Richard A Betts

List of Publications by Year
in descending order

141 papers	30,384 citations	16791 66 h-index	11608 140 g-index
157 all docs	157 docs citations	157 times ranked	32596 citing authors

#	Article	IF	Citations
1	Acceleration of global warming due to carbon-cycle feedbacks in a coupled climate model. Nature, 2000, 408, 184-187.	13.7	3,360
2	Climateâ€“Carbon Cycle Feedback Analysis: Results from the C4MIP Model Intercomparison. Journal of Climate, 2006, 19, 3337-3353.	1.2	2,647
3	Global response of terrestrial ecosystem structure and function to CO2 and climate change: results from six dynamic global vegetation models. Global Change Biology, 2001, 7, 357-373.	4.2	1,718
4	Climate Change, Deforestation, and the Fate of the Amazon. Science, 2008, 319, 169-172.	6.0	1,383
5	Evaluation of the terrestrial carbon cycle, future plant geography and climateâ€carbon cycle feedbacks using five Dynamic Global Vegetation Models (DGVMs). Global Change Biology, 2008, 14, 2015-2039.	4.2	1,097
6	Harmonization of land-use scenarios for the period 1500â€“2100: 600Âyears of global gridded annual land-use transitions, wood harvest, and resulting secondary lands. Climatic Change, 2011, 109, 117-161.	1.7	1,080
7	Offset of the potential carbon sink from boreal forestation by decreases in surface albedo. Nature, 2000, 408, 187-190.	13.7	926
8	The impact of new land surface physics on the GCM simulation of climate and climate sensitivity. Climate Dynamics, 1999, 15, 183-203.	1.7	844
9	Global Carbon Budget 2017. Earth System Science Data, 2018, 10, 405-448.	3.7	801
10	Implications of climate change for agricultural productivity in the early twenty-first century. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 2973-2989.	1.8	733
11	Detection of a direct carbon dioxide effect in continental river runoff records. Nature, 2006, 439, 835-838.	13.7	727
12	The influence of land-use change and landscape dynamics on the climate system: relevance to climate-change policy beyond the radiative effect of greenhouse gases. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2002, 360, 1705-1719.	1.6	636
13	Amazonian forest dieback under climate-carbon cycle projections for the 21st century. Theoretical and Applied Climatology, 2004, 78, 137.	1.3	635
14	Land use/land cover changes and climate: modeling analysis and observational evidence. Wiley Interdisciplinary Reviews: Climate Change, 2011, 2, 828-850.	3.6	585
15	Projected increase in continental runoff due to plant responses to increasing carbon dioxide. Nature, 2007, 448, 1037-1041.	13.7	570
16	Climate change in cities due to global warming and urban effects. Geophysical Research Letters, 2010, 37, .	1.5	566
17	Forecasting the Effects of Global Warming on Biodiversity. BioScience, 2007, 57, 227-236.	2.2	483
18	Carbon residence time dominates uncertainty in terrestrial vegetation responses to future climate and atmospheric CO ₂. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 3280-3285.	3.3	458

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19	Global Changes in Drought Conditions Under Different Levels of Warming. Geophysical Research Letters, 2018, 45, 3285-3296.	1.5	442
20	Assessing the impacts of 1.5â€¯Â°C global warming â€“ simulation protocol of the Inter-Sectoral Impact Model Intercomparison Project (ISIMIP2b). Geoscientific Model Development, 2017, 10, 4321-4345.	1.3	410
21	The role of ecosystem-atmosphere interactions in simulated Amazonian precipitation decrease and forest dieback under global climate warming. Theoretical and Applied Climatology, 2004, 78, 157.	1.3	387
22	Contrasting physiological and structural vegetation feedbacks in climate change simulations. Nature, 1997, 387, 796-799.	13.7	382
23	Increased human and economic losses from river flooding with anthropogenic warming. Nature Climate Change, 2018, 8, 781-786.	8.1	380
24	Explicit Representation of Subgrid Heterogeneity in a GCM Land Surface Scheme. Journal of Hydrometeorology, 2003, 4, 530-543.	0.7	365
25	Simulated resilience of tropical rainforests to CO2-induced climate change. Nature Geoscience, 2013, 6, 268-273.	5.4	358
26	Increasing risk of Amazonian drought due to decreasing aerosol pollution. Nature, 2008, 453, 212-215.	13.7	326
27	Biogeophysical effects of land use on climate: Model simulations of radiative forcing and large-scale temperature change. Agricultural and Forest Meteorology, 2007, 142, 216-233.	1.9	316
28	Climate impacts on European agriculture and water management in the context of adaptation and mitigationâ€"The importance of an integrated approach. Science of the Total Environment, 2010, 408, 5667-5687.	3.9	316
29	Changes in Climate and Land Use Over the Amazon Region: Current and Future Variability and Trends. Frontiers in Earth Science, 2018, 6, .	0.8	259
30	High sensitivity of future global warming to land carbon cycle processes. Environmental Research Letters, 2012, 7, 024002.	2.2	241
31	Rapid worldwide growth of glacial lakes since 1990. Nature Climate Change, 2020, 10, 939-945.	8.1	235
32	Development of regional future climate change scenarios in South America using the Eta CPTEC/HadCM3 climate change projections: climatology and regional analyses for the Amazon, SÃ£o Francisco and the ParanÃ¡ River basins. Climate Dynamics, 2012, 38, 1829-1848.	1.7	232
33	Climate change and the global pattern of moraine-dammed glacial lake outburst floods. Cryosphere, 2018, 12, 1195-1209.	1.5	219
34	Climate change impacts on global agriculture. Climatic Change, 2013, 120, 357-374.	1.7	214
35	Climate and More Sustainable Cities: Climate Information for Improved Planning and Management of Cities (Producers/Capabilities Perspective). Procedia Environmental Sciences, 2010, 1, 247-274.	1.3	211
36	El NiÃ±o and a record CO2 rise. Nature Climate Change, 2016, 6, 806-810.	8.1	208

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37	Gas hydrates: past and future geohazard?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 2369-2393.	1.6	203
38	Plant functional type classification for earth system models: results from the European Space Agency's Land Cover Climate Change Initiative. Geoscientific Model Development, 2015, 8, 2315-2328.	1.3	197
39	Biogeophysical impacts of land use on present-day climate: near-surface temperature change and radiative forcing. Atmospheric Science Letters, 2001, 2, 39-51.	0.8	184
40	Global and Regional Trends and Drivers of Fire Under Climate Change. Reviews of Geophysics, 2022, 60, .	9.0	182
41	The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy. Climate Policy, 2003, 3, 149-157.	2.6	177
42	Environmental consequences of alternative practices for intensifying crop production. Agriculture, Ecosystems and Environment, 2002, 88, 279-290.	2.5	169
43	Realizing the impacts of a 1.5 Â°C warmer world. Nature Climate Change, 2016, 6, 735-737.	8.1	154
44	Committed terrestrial ecosystem changes due to climate change. Nature Geoscience, 2009, 2, 484-487.	5.4	152
45	When could global warming reach 4Â°C?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 67-84.	1.6	149
46	Downscaling of South America present climate driven by 4-member HadCM3 runs. Climate Dynamics, 2012, 38, 635-653.	1.7	142
47	Towards quantifying uncertainty in predictions of Amazon â€˜dieback’â€™. Philosophical Transactions of the Royal Society B: Biological Sciences, 2008, 363, 1857-1864.	1.8	139
48	The future of the Amazon: new perspectives from climate, ecosystem and social sciences. Philosophical Transactions of the Royal Society B: Biological Sciences, 2008, 363, 1729-1735.	1.8	123
49	Importance of vegetation feedbacks in doubled-CO2climate experiments. Journal of Geophysical Research, 2000, 105, 14841-14861.	3.3	120
50	Mountain rock glaciers contain globally significant water stores. Scientific Reports, 2018, 8, 2834.	1.6	110
51	Changes in climate extremes, fresh water availability and vulnerability to food insecurity projected at 1.5Â°C and 2Â°C global warming with a higher-resolution global climate model. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20160452.	1.6	110
52	The impact of natural and anthropogenic forcings on climate and hydrology since 1550. Climate Dynamics, 2006, 28, 3-34.	1.7	106
53	Vegetation-climate feedbacks in a greenhouse world. Philosophical Transactions of the Royal Society B: Biological Sciences, 1998, 353, 29-39.	1.8	96
54	Multi-Model Projections of River Flood Risk in Europe under Global Warming. Climate, 2018, 6, 6.	1.2	94

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55	Contrasting simulated past and future responses of the Amazonian forest to atmospheric change. Philosophical Transactions of the Royal Society B: Biological Sciences, 2004, 359, 539-547.	1.8	92
56	A simulation of the effect of climate change-induced desertification on mineral dust aerosol. Geophysical Research Letters, 2005, 32, n/a-n/a.	1.5	83
57	Research priorities in land use and landâ€cover change for the Earth system and integrated assessment modelling. International Journal of Climatology, 2010, 30, 2118-2128.	1.5	83
58	Comparing Tropical Forest Projections from Two Generations of Hadley Centre Earth System Models, HadGEM2-ES and HadCM3LC. Journal of Climate, 2013, 26, 495-511.	1.2	83
59	Regional temperature and precipitation changes under high-end (â‰¥4 ^{Â°} C) global warming. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 85-98.	1.6	81
60	Implications of land ecosystem-atmosphere interactions for strategies for climate change adaptation and mitigation. Tellus, Series B: Chemical and Physical Meteorology, 2007, 59, 602-615.	0.8	79
61	Using a GCM analogue model to investigate the potential for Amazonian forest dieback. Theoretical and Applied Climatology, 2004, 78, 177.	1.3	76
62	Simulated responses of potential vegetation to doubled-CO2 climate change and feedbacks on near-surface temperature. Global Ecology and Biogeography, 2000, 9, 171-180.	2.7	74
63	Comparing projections of future changes in runoff from hydrological and biome models in ISI-MIP. Earth System Dynamics, 2013, 4, 359-374.	2.7	74
64	The distribution and hydrological significance of rock glaciers in the Nepalese Himalaya. Global and Planetary Change, 2018, 160, 123-142.	1.6	73
65	Self-beneficial effects of vegetation on climate in an ocean-atmosphere general circulation model. Geophysical Research Letters, 1999, 26, 1457-1460.	1.5	72
66	The role of land use change in the recent warming of daily extreme temperatures. Geophysical Research Letters, 2013, 40, 589-594.	1.5	71
67	Climate response to the physiological impact of carbon dioxide on plants in the Met Office Unified Model HadCM3. Climate Dynamics, 2009, 32, 237-249.	1.7	66
68	Global glacier volume projections under high-end climate change scenarios. Cryosphere, 2019, 13, 325-350.	1.5	66
69	Regional contribution to variability and trends of global gross primary productivity. Environmental Research Letters, 2017, 12, 105005.	2.2	65
70	Integrated approaches to climateâ€“crop modelling: needs and challenges. Philosophical Transactions of the Royal Society B: Biological Sciences, 2005, 360, 2049-2065.	1.8	64
71	Uncertainties in the timing of unprecedented climates. Nature, 2014, 511, E3-E5.	13.7	63
72	Pre-industrial-potential and Last Glacial Maximum global vegetation simulated with a coupled climate-biosphere model: diagnosis of bioclimatic relationships. Global and Planetary Change, 2005, 45, 295-312.	1.6	59

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73	Freshwater vulnerability under high end climate change. A pan-European assessment. Science of the Total Environment, 2018, 613-614, 271-286.	3.9	58
74	Global water availability under high-end climate change: A vulnerability based assessment. Global and Planetary Change, 2019, 175, 52-63.	1.6	57
75	The impact of climate change on global river flow in HadGEM1 simulations. Atmospheric Science Letters, 2006, 7, 62-68.	0.8	54
76	Effects of large-scale Amazon forest degradation on climate and air quality through fluxes of carbon dioxide, water, energy, mineral dust and isoprene. Philosophical Transactions of the Royal Society B: Biological Sciences, 2008, 363, 1873-1880.	1.8	52
77	Fire risk in Amazonia due to climate change in the HadCM3 climate model: Potential interactions with deforestation. Global Biogeochemical Cycles, 2008, 22, .	1.9	51
78	Vegetation and climate variability: a GCM modelling study. Climate Dynamics, 2005, 24, 457-467.	1.7	45
79	JULES-crop: a parametrisation of crops in the Joint UK Land Environment Simulator. Geoscientific Model Development, 2015, 8, 1139-1155.	1.3	45
80	Climate and land use change impacts on global terrestrial ecosystems and river flows in the HadGEM2-ES Earth system model using the representative concentration pathways. Biogeosciences, 2015, 12, 1317-1338.	1.3	44
81	Afforestation cools more or less. Nature Geoscience, 2011, 4, 504-505.	5.4	41
82	Photosynthetic productivity and its efficiencies in ISIMIP2a biome models: benchmarking for impact assessment studies. Environmental Research Letters, 2017, 12, 085001.	2.2	41
83	Representation of fire, land-use change and vegetation dynamics in the Joint UK Land Environment Simulator vn4.9 (JULES). Geoscientific Model Development, 2019, 12, 179-193.	1.3	41
84	The impact of structural error on parameter constraint in a climate model. Earth System Dynamics, 2016, 7, 917-935.	2.7	39
85	Assessing the potential impact of climate change on the UKâ€™s electricity network. Climatic Change, 2012, 115, 821-835.	1.7	38
86	The importance of population, climate change and CO2 plant physiological forcing in determining future global water stress. Global Environmental Change, 2013, 23, 1083-1097.	3.6	38
87	Modelling vegetation and the carbon cycle as interactive elements of the climate system. International Geophysics, 2002, , 259-279.	0.6	37
88	The climatic impacts of land surface change and carbon management, and the implications for climate-change mitigation policy. Climate Policy, 2003, 3, 149-157.	2.6	36
89	Analyzing abrupt and nonlinear climate changes and their impacts. Wiley Interdisciplinary Reviews: Climate Change, 2011, 2, 663-686.	3.6	36
90	Validation of River Flows in HadGEM1 and HadCM3 with the TRIP River Flow Model. Journal of Hydrometeorology, 2011, 12, 1157-1180.	0.7	33

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91	Effective radiative forcing from historical land use change. Climate Dynamics, 2017, 48, 3489-3505.	1.7	33
92	Stomatal conductance changes due to increasing carbon dioxide levels: Projected impact on surface ozone levels. Tellus, Series B: Chemical and Physical Meteorology, 2007, 59, 404-411.	0.8	32
93	Extreme Rainfall and Hydro-Geo-Meteorological Disaster Risk in 1.5, 2.0, and 4.0Â°C Global Warming Scenarios: An Analysis for Brazil. Frontiers in Climate, 2021, 3, .	1.3	32
94	Benchmarking carbon fluxes of the ISIMIP2a biome models. Environmental Research Letters, 2017, 12, 045002.	2.2	30
95	Quantifying Environmental Drivers of Future Tropical Forest Extent. Journal of Climate, 2011, 24, 1337-1349.	1.2	29
96	Sensitivity and uncertainty of modelled terrestrial net primary productivity to doubled CO2 and associated climate change for a relatively large perturbed physics ensemble. Agricultural and Forest Meteorology, 2013, 170, 79-88.	1.9	28
97	El NiÃ±o Driven Changes in Global Fire 2015/16. Frontiers in Earth Science, 2020, 8, .	0.8	28
98	Role of vegetation change in future climate under the A1B scenario and a climate stabilisation scenario, using the HadCM3C Earth system model. Biogeosciences, 2012, 9, 4739-4756.	1.3	25
99	Advancing national climate change risk assessment to deliver national adaptation plans. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2018, 376, 20170295.	1.6	25
100	Dynamics of a global-scale vegetation model. Ecological Modelling, 2006, 198, 452-462.	1.2	23
101	Global warming and climate change in Amazonia: Climate-vegetation feedback and impacts on water resources. Geophysical Monograph Series, 2009, , 273-292.	0.1	23
102	Winter wheat yields in the UK: uncertainties in climate and management impacts. Climate Research, 2012, 54, 49-68.	0.4	23
103	The Impact of Climate, CO2 and Population on Regional Food and Water Resources in the 2050s. Sustainability, 2013, 5, 2129-2151.	1.6	23
104	Potential predictability of Eurasian snow cover. Atmospheric Science Letters, 2001, 2, 1-8.	0.8	22
105	Amazonian climate: results and future research. Theoretical and Applied Climatology, 2004, 78, 187.	1.3	22
106	A successful prediction of the record CO ₂ rise associated with the 2015/2016 El NiÃ±o. Philosophical Transactions of the Royal Society B: Biological Sciences, 2018, 373, 20170301.	1.8	22
107	Rock glaciers represent hidden water stores in the Himalaya. Science of the Total Environment, 2021, 793, 145368.	3.9	22
108	Projected future climate changes in the context of geological and geomorphological hazards. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2010, 368, 2347-2367.	1.6	20

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109	Projected changes in water availability in the United Kingdom. Water Resources Research, 2012, 48, .	1.7	18
110	Changes in productivity and carbon storage of grasslands in China under future global warming scenarios of 1.5Â°C and 2Â°C. Journal of Plant Ecology, 2019, 12, 804-814.	1.2	18
111	The influence of vegetation on the ITCZ and South Asian monsoon in HadCM3. Earth System Dynamics, 2012, 3, 87-96.	2.7	15
112	Climate change impacts and adaptation. , 2012, , 160-201.		15
113	Will Fire Danger Be Reduced by Using Solar Radiation Management to Limit Global Warming to 1.5ÂÂ°C Compared to 2.0ÂÂ°C?. Geophysical Research Letters, 2018, 45, 3644-3652.	1.5	15
114	South American fires and their impacts on ecosystems increase with continued emissions. Climate Resilience and Sustainability, 2022, 1, e8.	0.9	15
115	Evapotranspiration. Geophysical Monograph Series, 2009, , 261-272.	0.1	14
116	Forcings and feedbacks by land ecosystem changes on climate change. European Physical Journal Special Topics, 2006, 139, 119-142.	0.2	14
117	A sweetener for biofuels. Nature Climate Change, 2011, 1, 99-101.	8.1	13
118	Simulating Hydrological Impacts under Climate Change: Implications from Methodological Differences of a Pan European Assessment. Water (Switzerland), 2018, 10, 1331.	1.2	13
119	The Extremely Wet March of 2017 in Peru. Bulletin of the American Meteorological Society, 2019, 100, S31-S35.	1.7	13
120	A quality-controlled global runoff data set (Reply). Nature, 2006, 444, E14-E15.	13.7	12
121	Comparing apples with oranges. Nature Climate Change, 2008, 1, 7-8.	8.1	12
122	Impacts of Climate Extremes in Brazil: The Development of a Web Platform for Understanding Long-Term Sustainability of Ecosystems and Human Health in Amazonia (PULSE-Brazil). Bulletin of the American Meteorological Society, 2016, 97, 1341-1346.	1.7	11
123	Are strong fireâ€"vegetation feedbacks needed to explain the spatial distribution of tropical tree cover?. Global Ecology and Biogeography, 2016, 25, 16-25.	2.7	11
124	Parametric Sensitivity of Vegetation Dynamics in the TRIFFID Model and the Associated Uncertainty in Projected Climate Change Impacts on Western U.S. Forests. Journal of Advances in Modeling Earth Systems, 2019, 11, 2787-2813.	1.3	11
125	Reducing climate model biases by exploring parameter space with large ensembles of climate model simulations and statistical emulation. Geoscientific Model Development, 2019, 12, 3017-3043.	1.3	11
126	Global vegetation and climate: Self-beneficial effects, climate forcings and climate feedbacks. European Physical Journal Special Topics, 2004, 121, 37-60.	0.2	9

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127	Preface. Philosophical Transactions of the Royal Society B: Biological Sciences, 2008, 363, 1727-1727.	1.8	8
128	Changing return periods of weather-related impacts: the attribution challenge. Climatic Change, 2011, 109, 263-268.	1.7	8
129	A review of planting principles to identify the right place for the right tree for â€˜net zero plusâ€™ woodlands: Applying a placeâ€based natural capital framework for sustainable, efficient and equitable (<scp>SEE</scp>) decisions. People and Nature, 2023, 5, 271-301.	1.7	8
130	How much CO2 at 1.5 Â°C and 2 Â°C?. Nature Climate Change, 2018, 8, 546-548.	8.1	6
131	Is ice in the Himalayas more resilient to climate change than we thought?. Geografiska Annaler, Series A: Physical Geography, 2021, 103, 1-7.	0.6	6
132	Correcting a bias in a climate model with an augmented emulator. Geoscientific Model Development, 2020, 13, 2487-2509.	1.3	6
133	Carbon Sequestration and Greenhouse Gas Fluxes from Cropland Soils â€“ Climate Opportunities and Threats. Environmental Science and Engineering, 2009, , 81-111.	0.1	5
134	Assessing the chance of unprecedented dry conditions over North Brazil during El NiÃ±o events. Environmental Research Letters, 2022, 17, 064016.	2.2	5
135	Chapter 24: Resilience of the Amazon forest to global changes: Assessing the risk of tipping points. , 2021, , .		5
136	Towards probabilistic projections of climate change. Proceedings of the Institution of Civil Engineers: Municipal Engineer, 2009, 162, 33-40.	0.4	4
137	Regional disparities and seasonal differences in climate risk to rice labour. Environmental Research Letters, 2021, 16, 124004.	2.2	4
138	International dimensions of climate change. Climate Policy, 2012, 12, S1-S5.	2.6	3
139	Evaluating changes of biomass in global vegetation models: the role of turnover fluctuations and ENSO events. Environmental Research Letters, 2018, 13, 075002.	2.2	3
140	Modeling future effects of climate change on tropical forests. , 2007, , 351-366.		2
141	Modeling future effects of climate change on tropical forests. , 2011, , 411-429.		1