Dieter Gerten

List of Publications by Year
in descending order

132 papers	26,669 citations	13099 68 h-index	14208 128 g-index
142 all docs	142 docs citations	142 times ranked	25875 citing authors

#	Article	IF	Citations
1	Planetary boundaries: Guiding human development on a changing planet. Science, 2015, 347, 1259855.	12.6	7,124
2	Recent decline in the global land evapotranspiration trend due to limited moisture supply. Nature, 2010, 467, 951-954.	27.8	1,771
3	Multimodel assessment of water scarcity under climate change. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 3245-3250.	7.1	1,282
4	Modelling the role of agriculture for the 20th century global terrestrial carbon balance. Global Change Biology, 2007, 13, 679-706.	9.5	1,133
5	Constraints and potentials of future irrigation water availability on agricultural production under climate change. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 3239-3244.	7.1	795
6	Terrestrial vegetation and water balanceâ€”hydrological evaluation of a dynamic global vegetation model. Journal of Hydrology, 2004, 286, 249-270.	5.4	783
7	Agricultural green and blue water consumption and its influence on the global water system. Water Resources Research, 2008, 44, .	4.2	665
8	Hydrological droughts in the 21st century, hotspots and uncertainties from a global multimodel ensemble experiment. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 3262-3267.	7.1	583
9	Future water availability for global food production: The potential of green water for increasing resilience to global change. Water Resources Research, 2009, 45, .	4.2	521
10	Multimodel Estimate of the Global Terrestrial Water Balance: Setup and First Results. Journal of Hydrometeorology, 2011, 12, 869-884.	1.9	466
11	Global terrestrial water storage and drought severity under climate change. Nature Climate Change, 2021, 11, 226-233.	18.8	345
12	Impact of reservoirs on river discharge and irrigation water supply during the 20th century. Water Resources Research, 2011, 47, .	4.2	340
13	Impact of a Statistical Bias Correction on the Projected Hydrological Changes Obtained from Three GCMs and Two Hydrology Models. Journal of Hydrometeorology, 2011, 12, 556-578.	1.9	334
14	Feeding ten billion people is possible within four terrestrial planetary boundaries. Nature Sustainability, 2020, 3, 200-208.	23.7	306
15	Multimodel projections and uncertainties of irrigation water demand under climate change. Geophysical Research Letters, 2013, 40, 4626-4632.	4.0	302
16	Modeled interactive effects of precipitation, temperature, and [CO₂] on ecosystem carbon and water dynamics in different climatic zones. Global Change Biology, 2008, 14, 1986-1999.	9.5	277
17	Evaluation of the agreement between the first global remotely sensed soil moisture data with model and precipitation data. Journal of Geophysical Research, 2003, 108, .	3.3	265
18	Water savings potentials of irrigation systems: global simulation of processes and linkages. Hydrology and Earth System Sciences, 2015, 19, 3073-3091.	4.9	264

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19	Climateâ€driven changes in spring plankton dynamics and the sensitivity of shallow polymictic lakes to the North Atlantic Oscillation. Limnology and Oceanography, 2000, 45, 1058-1066.	3.1	243
20	Spatial decoupling of agricultural production and consumption: quantifying dependences of countries on food imports due to domestic land and water constraints. Environmental Research Letters, 2013, 8, 014046.	5.2	240
21	Global Water Availability and Requirements for Future Food Production. Journal of Hydrometeorology, 2011, 12, 885-899.	1.9	233
22	Towards a revised planetary boundary for consumptive freshwater use: role of environmental flow requirements. Current Opinion in Environmental Sustainability, 2013, 5, 551-558.	6.3	229
23	Life-history traits of lake plankton species may govern their phenological response to climate warming. Global Change Biology, 2006, 12, 652-661.	9.5	225
24	Virtual water content of temperate cereals and maize: Present and potential future patterns. Journal of Hydrology, 2010, 384, 218-231.	5.4	219
25	Human impacts on planetary boundaries amplified by Earth system interactions. Nature Sustainability, 2020, 3, 119-128.	23.7	217
26	Causes of change in 20th century global river discharge. Geophysical Research Letters, 2008, 35, .	4.0	215
27	Biomass-based negative emissions difficult to reconcile with planetary boundaries. Nature Climate Change, 2018, 8, 151-155.	18.8	207
28	Effects of Precipitation Uncertainty on Discharge Calculations for Main River Basins. Journal of Hydrometeorology, 2009, 10, 1011-1025.	1.9	195
29	Impacts of climate change on European hydrology at 1.5, 2 and 3 degrees mean global warming above preindustrial level. Climatic Change, 2017, 143, 13-26.	3.6	193
30	Regional disparities in the beneficial effects of rising CO2 concentrations on crop waterÂproductivity. Nature Climate Change, 2016, 6, 786-790.	18.8	190
31	Internal and external green-blue agricultural water footprints of nations, and related water and land savings through trade. Hydrology and Earth System Sciences, 2011, 15, 1641-1660.	4.9	183
32	Integrated crop water management might sustainably halve the global food gap. Environmental Research Letters, 2016, 11, 025002.	5.2	182
33	Reconciling irrigated food production with environmental flows for Sustainable Development Goals implementation. Nature Communications, 2017, 8, 15900.	12.8	168
34	State-of-the-art global models underestimate impacts from climate extremes. Nature Communications, 2019, 10, 1005.	12.8	168
35	Greening the global water system. Journal of Hydrology, 2010, 384, 177-186.	5.4	162
36	The economic potential of bioenergy for climate change mitigation with special attention given to implications for the land system. Environmental Research Letters, 2011, 6, 034017.	5.2	159

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37	Contribution of permafrost soils to the global carbon budget. Environmental Research Letters, 2013, 8, 014026.	5.2	148
38	Terrestrial biosphere carbon storage under alternative climate projections. Climatic Change, 2006, 74, 97-122.	3.6	140
39	LPJmL4 â€" a dynamic global vegetation model with managed land â€" PartÂ 1: Model description. Geoscientific Model Development, 2018, 11, 1343-1375.	3.6	140
40	Crossâ€scale intercomparison of climate change impacts simulated by regional and global hydrological models in eleven large river basins. Climatic Change, 2017, 141, 561-576.	3.6	137
41	Comparing Large-Scale Hydrological Model Simulations to Observed Runoff Percentiles in Europe. Journal of Hydrometeorology, 2012, 13, 604-620.	1.9	135
42	Global potential to increase crop production through water management in rainfed agriculture. Environmental Research Letters, 2009, 4, 044002.	5.2	134
43	How the performance of hydrological models relates to credibility of projections under climate change. Hydrological Sciences Journal, 2018, 63, 696-720.	2.6	133
44	Differences in the persistency of the North Atlantic Oscillation signal among lakes. Limnology and Oceanography, 2001, 46, 448-455.	3.1	130
45	To bloom or not to bloom: contrasting responses of cyanobacteria to recent heat waves explained by critical thresholds of abiotic drivers. Oecologia, 2012, 169, 245-256.	2.0	127
46	Modelled effects of precipitation on ecosystem carbon and water dynamics in different climatic zones. Global Change Biology, 2008, 14, 2365-2379.	9.5	112
47	Tradeâ€offs between land and water requirements for largeâ€scale bioenergy production. GCB Bioenergy, 2016, 8, 11-24.	5.6	108
48	Reconstruction of global gridded monthly sectoral water withdrawals for 1971â€"2010 and analysis of their spatiotemporal patterns. Hydrology and Earth System Sciences, 2018, 22, 2117-2133.	4.9	106
49	Phytoplankton response to climate warming modified by trophic state. Limnology and Oceanography, 2008, 53, 1-13.	3.1	105
50	The critical role of the routing scheme in simulating peak river discharge in global hydrological models. Environmental Research Letters, 2017, 12, 075003.	5.2	105
51	Tamm Review: Observed and projected climate change impacts on Russiaâ€™s forests and its carbon balance. Forest Ecology and Management, 2016, 361, 432-444.	3.2	104
52	Climate-driven interannual variability of water scarcity in food production potential: a global analysis. Hydrology and Earth System Sciences, 2014, 18, 447-461.	4.9	101
53	The Water Planetary Boundary: Interrogation and Revision. One Earth, 2020, 2, 223-234.	6.8	98
54	Pyrogenic carbon capture and storage. GCB Bioenergy, 2019, 11, 573-591.	5.6	95

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55	A planetary boundary for green water. Nature Reviews Earth & Environment, 2022, 3, 380-392.	29.7	95
56	Effects of Climate Warming, North Atlantic Oscillation, and El NiÃ±o-Southern Oscillation on Thermal Conditions and Plankton Dynamics in Northern Hemispheric Lakes. Scientific World Journal, The, 2002, 2, 586-606.	2.1	94
57	Causes and trends of water scarcity in food production. Environmental Research Letters, 2016, 11, 015001.	5.2	93
58	The limits to globalâ€•warming mitigation by terrestrial carbon removal. Earth's Future, 2017, 5, 463-474.	6.3	92
59	Human impact parameterizations in global hydrological models improve estimates of monthly discharges and hydrological extremes: a multi-model validation study. Environmental Research Letters, 2018, 13, 055008.	5.2	91
60	Climate impacts on global irrigation requirements under 19 GCMs, simulated with a vegetation and hydrology model. Hydrological Sciences Journal, 2013, 58, 88-105.	2.6	89
61	Contemporary â€œgreenâ€•water flows: Simulations with a dynamic global vegetation and water balance model. Physics and Chemistry of the Earth, 2005, 30, 334-338.	2.9	88
62	Illuminating water cycle modifications and Earth system resilience in the Anthropocene. Water Resources Research, 2020, 56, e2019WR024957.	4.2	86
63	Worldwide evaluation of mean and extreme runoff from six global-scale hydrological models that account for human impacts. Environmental Research Letters, 2018, 13, 065015.	5.2	85
64	Consensus building on the development of a stress-based indicator for LCA-based impact assessment of water consumption: outcome of the expert workshops. International Journal of Life Cycle Assessment, 2015, 20, 577-583.	4.7	84
65	Potential future changes in water limitations of the terrestrial biosphere. Climatic Change, 2007, 80, 277-299.	3.6	79
66	Future water resources for food production in five South Asian river basins and potential for adaptation â€” A modeling study. Science of the Total Environment, 2013, 468-469, S117-S131.	8.0	78
67	The Challenges of Applying Planetary Boundaries as a Basis for Strategic Decision-Making in Companies with Global Supply Chains. Sustainability, 2017, 9, 279.	3.2	78
68	The timing of unprecedented hydrological drought under climate change. Nature Communications, 2022, 13, .	12.8	77
69	Global effects of doubled atmospheric CO2 content on evapotranspiration, soil moisture and runoff under potential natural vegetation. Hydrological Sciences Journal, 2006, 51, 171-185.	2.6	74
70	Effects of soil freezing and thawing on vegetation carbon density in Siberia: A modeling analysis with the Lund-Potsdam-Jena Dynamic Global Vegetation Model (LPJ-DGVM). Global Biogeochemical Cycles, 2007, 21, .	4.9	72
71	Species-specific changes in the phenology and peak abundance of freshwater copepods in response to warm summers. Freshwater Biology, 2002, 47, 2163-2173.	2.4	70
72	Assessing 20th century climateâ€“vegetation feedbacks of landâ€•use change and natural vegetation dynamics in a fully coupled vegetationâ€“climate model. International Journal of Climatology, 2010, 30, 2055-2065.	3.5	70

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73	Water footprints of cities â€“ indicators for sustainable consumption and production. Hydrology and Earth System Sciences, 2014, 18, 213-226.	4.9	69
74	Response to Comment on â€œPlanetary boundaries: Guiding human development on a changing planetâ€• Science, 2015, 348, 1217-1217.	12.6	69
75	Projecting Exposure to Extreme Climate Impact Events Across Six Event Categories and Three Spatial Scales. Earth's Future, 2020, 8, e2020EF001616.	6.3	69
76	Two-thirds of global cropland area impacted by climate oscillations. Nature Communications, 2018, 9, 1257.	12.8	66
77	Risks for the global freshwater system at 1.5â€‰Â°C and 2â€‰Â°C global warming. Environmental Research Letters, 2018, 13, 044038.	5.2	66
78	Water Use in Global Livestock Productionâ€"Opportunities and Constraints for Increasing Water Productivity. Water Resources Research, 2020, 56, e2019WR026995.	4.2	66
79	Risk of severe climate change impact on the terrestrial biosphere. Environmental Research Letters, 2011, 6, 034036.	5.2	65
80	Integrating the Water Planetary Boundary With Water Management From Local to Global Scales. Earth's Future, 2020, 8, e2019EF001377.	6.3	65
81	LPJmL4 â€“ a dynamic global vegetation model with managed land â€“ PartÂ 2: Model evaluation. Geoscientific Model Development, 2018, 11, 1377-1403.	3.6	57
82	Irrigation of biomass plantations may globally increase water stress more than climate change. Nature Communications, 2021, 12, 1512.	12.8	54
83	Asynchronous exposure to global warming: freshwater resources and terrestrial ecosystems. Environmental Research Letters, 2013, 8, 034032.	5.2	52
84	Blue water scarcity and the economic impacts of future agricultural trade and demand. Water Resources Research, 2013, 49, 3601-3617.	4.2	52
85	Potential effects of climate change on inundation patterns in the Amazon Basin. Hydrology and Earth System Sciences, 2013, 17, 2247-2262.	4.9	51
86	Three centuries of dual pressure from land use and climate change on the biosphere. Environmental Research Letters, 2015, 10, 044011.	5.2	50
87	Is extensive terrestrial carbon dioxide removal a â€˜greenâ€™ form of geoengineering? A global modelling study. Global and Planetary Change, 2016, 137, 123-130.	3.5	48
88	Biogeochemical potential of biomass pyrolysis systems for limiting global warming to 1.5â€‰Â°C. Environmental Research Letters, 2018, 13, 044036.	5.2	48
89	Bringing it all together: linking measures to secure nationsâ€™ food supply. Current Opinion in Environmental Sustainability, 2017, 29, 98-117.	6.3	47
90	Towards a comprehensive climate impacts assessment of solar geoengineering. Earth's Future, 2017, 5, 93-106.	6.3	45

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91	Tradeâ€offs for food production, nature conservation and climate limit the terrestrial carbon dioxide removal potential. Global Change Biology, 2017, 23, 4303-4317.	9.5	44
92	A highâ€resolution approach to estimating ecosystem respiration at continental scales using operational satellite data. Global Change Biology, 2014, 20, 1191-1210.	9.5	40
93	Historical and future changes in global flood magnitude â€“ evidence from a modelâ€“observation investigation. Hydrology and Earth System Sciences, 2020, 24, 1543-1564.	4.9	40
94	Hydrologic resilience of the terrestrial biosphere. Geophysical Research Letters, 2005, 32, .	4.0	38
95	Exploring the value of machine learning for weighted multi-model combination of an ensemble of global hydrological models. Environmental Modelling and Software, 2019, 114, 112-128.	4.5	36
96	A model-based constraint on CO₂ fertilisation. Biogeosciences, 2013, 10, 339-355.	3.3	35
97	Multimodel uncertainty changes in simulated river flows induced by human impact parameterizations. Environmental Research Letters, 2017, 12, 025009.	5.2	33
98	Critical impacts of global warming on land ecosystems. Earth System Dynamics, 2013, 4, 347-357.	7.1	32
99	A matter of timing: heat wave impact on crustacean zooplankton. Freshwater Biology, 2010, 55, 1769-1779.	2.4	29
100	Climate impact research: beyond patchwork. Earth System Dynamics, 2014, 5, 399-408.	7.1	29
101	Emulating global climate change impacts on crop yields. Statistical Modelling, 2015, 15, 499-525.	1.1	27
102	Windows of change: temporal scale of analysis is decisive to detect ecosystem responses to climate change. Marine Biology, 2012, 159, 2533-2542.	1.5	25
103	A vital link: water and vegetation in the Anthropocene. Hydrology and Earth System Sciences, 2013, 17, 3841-3852.	4.9	25
104	Terrestrial and Inland Water Systems. , 0, , 271-360.		25
105	Freshwater requirements of large-scale bioenergy plantations for limiting global warming to 1.5 Â°C. Environmental Research Letters, 2019, 14, 084001.	5.2	25
106	How evaluation of global hydrological models can help to improve credibility of river discharge projections under climate change. Climatic Change, 2020, 163, 1353-1377.	3.6	25
107	A new climate dataset for systematic assessments of climate change impacts as a function of global warming. Geoscientific Model Development, 2013, 6, 1689-1703.	3.6	24
108	Linking groundwater use and stress to specific crops using the groundwater footprint in the Central Valley and High Plains aquifer systems, U.S.. Water Resources Research, 2014, 50, 4953-4973.	4.2	22

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109	Influence of human activities and climate variability on green and blue water provision in the Heihe River Basin, NW China. Journal of Water and Climate Change, 2015, 6, 800-815.	2.9	20
110	Impacts devalue the potential of large-scale terrestrial CO ₂ removal through biomass plantations. Environmental Research Letters, 2016, 11, 095010.	5.2	19
111	Efficient parallelization of a dynamic global vegetation model with river routing. Environmental Modelling and Software, 2010, 25, 685-690.	4.5	17
112	Grand Challenges Related to the Assessment of Climate Change Impacts on Freshwater Resources. Journal of Hydrologic Engineering - ASCE, 2015, 20, .	1.9	17
113	Freshwater Resources. , 0, , 229-270.		16
114	Biomass production in plantations: Land constraints increase dependency on irrigation water. GCB Bioenergy, 2018, 10, 628-644.	5.6	15
115	Freshwater resources under success and failure of the Paris climate agreement. Earth System Dynamics, 2019, 10, 205-217.	7.1	15
116	Ethical aspects in the economic modeling of water policy options. Global Environmental Change, 2015, 30, 80-91.	7.8	13
117	The Biosphere Under Potential Paris Outcomes. Earth's Future, 2018, 6, 23-39.	6.3	12
118	Temporal and spatial scales of water temperature variability as an indicator for mixing in a polymictic lake. Inland Waters, 2018, 8, 82-95.	2.2	11
119	Giving Legs to Handprint Thinking: Foundations for Evaluating the Good We Do. Earth's Future, 2020, 8, e2019EF001422.	6.3	11
120	Globally widespread and increasing violations of environmental flow envelopes. Hydrology and Earth System Sciences, 2022, 26, 3315-3336.	4.9	11
121	Global scenarios of irrigation water abstractions for bioenergy production: a systematic review. Hydrology and Earth System Sciences, 2021, 25, 1711-1726.	4.9	8
122	Climatic Change, Aquatic Science, Multiple Shifts in Paradigms. International Review of Hydrobiology, 2008, 93, 397-403.	0.9	7
123	On deeper human dimensions in Earth system analysis and modelling. Earth System Dynamics, 2018, 9, 849-863.	7.1	7
124	Feeding the world in a narrowing safe operating space. One Earth, 2021, 4, 1193-1196.	6.8	6
125	Safe, just and sufficient space. , 2017, , 109-130.		5
126	Producing Policy-relevant Science by Enhancing Robustness and Model Integration for the Assessment of Global Environmental Change. Environmental Modelling and Software, 2019, 111, 248-258.	4.5	4

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127	Validity of estimating flood and drought characteristics under equilibrium climates from transient simulations. Environmental Research Letters, 2021, 16, 104028.	5.2	4
128	Climate Change and Water Supply. , 2012, , 19-32.		4
129	Minimal algal food requirements in the presence of protozoan prey for the rotifer Brachionus calyciflorus. Journal of Plankton Research, 2002, 24, 723-728.	1.8	2
130	Detection and Attribution of Changes in Water Resources. , 2012, , 422-434.		2
131	Responses of lake temperatures to diverse North Atlantic Oscillation indices. Verhandlungen Der Internationalen Vereinigung Fur Theoretische Und Angewandte Limnologie International Association of Theoretical and Applied Limnology, 2002, 28, 1593-1596.	0.1	1
132	Sozialwissenschaftliche Klimaforschung: Mehr Visionen wagen!Social Sciences on Climate Change: Dare to Be More Visionary!. Gaia, 2013, 22, 156-159.	0.7	0