17	Net carbon dioxide losses of northern ecosystems in response to autumn warming. Nature, 2008, 451, 49-52.	13.7	930
18	CO₂ balance of boreal, temperate, and tropical forests derived from a global database. Global Change Biology, 2007, 13, 2509-2537.	4.2	863

#	Article	IF	Citations
19	Separation of net ecosystem exchange into assimilation and respiration using a light response curve approach: critical issues and global evaluation. Global Change Biology, 2010, 16, 187-208.	4.2	752
20	Influence of spring and autumn phenological transitions on forest ecosystem productivity. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 3227-3246.	1.8	751
21	Comprehensive comparison of gap-filling techniques for eddy covariance net carbon fluxes. Agricultural and Forest Meteorology, 2007, 147, 209-232.	1.9	744
22	Effects of climate extremes on the terrestrial carbon cycle: concepts, processes and potential future impacts. Global Change Biology, 2015, 21, 2861-2880.	4.2	683
23	Global covariation of carbon turnover times with climate in terrestrial ecosystems. Nature, 2014, 514, 213-217.	13.7	648
24	The FLUXNET2015 dataset and the ONEFlux processing pipeline for eddy covariance data. Scientific Data, 2020, 7, 225.	2.4	646
25	Global assessment of trends in wetting and drying over land. Nature Geoscience, 2014, 7, 716-721.	5.4	613
26	Land use/land cover changes and climate: modeling analysis and observational evidence. Wiley Interdisciplinary Reviews: Climate Change, 2011, 2, 828-850.	3.6	585
27	Towards global empirical upscaling of FLUXNET eddy covariance observations: validation of a model tree ensemble approach using a biosphere model. Biogeosciences, 2009, 6, 2001-2013.	1.3	547
28	Improving canopy processes in the Community Land Model version 4 (CLM4) using global flux fields empirically inferred from FLUXNET data. Journal of Geophysical Research, 2011, 116, .	3.3	522
29	Evidence for soil water control on carbon and water dynamics in European forests during the extremely dry year: 2003. Agricultural and Forest Meteorology, 2007, 143, 123-145.	1.9	509
30	Modeling temporal and large-scale spatial variability of soil respiration from soil water availability, temperature and vegetation productivity indices. Global Biogeochemical Cycles, 2003, 17, n/a-n/a.	1.9	501
31	Basic and extensible post-processing of eddy covariance flux data with REddyProc. Biogeosciences, 2018, 15, 5015-5030.	1.3	493
32	Contrasting response of European forest and grassland energy exchange to heatwaves. Nature Geoscience, 2010, 3, 722-727.	5.4	491
33	Reduction of ecosystem productivity and respiration during the European summer 2003 climate anomaly: a joint flux tower, remote sensing and modelling analysis. Global Change Biology, 2007, 13, 634-651.	4.2	486
34	Compensatory water effects link yearly global land CO2 sink changes to temperature. Nature, 2017, 541, 516-520.	13.7	480
35	Severe drought effects on ecosystem CO2 and H2 O fluxes at three Mediterranean evergreen sites: revision of current hypotheses?. Global Change Biology, 2002, 8, 999-1017.	4.2	460
36	Predicting carbon dioxide and energy fluxes across global FLUXNET sites with regression algorithms. Biogeosciences, 2016, 13, 4291-4313.	1.3	447

#	Article	IF	Citations
37	Global Convergence in the Temperature Sensitivity of Respiration at Ecosystem Level. Science, 2010, 329, 838-840.	6.0	446
38	Drought and ecosystem carbon cycling. Agricultural and Forest Meteorology, 2011, 151, 765-773.	1.9	446
39	A data-driven analysis of energy balance closure across FLUXNET research sites: The role of landscape scale heterogeneity. Agricultural and Forest Meteorology, 2013, 171-172, 137-152.	1.9	424
40	Temporal and amongâ€site variability of inherent water use efficiency at the ecosystem level. Global Biogeochemical Cycles, 2009, 23, .	1.9	422
41	Inferring causation from time series in Earth system sciences. Nature Communications, 2019, 10, 2553.	5.8	411
42	Physiological and physicochemical controls on foliar volatile organic compound emissions. Trends in Plant Science, 2004, 9, 180-186.	4.3	405
43	Temperature dependence of organic matter decomposition: a critical review using literature data analyzed with different models. Biology and Fertility of Soils, 1998, 27, 258-262.	2.3	393
44	Nutrient availability as the key regulator of global forest carbon balance. Nature Climate Change, 2014, 4, 471-476.	8.1	383
45	Persistence of soil organic carbon caused by functional complexity. Nature Geoscience, 2020, 13, 529-534.	5.4	363
46	Trend Change Detection in NDVI Time Series: Effects of Inter-Annual Variability and Methodology. Remote Sensing, 2013, 5, 2113-2144.	1.8	354
47	The FLUXCOM ensemble of global land-atmosphere energy fluxes. Scientific Data, 2019, 6, 74.	2.4	337
48	Scaling carbon fluxes from eddy covariance sites to globe: synthesis and evaluation of the FLUXCOM approach. Biogeosciences, 2020, 17, 1343-1365.	1.3	323
49	Enhanced seasonal CO ₂ exchange caused by amplified plant productivity in northern ecosystems. Science, 2016, 351, 696-699.	6.0	319
50	Evaluation of global observations-based evapotranspiration datasets and IPCC AR4 simulations. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	312
51	Benchmark products for land evapotranspiration: LandFlux-EVAL multi-data set synthesis. Hydrology and Earth System Sciences, 2013, 17, 3707-3720.	1.9	310
52	Global intercomparison of 12 land surface heat flux estimates. Journal of Geophysical Research, 2011, 116, .	3.3	309
53	Improving land surface models with FLUXNET data. Biogeosciences, 2009, 6, 1341-1359.	1.3	308
54	A regional perspective on trends in continental evaporation. Geophysical Research Letters, 2009, 36, .	1.5	273

#	Article	IF	Citations
55	Fertile forests produce biomass more efficiently. Ecology Letters, 2012, 15, 520-526.	3.0	273
56	A framework for benchmarking land models. Biogeosciences, 2012, 9, 3857-3874.	1.3	267
57	Ecosystem respiration in two Mediterranean evergreen Holm Oak forests: drought effects and decomposition dynamics. Functional Ecology, 2002, 16, 27-39.	1.7	260
58	Inter-annual variability of net and gross ecosystem carbon fluxes: A review. Agricultural and Forest Meteorology, 2018, 249, 520-533.	1.9	257
59	Linking plant and ecosystem functional biogeography. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 13697-13702.	3.3	255
60	Climate and vegetation controls on the surface water balance: Synthesis of evapotranspiration measured across a global network of flux towers. Water Resources Research, 2012, 48, .	1.7	254
61	Cross-site evaluation of eddy covariance GPP and RE decomposition techniques. Agricultural and Forest Meteorology, 2008, 148, 821-838.	1.9	248
62	The European carbon balance. Part 3: forests. Global Change Biology, 2010, 16, 1429-1450.	4.2	247
63	An analysis of soil respiration across northern hemisphere temperate ecosystems. Biogeochemistry, 2005, 73, 29-70.	1.7	241
64	Soil moistureâ€“atmosphere feedback dominates land carbon uptake variability. Nature, 2021, 592, 65-69.	13.7	241
65	Assimilation exceeds respiration sensitivity to drought: A FLUXNET synthesis. Global Change Biology, 2010, 16, 657-670.	4.2	238
66	Direct and seasonal legacy effects of the 2018 heat wave and drought on European ecosystem productivity. Science Advances, 2020, 6, eaba2724.	4.7	229
67	The moisture response of soil heterotrophic respiration: interaction with soil properties. Biogeosciences, 2012, 9, 1173-1182.	1.3	224
68	Determinants of terrestrial ecosystem carbon balance inferred from European eddy covariance flux sites. Geophysical Research Letters, 2007, 34, .	1.5	223
69	Does the temperature sensitivity of decomposition of soil organic matter depend upon water content, soil horizon, or incubation time?. Global Change Biology, 2005, 11, 1754-1767.	4.2	205
70	A few extreme events dominate global interannual variability in gross primary production. Environmental Research Letters, 2014, 9, 035001.	2.2	194
71	Soil respiration across scales: The importance of a modelâ€“data integration framework for data interpretation. Journal of Plant Nutrition and Soil Science, 2008, 171, 344-354.	1.1	191
72	Soil water repellency and its implications for organic matter decomposition - is there a link to extreme climatic events?. Global Change Biology, 2011, 17, 2640-2656.	4.2	191

#	Article	IF	Citations
73	Current systematic carbon-cycle observations and the need for implementing a policy-relevant carbon observing system. Biogeosciences, 2014, 11, 3547-3602.	1.3	189
74	Global spatiotemporal distribution of soil respiration modeled using a global database. Biogeosciences, 2015, 12, 4121-4132.	1.3	187
75	Impact of largeâ€scale climate extremes on biospheric carbon fluxes: An intercomparison based on MsTMIP data. Global Biogeochemical Cycles, 2014, 28, 585-600.	1.9	181
76	Both priming and temperature sensitivity of soil organic matter decomposition depend on microbial biomass â€“ An incubation study. Soil Biology and Biochemistry, 2013, 57, 739-748.	4.2	180
77	Drought controls over conductance and assimilation of a Mediterranean evergreen ecosystem: scaling from leaf to canopy. Global Change Biology, 2003, 9, 1813-1824.	4.2	179
78	Explaining temporal variation in soil CO2 efflux in a mature spruce forest in Southern Germany. Soil Biology and Biochemistry, 2003, 35, 1467-1483.	4.2	174
79	The effect of soil water content, soil temperature, soil pH-value and the root mass on soil CO2 efflux â€“ A modified model. Plant and Soil, 2005, 268, 21-33.	1.8	174
80	Divergent vegetation growth responses to the 2003 heat wave in the Swiss Alps. Geophysical Research Letters, 2005, 32, n/a-n/a.	1.5	174
81	Reconciling leaf physiological traits and canopy flux data: Use of the TRY and FLUXNET databases in the Community Land Model version 4. Journal of Geophysical Research, 2012, 117, .	3.3	169
82	Codominant water control on global interannual variability and trends in land surface phenology and greenness. Global Change Biology, 2015, 21, 3414-3435.	4.2	165
83	Earlier springs decrease peak summer productivity in North American boreal forests. Environmental Research Letters, 2013, 8, 024027.	2.2	164
84	Uncertainties of modeling gross primary productivity over Europe: A systematic study on the effects of using different drivers and terrestrial biosphere models. Global Biogeochemical Cycles, 2007, 21, .	1.9	163
85	A unified vegetation index for quantifying the terrestrial biosphere. Science Advances, 2021, 7, .	4.7	160
86	Plant functional traits and canopy structure control the relationship between photosynthetic <scp>CO</scp>₂ uptake and farâ€red sunâ€induced fluorescence in a Mediterranean grassland under different nutrient availability. New Phytologist, 2017, 214, 1078-1091.	3.5	158
87	Controls on the emission of plant volatiles through stomata: Differential sensitivity of emission rates to stomatal closure explained. Journal of Geophysical Research, 2003, 108, .	3.3	154
88	The COVID-19 lockdowns: a window into the Earth System. Nature Reviews Earth & Environment, 2020, 1, 470-481.	12.2	153
89	Reviews and syntheses: Turning the challenges of partitioning ecosystem evaporation and transpiration into opportunities. Biogeosciences, 2019, 16, 3747-3775.	1.3	150
90	Increasing impact of warm droughts on northern ecosystem productivity over recent decades. Nature Climate Change, 2021, 11, 772-779.	8.1	148

#	Article	IF	Citations
91	Temperature dependence of carbon mineralisation: conclusions from a long-term incubation of subalpine soil samples. Soil Biology and Biochemistry, 2000, 32, 947-958.	4.2	144
92	Inverse modeling of seasonal drought effects on canopy CO2/H2O exchange in three Mediterranean ecosystems. Journal of Geophysical Research, 2003, 108, .	3.3	141
93	The REFLEX project: Comparing different algorithms and implementations for the inversion of a terrestrial ecosystem model against eddy covariance data. Agricultural and Forest Meteorology, 2009, 149, 1597-1615.	1.9	138
94	Impacts of droughts and extreme-temperature events on gross primary production and ecosystem respiration: a systematic assessment across ecosystems and climate zones. Biogeosciences, 2018, 15, 1293-1318.	1.3	137
95	Analyzing the causes and spatial pattern of the European 2003 carbon flux anomaly using seven models. Biogeosciences, 2008, 5, 561-583.	1.3	136
96	Productivity, Respiration, and Light-Response Parameters of World Grassland and Agroecosystems Derived From Flux-Tower Measurements. Rangeland Ecology and Management, 2010, 63, 16-39.	1.1	133
97	Biosphere-atmosphere exchange of CO₂ in relation to climate: a cross-biome analysis across multiple time scales. Biogeosciences, 2009, 6, 2297-2312.	1.3	132
98	Frontiers and challenges in soil respiration research: from measurements to model-data integration. Biogeochemistry, 2011, 102, 1-13.	1.7	132
99	<scp>BHPMF</scp> â€“ a hierarchical <scp>B</scp>ayesian approach to gapâ€filling and trait prediction for macroecology and functional biogeography. Global Ecology and Biogeography, 2015, 24, 1510-1521.	2.7	132
100	Drought, Heat, and the Carbon Cycle: a Review. Current Climate Change Reports, 2018, 4, 266-286.	2.8	132
101	Physicsâ€Constrained Machine Learning of Evapotranspiration. Geophysical Research Letters, 2019, 46, 14496-14507.	1.5	129
102	Statistical properties of random CO2 flux measurement uncertainty inferred from model residuals. Agricultural and Forest Meteorology, 2008, 148, 38-50.	1.9	128
103	Semiempirical modeling of abiotic and biotic factors controlling ecosystem respiration across eddy covariance sites. Global Change Biology, 2011, 17, 390-409.	4.2	128
104	Contribution of sorption, DOC transport and microbial interactions to the 14C age of a soil organic carbon profile: Insights from a calibrated process model. Soil Biology and Biochemistry, 2015, 88, 390-402.	4.2	122
105	On the temporal upscaling of evapotranspiration from instantaneous remote sensing measurements to 8-day mean daily-sums. Agricultural and Forest Meteorology, 2012, 152, 212-222.	1.9	121
106	Similarities in ground- and satellite-based NDVI time series and their relationship to physiological activity of a Scots pine forest in Finland. Remote Sensing of Environment, 2004, 93, 225-237.	4.6	118
107	Fluxes all of the time? A primer on the temporal representativeness of FLUXNET. Journal of Geophysical Research G: Biogeosciences, 2017, 122, 289-307.	1.3	114
108	Implications of the carbon cycle steady state assumption for biogeochemical modeling performance and inverse parameter retrieval. Global Biogeochemical Cycles, 2008, 22, .	1.9	113

#	Article	IF	Citations
109	Influences of observation errors in eddy flux data on inverse model parameter estimation. Biogeosciences, 2008, 5, 1311-1324.	1.3	112
110	Temperature sensitivity of decomposition in relation to soil organic matter pools: critique and outlook. Biogeosciences, 2005, 2, 317-321.	1.3	110
111	Are ecological gradients in seasonal Q10 of soil respiration explained by climate or by vegetation seasonality?. Soil Biology and Biochemistry, 2010, 42, 1728-1734.	4.2	106
112	Evapotranspiration and soil water content in a scrub-oak woodland under carbon dioxide enrichment. Global Change Biology, 2002, 8, 289-298.	4.2	105
113	Towards physiologically meaningful waterâ€use efficiency estimates from eddy covariance data. Global Change Biology, 2018, 24, 694-710.	4.2	105
114	Mean annual GPP of Europe derived from its water balance. Geophysical Research Letters, 2007, 34, .	1.5	104
115	A methodology to derive global maps of leaf traits using remote sensing and climate data. Remote Sensing of Environment, 2018, 218, 69-88.	4.6	104
116	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.	0.8	103
117	Soils apart from equilibrium â€“ consequences for soil carbon balance modelling. Biogeosciences, 2007, 4, 125-136.	1.3	102
118	Detection and attribution of large spatiotemporal extreme events in Earth observation data. Ecological Informatics, 2013, 15, 66-73.	2.3	101
119	Soil respiration at mean annual temperature predicts annual total across vegetation types and biomes. Biogeosciences, 2010, 7, 2147-2157.	1.3	99
120	The modelâ€“data fusion pitfall: assuming certainty in an uncertain world. Oecologia, 2011, 167, 587-597.	0.9	99
121	Recent shift in Eurasian boreal forest greening response may be associated with warmer and drier summers. Geophysical Research Letters, 2014, 41, 1995-2002.	1.5	99
122	The three major axes of terrestrial ecosystem function. Nature, 2021, 598, 468-472.	13.7	99
123	Widespread inhibition of daytime ecosystem respiration. Nature Ecology and Evolution, 2019, 3, 407-415.	3.4	98
124	Ecosystem transpiration and evaporation: Insights from three water flux partitioning methods across FLUXNET sites. Global Change Biology, 2020, 26, 6916-6930.	4.2	97
125	Stomatal Constraints May Affect Emission of Oxygenated Monoterpenoids from the Foliage of Pinus pinea. Plant Physiology, 2002, 130, 1371-1385.	2.3	96
126	Tracking seasonal drought effects on ecosystem light use efficiency with satellite-based PRI in a Mediterranean forest. Remote Sensing of Environment, 2009, 113, 1101-1111.	4.6	96

#	Article	IF	Citations
127	The response of ecosystem waterâ€use efficiency to rising atmospheric <scp>CO</scp>₂ concentrations: sensitivity and largeâ€scale biogeochemical implications. New Phytologist, 2017, 213, 1654-1666.	3.5	92
128	Global distribution of groundwaterâ€vegetation spatial covariation. Geophysical Research Letters, 2017, 44, 4134-4142.	1.5	91
129	Evaluating the convergence between eddy-covariance and biometric methods for assessing carbon budgets of forests. Nature Communications, 2016, 7, 13717.	5.8	90
130	Climatic and soil factors explain the two-dimensional spectrum of global plant trait variation. Nature Ecology and Evolution, 2022, 6, 36-50.	3.4	89
131	Controls on the emission of plant volatiles through stomata: A sensitivity analysis. Journal of Geophysical Research, 2003, 108, .	3.3	88
132	On the assignment of prior errors in Bayesian inversions of CO2surface fluxes. Geophysical Research Letters, 2006, 33, .	1.5	86
133	Diagnostic assessment of European gross primary production. Global Change Biology, 2008, 14, 2349-2364.	4.2	86
134	Stand age and species richness dampen interannual variation of ecosystem-level photosynthetic capacity. Nature Ecology and Evolution, 2017, 1, 48.	3.4	85
135	Upscaled diurnal cycles of landâ€“atmosphere fluxes: a new global half-hourly data product. Earth System Science Data, 2018, 10, 1327-1365.	3.7	85
136	Colimitation of decomposition by substrate and decomposers â€“ a comparison of model formulations. Biogeosciences, 2008, 5, 749-759.	1.3	84
137	Estimation of forest aboveground biomass and uncertainties by integration of field measurements, airborne LiDAR, and SAR and optical satellite data in Mexico. Carbon Balance and Management, 2018, 13, 5.	1.4	84
138	OptIC project: An intercomparison of optimization techniques for parameter estimation in terrestrial biogeochemical models. Journal of Geophysical Research, 2007, 112, .	3.3	82
139	Evaluation of seasonal variation of MODIS derived leaf area index at two European deciduous broadleaf forest sites. Remote Sensing of Environment, 2005, 96, 475-484.	4.6	81
140	Linking flux network measurements to continental scale simulations: ecosystem carbon dioxide exchange capacity under nonâ€waterâ€stressed conditions. Global Change Biology, 2007, 13, 734-760.	4.2	81
141	Identification of vegetation and soil carbon pools out of equilibrium in a process model via eddy covariance and biometric constraints. Global Change Biology, 2010, 16, 2813-2829.	4.2	77
142	Extreme events in gross primary production: a characterization across continents. Biogeosciences, 2014, 11, 2909-2924.	1.3	77
143	Machine-learning-based evidence and attribution mapping of 100,000 climate impact studies. Nature Climate Change, 2021, 11, 966-972.	8.1	77
144	SOMPROF: A vertically explicit soil organic matter model. Ecological Modelling, 2011, 222, 1712-1730.	1.2	75

#	Article	IF	Citations
145	A novel bias correction methodology for climate impact simulations. Earth System Dynamics, 2016, 7, 71-88.	2.7	75
146	Coverage of high biomass forests by the ESA BIOMASS mission under defense restrictions. Remote Sensing of Environment, 2017, 196, 154-162.	4.6	75
147	Ecosystem impacts of climate extremes crucially depend on the timing. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 5768-5770.	3.3	73
148	An outlook on the Sub-Saharan Africa carbon balance. Biogeosciences, 2009, 6, 2193-2205.	1.3	72
149	Assessing the ability of three land ecosystem models to simulate gross carbon uptake of forests from boreal to Mediterranean climate in Europe. Biogeosciences, 2007, 4, 647-656.	1.3	70
150	Photosynthesis drives anomalies in net carbon-exchange of pine forests at different latitudes. Global Change Biology, 2007, 13, 2110-2127.	4.2	69
151	Uncertainty Quantification. , 2012, , 173-209.		69
152	Widespread increasing vegetation sensitivity to soil moisture. Nature Communications, 2022, 13, .	5.8	69
153	Quantifying the effect of forest age in annual net forest carbon balance. Environmental Research Letters, 2018, 13, 124018.	2.2	67
154	Web-based modelling of energy, water and matter fluxes to support decision making in mesoscale catchmentsâ€“â€“the integrative perspective of GLOWA-Danube. Physics and Chemistry of the Earth, 2003, 28, 621-634.	1.2	66
155	Comparing observations and processâ€based simulations of biosphereâ€atmosphere exchanges on multiple timescales. Journal of Geophysical Research, 2010, 115, .	3.3	66
156	Advances in upscaling of eddy covariance measurements of carbon and water fluxes. Journal of Geophysical Research, 2012, 117, .	3.3	66
157	Effect of spatial sampling from European flux towers for estimating carbon and water fluxes with artificial neural networks. Journal of Geophysical Research G: Biogeosciences, 2015, 120, 1941-1957.	1.3	65
158	Sun-induced chlorophyll fluorescence and photochemical reflectance index improve remote-sensing gross primary production estimates under varying nutrient availability in a typical Mediterranean savanna ecosystem. Biogeosciences, 2015, 12, 6351-6367.	1.3	65
159	Remote sensing of ecosystem light use efficiency with MODIS-based PRI. Biogeosciences, 2011, 8, 189-202.	1.3	64
160	Using Near-Infrared-Enabled Digital Repeat Photography to Track Structural and Physiological Phenology in Mediterranean Treeâ€“Grass Ecosystems. Remote Sensing, 2018, 10, 1293.	1.8	64
161	Impacts of extreme summers on European ecosystems: a comparative analysis of 2003, 2010 and 2018. Philosophical Transactions of the Royal Society B: Biological Sciences, 2020, 375, 20190507.	1.8	64
162	Widespread shift from ecosystem energy to water limitation with climate change. Nature Climate Change, 2022, 12, 677-684.	8.1	64

#	Article	IF	Citations
163	Toward a consistency crossâ€check of eddy covariance fluxâ€“based and biometric estimates of ecosystem carbon balance. Global Biogeochemical Cycles, 2009, 23, .	1.9	61
164	A model analysis of the effects of nonspecific monoterpenoid storage in leaf tissues on emission kinetics and composition in Mediterranean sclerophyllousQuercusspecies. Global Biogeochemical Cycles, 2002, 16, 57-1-57-26.	1.9	60
165	Evaluation of eddy covariance latent heat fluxes with independent lysimeter and sapflow estimates in a Mediterranean savannah ecosystem. Agricultural and Forest Meteorology, 2017, 236, 87-99.	1.9	60
166	Earth system data cubes unravel global multivariate dynamics. Earth System Dynamics, 2020, 11, 201-234.	2.7	59
167	Reviews and syntheses: An empirical spatiotemporal description of the global surfaceâ€“atmosphere carbon fluxes: opportunities and data limitations. Biogeosciences, 2017, 14, 3685-3703.	1.3	58
168	Memory effects of climate and vegetation affecting net ecosystem CO2 fluxes in global forests. PLoS ONE, 2019, 14, e0211510.	1.1	58
169	Where Are Global Vegetation Greening and Browning Trends Significant?. Geophysical Research Letters, 2021, 48, e2020GL091496.	1.5	58
170	Cultivation of a perennial grass for bioenergy on a boreal organic soil â€“ carbon sink or source?. GCB Bioenergy, 2009, 1, 35-50.	2.5	57
171	Contrasting biosphere responses to hydrometeorological extremes: revisiting the 2010 western Russian heatwave. Biogeosciences, 2018, 15, 6067-6085.	1.3	57
172	Coupling Water and Carbon Fluxes to Constrain Estimates of Transpiration: The TEA Algorithm. Journal of Geophysical Research G: Biogeosciences, 2018, 123, 3617-3632.	1.3	56
173	Inferring plant functional diversity from space: the potential of Sentinel-2. Remote Sensing of Environment, 2019, 233, 111368.	4.6	56
174	The interannual variability of Africa's ecosystem productivity: a multi-model analysis. Biogeosciences, 2009, 6, 285-295.	1.3	54
175	Priming and substrate quality interactions in soil organic matter models. Biogeosciences, 2013, 10, 2089-2103.	1.3	53
176	Refining multi-model projections of temperature extremes by evaluation against landâ€“atmosphere coupling diagnostics. Earth System Dynamics, 2017, 8, 387-403.	2.7	53
177	Influence of physiological phenology on the seasonal pattern of ecosystem respiration in deciduous forests. Global Change Biology, 2015, 21, 363-376.	4.2	52
178	Climateâ€“biosphere interactions in a more extreme world. New Phytologist, 2014, 202, 356-359.	3.5	51
179	Heatwave breaks down the linearity between sunâ€induced fluorescence and gross primary production. New Phytologist, 2022, 233, 2415-2428.	3.5	51
180	Modeling the vertical soil organic matter profile using Bayesian parameter estimation. Biogeosciences, 2013, 10, 399-420.	1.3	50

#	Article	IF	Citations
181	Partitioning Eddy Covariance Water Flux Components Using Physiological and Micrometeorological Approaches. Journal of Geophysical Research G: Biogeosciences, 2018, 123, 3353-3370.	1.3	50
182	Drivers of spatio-temporal variability of carbon dioxide and energy fluxes in a Mediterranean savanna ecosystem. Agricultural and Forest Meteorology, 2018, 262, 258-278.	1.9	50
183	More floods, fires and cyclones â€" plan for domino effects on sustainability goals. Nature, 2021, 592, 347-349.	13.7	50
184	Aspects of Forest Biomass in the Earth System: Its Role and Major Unknowns. Surveys in Geophysics, 2019, 40, 693-707.	2.1	49
185	Vulnerability of European ecosystems to two compound dry and hot summers in 2018 and 2019. Earth System Dynamics, 2021, 12, 1015-1035.	2.7	49
186	Critical Soil Moisture Derived From Satellite Observations Over Europe. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2019JD031672.	1.2	46
187	On the choice of the driving temperature for eddy-covariance carbon dioxide flux partitioning. Biogeosciences, 2012, 9, 5243-5259.	1.3	45
188	Carbon cycle extremes during the 21st century in CMIP5 models: Future evolution and attribution to climatic drivers. Geophysical Research Letters, 2014, 41, 8853-8861.	1.5	45
189	Adaptation of microbial resource allocation affects modelled long term soil organic matter and nutrient cycling. Soil Biology and Biochemistry, 2017, 115, 322-336.	4.2	44
190	A perspective on Gaussian processes for Earth observation. National Science Review, 2019, 6, 616-618.	4.6	43
191	Characterizing ecosystem-atmosphere interactions from short to interannual time scales. Biogeosciences, 2007, 4, 743-758.	1.3	42
192	Harmonized European Long-Term Climate Data for Assessing the Effect of Changing Temporal Variability on Landâ€"Atmosphere CO₂ Fluxes. Journal of Climate, 2014, 27, 4815-4834.	1.2	42
193	Partitioning net carbon dioxide fluxes into photosynthesis and respiration using neural networks. Global Change Biology, 2020, 26, 5235-5253.	4.2	42
194	Carbon dioxide uptake of a forested region in southwest France derived from airborne CO2and CO measurements in a quasi-Lagrangian experiment. Journal of Geophysical Research, 2004, 109, .	3.3	40
195	Towards hybrid modeling of the global hydrological cycle. Hydrology and Earth System Sciences, 2022, 26, 1579-1614.	1.9	39
196	Footprint of temperature changes in the temperate and boreal forest carbon balance. Geophysical Research Letters, 2009, 36, .	1.5	38
197	The significance of land-atmosphere interactions in the Earth systemâ€"iLEAPS achievements and perspectives. Anthropocene, 2015, 12, 69-84.	1.6	38
198	Effects of mesophyll conductance on vegetation responses to elevated CO₂ concentrations in a land surface model. Global Change Biology, 2019, 25, 1820-1838.	4.2	38

#	Article	IF	Citations
199	The imprint of plants on ecosystem functioning: A data-driven approach. International Journal of Applied Earth Observation and Geoinformation, 2015, 43, 119-131.	1.4	37
200	dimRed and coRanking - Unifying Dimensionality Reduction in R. R Journal, 2018, 10, 342.	0.7	37
201	Partitioning net ecosystem carbon exchange and the carbon isotopic disequilibrium in a subalpine forest. Global Change Biology, 2008, 14, 1785-1800.	4.2	35
202	Towards a global understanding of vegetationâ€“climate dynamics at multiple timescales. Biogeosciences, 2020, 17, 945-962.	1.3	35
203	PIXGRO: A model for simulating the ecosystem CO2 exchange and growth of spring barley. Ecological Modelling, 2006, 190, 260-276.	1.2	33
204	Sustained stimulation of soil respiration after 10 years of experimental warming. Environmental Research Letters, 2009, 4, 024005.	2.2	33
205	Partitioning of Net Fluxes. , 2012, , 263-289.		33
206	How Much CO2 Is Taken Up by the European Terrestrial Biosphere?. Bulletin of the American Meteorological Society, 2017, 98, 665-671.	1.7	33
207	Vegetation modulates the impact of climate extremes on gross primary production. Biogeosciences, 2021, 18, 39-53.	1.3	33
208	Carbon balance assessment of a natural steppe of southern Siberia by multiple constraint approach. Biogeosciences, 2007, 4, 581-595.	1.3	32
209	Contrasting and interacting changes in simulated spring and summer carbon cycle extremes in European ecosystems. Environmental Research Letters, 2017, 12, 075006.	2.2	32
210	Nighttime Flux Correction. , 2012, , 133-157.		31
211	Asymmetric responses of ecosystem productivity to rainfall anomalies vary inversely with mean annual rainfall over the conterminous United States. Global Change Biology, 2020, 26, 6959-6973.	4.2	31
212	Water-stress-induced breakdown of carbonâ€“water relations: indicators from diurnal FLUXNET patterns. Biogeosciences, 2018, 15, 2433-2447.	1.3	30
213	Mesophyll conductance in land surface models: effects on photosynthesis and transpiration. Plant Journal, 2020, 101, 858-873.	2.8	30
214	Revisiting Global Vegetation Controls Using Multiâ€Layer Soil Moisture. Geophysical Research Letters, 2021, 48, e2021GL092856.	1.5	30
215	Estimation of total, direct and diffuse PAR under clear skies in complex alpine terrain of the National Park Berchtesgaden, Germany. Ecological Modelling, 2006, 196, 149-162.	1.2	29
216	A novel probabilistic risk analysis to determine the vulnerability of ecosystems to extreme climatic events. Environmental Research Letters, 2013, 8, 015032.	2.2	29

#	Article	IF	Citations
217	Bayesian calibration of a soil organic carbon model using Î”¹⁴C measurements of soil organic carbon and heterotrophic respiration as joint constraints. Biogeosciences, 2014, 11, 2147-2168.	1.3	29
218	Potential and limitations of inferring ecosystem photosynthetic capacity from leaf functional traits. Ecology and Evolution, 2016, 6, 7352-7366.	0.8	29
219	Humus Forms in the Forest-Alpine Tundra Ecotone at Stillberg (Dischmatal, Switzerland): Spatial Heterogeneity and Classification. Arctic, Antarctic, and Alpine Research, 2000, 32, 21.	0.4	28
220	Comment on Vickers et al.: Self-correlation between assimilation and respiration resulting from flux partitioning of eddy-covariance CO2 fluxes. Agricultural and Forest Meteorology, 2010, 150, 312-314.	1.9	28
221	Oxygen isotope ratios of plant available phosphate in lowland tropical forest soils. Soil Biology and Biochemistry, 2015, 88, 354-361.	4.2	28
222	Advancing the Understanding of Adaptive Capacity of Socialâ€Ecological Systems to Absorb Climate Extremes. Earth's Future, 2020, 8, e2019EF001221.	2.4	28
223	Long-term variations in leaf area index and light extinction in a Fagus sylvatica stand as estimated from global radiation profiles. Theoretical and Applied Climatology, 2004, 79, 225-238.	1.3	27
224	Influences of changing land use and CO2 concentration on ecosystem and landscape level carbon and water balances in mountainous terrain of the Stubai Valley, Austria. Global and Planetary Change, 2009, 67, 29-43.	1.6	27
225	Deciphering the components of regional net ecosystem fluxes following a bottom-up approach for the Iberian Peninsula. Biogeosciences, 2010, 7, 3707-3729.	1.3	27
226	Multivariate anomaly detection for Earth observations: a comparison of algorithms and feature extraction techniques. Earth System Dynamics, 2017, 8, 677-696.	2.7	27
227	Drought and heatwave impacts on semi-arid ecosystems' carbon fluxes along a precipitation gradient. Philosophical Transactions of the Royal Society B: Biological Sciences, 2020, 375, 20190519.	1.8	27
228	Large-scale biospheric drought response intensifies linearly with drought duration in arid regions. Biogeosciences, 2020, 17, 2647-2656.	1.3	27
229	Nutrients and water availability constrain the seasonality of vegetation activity in a Mediterranean ecosystem. Global Change Biology, 2020, 26, 4379-4400.	4.2	27
230	Invited perspectives: A research agenda towards disaster risk management pathways in multi-(hazard-)risk assessment. Natural Hazards and Earth System Sciences, 2022, 22, 1487-1497.	1.5	27
231	Research priorities for global food security under extreme events. One Earth, 2022, 5, 756-766.	3.6	27
232	The use of radiocarbon to constrain current and future soil organic matter turnover and transport in a temperate forest. Journal of Geophysical Research G: Biogeosciences, 2014, 119, 372-391.	1.3	26
233	The importance of radiation for semiempirical water-use efficiency models. Biogeosciences, 2017, 14, 3015-3026.	1.3	25
234	Carbonâ€“water flux coupling under progressive drought. Biogeosciences, 2019, 16, 2557-2572.	1.3	24

#	Article	IF	Citations
235	Humus Forms in the Forest-Alpine Tundra Ecotone at Stillberg (Dischmatal, Switzerland): Spatial Heterogeneity and Classification. Arctic, Antarctic, and Alpine Research, 2000, 32, 21-29.	0.4	22
236	Partitioning net ecosystem exchange of CO₂: A comparison of a Bayesian/isotope approach to environmental regression methods. Journal of Geophysical Research, 2007, 112, .	3.3	22
237	Detecting the critical periods that underpin interannual fluctuations in the carbon balance of European forests. Journal of Geophysical Research, 2010, 115, .	3.3	22
238	The role of trace gas flux networks in the biogeosciences. Eos, 2012, 93, 217-218.	0.1	22
239	Have precipitation extremes and annual totals been increasing in the world's dry regions over the last 60Âyears?. Hydrology and Earth System Sciences, 2017, 21, 441-458.	1.9	22
240	Integrating Aquatic and Terrestrial Perspectives to Improve Insights Into Organic Matter Cycling at the Landscape Scale. Frontiers in Earth Science, 2019, 7, .	0.8	22
241	Constraining Uncertainty in Projected Gross Primary Production With Machine Learning. Journal of Geophysical Research G: Biogeosciences, 2020, 125, e2019JG005619.	1.3	21
242	Impact of temporal precipitation variability on ecosystem productivity. Wiley Interdisciplinary Reviews: Water, 2020, 7, e1481.	2.8	21
243	Net regional ecosystem CO2exchange from airborne and ground-based eddy covariance, land-use maps and weather observations. Global Change Biology, 2007, 13, 548-560.	4.2	20
244	Nitrogen and Phosphorus effect on Sun-Induced Fluorescence and Gross Primary Productivity in Mediterranean Grassland. Remote Sensing, 2019, 11, 2562.	1.8	19
245	State-dependent errors in a land surface model across biomes inferred from eddy covariance observations on multiple timescales. Ecological Modelling, 2012, 246, 11-25.	1.2	18
246	Random errors in carbon and water vapor fluxes assessed with Gaussian Processes. Agricultural and Forest Meteorology, 2013, 178-179, 161-172.	1.9	18
247	Identifying Dynamic Memory Effects on Vegetation State Using Recurrent Neural Networks. Frontiers in Big Data, 2019, 2, 31.	1.8	18
248	Following the Turnover of Soil Bioavailable Phosphate in Mediterranean Savanna by Oxygen Stable Isotopes. Journal of Geophysical Research G: Biogeosciences, 2018, 123, 1850-1862.	1.3	17
249	Apparent ecosystem carbon turnover time: uncertainties and robust features. Earth System Science Data, 2020, 12, 2517-2536.	3.7	17
250	Nâ€‰:â€‰P stoichiometry and habitat effects on Mediterranean savanna seasonal root dynamics. Biogeosciences, 2019, 16, 1883-1901.	1.3	16
251	Combination of energy limitation and sorption capacity explains 14C depth gradients. Soil Biology and Biochemistry, 2020, 148, 107912.	4.2	16
252	senSCOPE: Modeling mixed canopies combining green and brown senesced leaves. Evaluation in a Mediterranean Grassland. Remote Sensing of Environment, 2021, 257, 112352.	4.6	15

#	Article	IF	Citations
253	Improved Multi-Sensor Satellite-Based Aboveground Biomass Estimation by Selecting Temporally Stable Forest Inventory Plots Using NDVI Time Series. Forests, 2016, 7, 169.	0.9	14
254	EarthNet2021: A large-scale dataset and challenge for Earth surface forecasting as a guided video prediction task. , 2021, , .		14
255	Accounting for multiple testing in the analysis of spatio-temporal environmental data. Environmental and Ecological Statistics, 2020, 27, 293-318.	1.9	13
256	How Nitrogen and Phosphorus Availability Change Water Use Efficiency in a Mediterranean Savanna Ecosystem. Journal of Geophysical Research G: Biogeosciences, 2021, 126, e2020JG006005.	1.3	13
257	Contrasting biophysical and societal impacts of hydro-meteorological extremes. Environmental Research Letters, 2022, 17, 014044.	2.2	13
258	Potential of Multi-Temporal ALOS-2 PALSAR-2 ScanSAR Data for Vegetation Height Estimation in Tropical Forests of Mexico. Remote Sensing, 2018, 10, 1277.	1.8	12
259	Summarizing the state of the terrestrial biosphere in few dimensions. Biogeosciences, 2020, 17, 2397-2424.	1.3	12
260	On the Potential of Sentinel-2 for Estimating Gross Primary Production. IEEE Transactions on Geoscience and Remote Sensing, 2022, 60, 1-12.	2.7	12
261	Climate-mediated spatiotemporal variability in terrestrial productivity across Europe. Biogeosciences, 2014, 11, 3057-3068.	1.3	10
262	Nitrification amplifies the decreasing trends of atmospheric oxygen and implies a larger land carbon uptake. Global Biogeochemical Cycles, 2007, 21, n/a-n/a.	1.9	9
263	Response to Comment on â€œGlobal Convergence in the Temperature Sensitivity of Respiration at Ecosystem Levelâ€• Science, 2011, 331, 1265-1265.	6.0	9
264	Modelling Landsurface Time-Series with Recurrent Neural Nets. , 2018, , .		9
265	Reconciling 14 C and minirhizotron-based estimates of fine-root turnover with survival functions. Journal of Plant Nutrition and Soil Science, 2014, 177, 287-296.	1.1	8
266	Preface: Climate extremes and biogeochemical cycles in the terrestrial biosphere: impacts and feedbacks across scales. Biogeosciences, 2015, 12, 4827-4830.	1.3	8
267	Warm Winter, Wet Spring, and an Extreme Response in Ecosystem Functioning on the Iberian Peninsula. Bulletin of the American Meteorological Society, 2018, 99, S80-S85.	1.7	7
268	Technical Note: The Simple Diagnostic Photosynthesis and Respiration Model (SDPRM). Biogeosciences, 2013, 10, 6485-6508.	1.3	6
269	ADVANCING DEEP LEARNING FOR EARTH SCIENCES: FROM HYBRID MODELING TO INTERPRETABILITY. , 2020, , .		6
270	Physics-aware nonparametric regression models for Earth data analysis. Environmental Research Letters, 2022, 17, 054034.	2.2	6

#	Article	IF	Citations
271	Correction to â€œGlobal patterns of landâ€atmosphere fluxes of carbon dioxide, latent heat, and sensible heat derived from eddy covariance, satellite, and meteorological observationsâ€. Journal of Geophysical Research, 2012, 117, .	3.3	5
272	The Low Dimensionality of Development. Social Indicators Research, 2020, 150, 999-1020.	1.4	5
273	Functional convergence of biosphereâ€“atmosphere interactions in response to meteorological conditions. Biogeosciences, 2021, 18, 2379-2404.	1.3	5
274	A Regional Earth System Data Lab for Understanding Ecosystem Dynamics: An Example from Tropical South America. Frontiers in Earth Science, 2021, 9, .	0.8	5
275	Is There a Theoretical Limit to Soil Carbon Storage in Old-Growth Forests? A Model Analysis with Contrasting Approaches. Ecological Studies, 2009, , 267-281.	0.4	5
276	Scaling BVOC Emissions from Leaf to Canopy and Landscape: How Different Are Predictions Based on Contrasting Emission Algorithms?. Tree Physiology, 2013, , 357-390.	0.9	5
277	Ecosystem physio-phenology revealed using circular statistics. Biogeosciences, 2020, 17, 3991-4006.	1.3	5
278	Introduction to Production, Transport, and Emission of Trace Gases from the Vadose Zone to the Atmosphere. Vadose Zone Journal, 2011, 10, 151-155.	1.3	4
279	Predicting Landscapes as Seen from Space from Environmental Conditions. , 2018, , .		4
280	Predicting spatiotemporal variability in radial tree growth at the continental scale with machine learning. , 2022, 1, .		4
281	Identification of characteristic plant co-occurrences in neotropical secondary montane forests. Journal of Plant Ecology, 2009, 2, 31-41.	1.2	3
282	Predicting Landscapes from Environmental Conditions Using Generative Networks. Lecture Notes in Computer Science, 2019, , 203-217.	1.0	3
283	Nonlinear Causal Link Estimation Under Hidden Confounding with an Application to Time Series Anomaly Detection. Lecture Notes in Computer Science, 2019, , 261-273.	1.0	3
284	Timeâ€Scale Dependent Relations Between Earth Observation Based Proxies of Vegetation Productivity. Geophysical Research Letters, 2021, 48, e2021GL093285.	1.5	3
285	Characterizing the Response of Vegetation Cover to Water Limitation in Africa Using Geostationary Satellites. Journal of Advances in Modeling Earth Systems, 2022, 14, .	1.3	3
286	Evergreen broadleaf greenness and its relationship with leaf flushing, aging, and water fluxes. Agricultural and Forest Meteorology, 2022, 323, 109060.	1.9	3
287	Journal club. Nature, 2010, 464, 145-145.	13.7	2
288	Semi-empirical modelling of the response of soil respiration to environmental factors in laboratory and field conditions. , 2010, , 207-220.		2

#	Article	IF	Citations
289	Impact of Climate Variability and Extremes on the Carbon Cycle of the Mediterranean Region. Advances in Global Change Research, 2013, , 31-47.	1.6	2
290	Plantâ€“Environment Interactions Across Multiple Scales. , 2014, , 1-27.		2
291	Reply to 'Uncertain effects of nutrient availability on global forest carbon balance' and 'Data quality and the role of nutrients in forest carbon-use efficiency'. Nature Climate Change, 2015, 5, 960-961.	8.1	2
292	Ranking drivers of global carbon and energy fluxes over land. , 2015, , .		2
293	Depth of understanding. Nature Climate Change, 2017, 7, 762-763.	8.1	2
294	Outlook: Challenges for societal resilience under climate extremes. , 2020, , 341-353.		2
295	A Data-Driven Approach to Partitioning Net Ecosystem Exchange Using a Deep State Space Model. IEEE Access, 2021, 9, 107873-107883.	2.6	2
296	A virtual â€œWerkstattâ€•for digitization in the sciences. Research Ideas and Outcomes, 0, 6, .	1.0	2
297	Vertically Divergent Responses of SOC Decomposition to Soil Moisture in a Changing Climate. Journal of Geophysical Research G: Biogeosciences, 2022, 127, .	1.3	2
298	The role of climate variability and extremes for global terrestrial carbon dynamics: Lessons learnt from multiple observations and experiments. IOP Conference Series: Earth and Environmental Science, 2009, 6, 042006.	0.2	1
299	Carbon management under extremes. Carbon Management, 2012, 3, 113-115.	1.2	1
300	Discovering Differential Equations from Earth Observation Data. , 2020, , .		1
301	Experimental design: scaling up in time and space, and its statistical considerations. , 2010, , 34-48.		0
302	Photosynthesis-Sun Induced Fluorescence Relationship in a Mediterranean Grassland. , 2018, , .		0
303	Assessing the Use of Multiple Constraints and Ancillary Data to Support Scope Model Inversion in a Experimental Grassland. , 2018, , .		0
304	Linking flux network measurements to continental scale simulations: ecosystem carbon dioxide exchange capacity under non-water-stressed conditions. Global Change Biology, 2007, .	4.2	0