Markus Hrachowitz

List of Publications by Year
in descending order

82 papers	6,419 citations	71102 41 h-index	69250 77 g-index
173 all docs	173 docs citations	173 times ranked	5772 citing authors

#	Article	IF	Citations
1	A decade of Predictions in Ungauged Basins (PUB)â€"a review. Hydrological Sciences Journal, 2013, 58, 1198-1255.	2.6	821
2	A precipitation shift from snow towards rain leads to a decrease in streamflow. Nature Climate Change, 2014, 4, 583-586.	18.8	545
3	Twenty-three unsolved problems in hydrology (UPH) â€" a community perspective. Hydrological Sciences Journal, 2019, 64, 1141-1158.	2.6	474
4	What can flux tracking teach us about water age distribution patterns and their temporal dynamics?. Hydrology and Earth System Sciences, 2013, 17, 533-564.	4.9	217
5	A framework to assess the realism of model structures using hydrological signatures. Hydrology and Earth System Sciences, 2013, 17, 1893-1912.	4.9	197
6	The Demographics of Water: A Review of Water Ages in the Critical Zone. Reviews of Geophysics, 2019, 57, 800-834.	23.0	197
7	Transit timesâ€"the link between hydrology and water quality at the catchment scale. Wiley Interdisciplinary Reviews: Water, 2016, 3, 629-657.	6.5	184
8	Process consistency in models: The importance of system signatures, expert knowledge, and process complexity. Water Resources Research, 2014, 50, 7445-7469.	4.2	170
9	Storage selection functions: A coherent framework for quantifying how catchments store and release water and solutes. Water Resources Research, 2015, 51, 4840-4847.	4.2	170
10	Uncertainties in transpiration estimates. Nature, 2014, 506, E1-E2.	27.8	157
11	Influence of hydrology and seasonality on DOC exports from three contrasting upland catchments. Biogeochemistry, 2008, 90, 93-113.	3.5	150
12	Gamma distribution models for transit time estimation in catchments: Physical interpretation of parameters and implications for timeâ€variant transit time assessment. Water Resources Research, 2010, 46, .	4.2	146
13	Climate controls how ecosystems size the root zone storage capacity at catchment scale. Geophysical Research Letters, 2014, 41, 7916-7923.	4.0	138
14	Regionalization of transit time estimates in montane catchments by integrating landscape controls. Water Resources Research, 2009, 45, .	4.2	136
15	HESS Opinions: The complementary merits of competing modelling philosophies in hydrology. Hydrology and Earth System Sciences, 2017, 21, 3953-3973.	4.9	134
16	Using long-term data sets to understand transit times in contrasting headwater catchments. Journal of Hydrology, 2009, 367, 237-248.	5.4	128
17	Hydrological landscape classification: investigating the performance of HAND based landscape classifications in a central European meso-scale catchment. Hydrology and Earth System Sciences, 2011, 15, 3275-3291.	4.9	121
18	Using expert knowledge to increase realism in environmental system models can dramatically reduce the need for calibration. Hydrology and Earth System Sciences, 2014, 18, 4839-4859.	4.9	106

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19	Testing the realism of a topography-driven model (FLEX-Topo) in the nested catchments of the Upper Heihe, China. Hydrology and Earth System Sciences, 2014, 18, 1895-1915.	4.9	101
20	An approach to identify time consistent model parameters: sub-period calibration. Hydrology and Earth System Sciences, 2013, 17, 149-161.	4.9	98
21	Thermal regimes in a large upland salmon river: a simple model to identify the influence of landscape controls and climate change on maximum temperatures. Hydrological Processes, 2010, 24, 3374-3391.	2.6	96
22	Improving the Predictive Skill of a Distributed Hydrological Model by Calibration on Spatial Patterns With Multiple Satellite Data Sets. Water Resources Research, 2020, 56, e2019WR026085.	4.2	93
23	Tracers and transit times: windows for viewing catchment scale storage?. Hydrological Processes, 2009, 23, 3503-3507.	2.6	90
24	Catchment transit times and landscape controlsâ€”does scale matter?. Hydrological Processes, 2010, 24, 117-125.	2.6	85
25	Constraining Conceptual Hydrological Models With Multiple Information Sources. Water Resources Research, 2018, 54, 8332-8362.	4.2	85
26	On the value of combined event runoff and tracer analysis to improve understanding of catchment functioning in a data-scarce semi-arid area. Hydrology and Earth System Sciences, 2011, 15, 2007-2024.	4.9	72
27	Transit time distributions, legacy contamination and variability in biogeochemical 1/f^{Î±} scaling: how are hydrological response dynamics linked to water quality at the catchment scale?. Hydrological Processes, 2015, 29, 5241-5256.	2.6	72
28	Virtual laboratories: new opportunities for collaborative water science. Hydrology and Earth System Sciences, 2015, 19, 2101-2117.	4.9	63
29	Sensitivity of mean transit time estimates to model conditioning and data availability. Hydrological Processes, 2011, 25, 980-990.	2.6	62
30	Influence of soil and climate on root zone storage capacity. Water Resources Research, 2016, 52, 2009-2024.	4.2	62
31	The evolution of root-zone moisture capacities after deforestation: a step towards hydrological predictions under change?. Hydrology and Earth System Sciences, 2016, 20, 4775-4799.	4.9	61
32	Dating of soil layers in a young floodplain using iron oxide crystallinity. Quaternary Geochronology, 2009, 4, 260-266.	1.4	57
33	Hydrological hysteresis and its value for assessing process consistency in catchment conceptual models. Hydrology and Earth System Sciences, 2015, 19, 105-123.	4.9	55
34	Relative influence of upland and lowland headwaters on the isotope hydrology and transit times of larger catchments. Journal of Hydrology, 2011, 400, 438-447.	5.4	51
35	Seasonal controls on DOC dynamics in nested upland catchments in NE Scotland. Hydrological Processes, 2011, 25, 1647-1658.	2.6	48
36	INFLUENCE OF SCALE ON THERMAL CHARACTERISTICS IN A LARGE MONTANE RIVER BASIN. River Research and Applications, 2013, 29, 403-419.	1.7	47

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37	The importance of topography-controlled sub-grid process heterogeneity and semi-quantitative prior constraints in distributed hydrological models. Hydrology and Earth System Sciences, 2016, 20, 1151-1176.	4.9	47
38	Redressing the balance: quantifying net intercatchment groundwater flows. Hydrology and Earth System Sciences, 2018, 22, 6415-6434.	4.9	45
39	The temporally varying roles of rainfall, snowmelt and soil moisture for debris flow initiation in a snow-dominated system. Hydrology and Earth System Sciences, 2018, 22, 3493-3513.	4.9	45
40	The importance of aspect for modelling the hydrological response in a glacier catchment in Central Asia. Hydrological Processes, 2017, 31, 2842-2859.	2.6	44
41	HESS Opinions Catchments as meta-organisms â€“ a new blueprint for hydrological modelling. Hydrology and Earth System Sciences, 2017, 21, 1107-1116.	4.9	42
42	The effect of forcing and landscape distribution on performance and consistency of model structures. Hydrological Processes, 2015, 29, 3727-3743.	2.6	41
43	Uncertainty of Precipitation Estimates Caused by Sparse Gauging Networks in a Small, Mountainous Watershed. Journal of Hydrologic Engineering - ASCE, 2011, 16, 460-471.	1.9	38
44	A simple topography-driven and calibration-free runoff generation module. Hydrology and Earth System Sciences, 2019, 23, 787-809.	4.9	37
45	Isotopic and geochemical tracers reveal similarities in transit times in contrasting mesoscale catchments. Hydrological Processes, 2010, 24, 1211-1224.	2.6	36
46	The Value of Using Multiple Hydrometeorological Variables to Predict Temporal Debris Flow Susceptibility in an Alpine Environment. Water Resources Research, 2018, 54, 6822-6843.	4.2	31
47	Are transit times useful processâ€based tools for flow prediction and classification in ungauged basins in montane regions?. Hydrological Processes, 2010, 24, 1685-1696.	2.6	29
48	A constraint-based search algorithm for parameter identification of environmental models. Hydrology and Earth System Sciences, 2014, 18, 4861-4870.	4.9	26
49	Behind the scenes of streamflow model performance. Hydrology and Earth System Sciences, 2021, 25, 1069-1095.	4.9	26
50	Accounting for the influence of vegetation and landscape improves model transferability in a tropical savannah region. Water Resources Research, 2016, 52, 7999-8022.	4.2	25
51	Spatial distribution of transit times in montane catchments: conceptualization tools for management. Hydrological Processes, 2010, 24, 3283-3288.	2.6	24
52	Understanding the Information Content in the Hierarchy of Model Development Decisions: Learning From Data. Water Resources Research, 2021, 57, e2020WR027948.	4.2	22
53	Seasonality of <i>ep</i>CO₂ at different scales along an integrated river continuum within the Dee basin, NE Scotland. Hydrological Processes, 2009, 23, 2929-2942.	2.6	20
54	Trigger characteristics of torrential flows from high to low alpine regions in Austria. Science of the Total Environment, 2019, 658, 958-972.	8.0	20

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55	Landslide precipitation thresholds in Rwanda. Landslides, 2020, 17, 2469-2481.	5.4	20
56	Signatures of human intervention â€“ or not? Downstream intensification of hydrological drought along a large Central Asian river: the individual roles of climate variability and land use change. Hydrology and Earth System Sciences, 2021, 25, 1943-1967.	4.9	19
57	Improved Understanding of the Link Between Catchmentâ€Scale Vegetation Accessible Storage and Satelliteâ€Derived Soil Water Index. Water Resources Research, 2020, 56, e2019WR026365.	4.2	18
58	Learning from satellite observations: increased understanding of catchment processes through stepwise model improvement. Hydrology and Earth System Sciences, 2021, 25, 957-982.	4.9	18
59	Reduction of vegetation-accessible water storage capacity after deforestation affects catchment travel time distributions and increases young water fractions in a headwater catchment. Hydrology and Earth System Sciences, 2021, 25, 4887-4915.	4.9	18
60	Ecohydrologic separation alters interpreted hydrologic stores and fluxes in a headwater mountain catchment. Hydrological Processes, 2019, 33, 2658-2675.	2.6	16
61	Using altimetry observations combined with GRACE to select parameter sets of a hydrological model in a data-scarce region. Hydrology and Earth System Sciences, 2020, 24, 3331-3359.	4.9	16
62	The role and value of distributed precipitation data in hydrological models. Hydrology and Earth System Sciences, 2021, 25, 147-167.	4.9	16
63	Future changes in annual, seasonal and monthly runoff signatures in contrasting Alpine catchments in Austria. Hydrology and Earth System Sciences, 2021, 25, 3429-3453.	4.9	16
64	Streamflow response to forest management. Nature, 2020, 578, E12-E15.	27.8	16
65	Ecosystem adaptation to climate change: the sensitivity of hydrological predictions to time-dynamic model parameters. Hydrology and Earth System Sciences, 2022, 26, 1295-1318.	4.9	14
66	Comparative analysis of nonparametric change-point detectors commonly used in hydrology. Hydrological Sciences Journal, 2019, 64, 1690-1710.	2.6	13
67	Migration as flow: using hydrological concepts to estimate the residence time of migrating birds from the daily counts. Methods in Ecology and Evolution, 2017, 8, 1146-1157.	5.2	11
68	A Novel Idea for Groundwater Resource Management during Megadrought Events. Water Resources Management, 2020, 34, 1743-1755.	3.9	10
69	Evolution of the spatial and temporal characteristics of the isotope hydrology of a montane river basin. Hydrological Sciences Journal, 2011, 56, 426-442.	2.6	8
70	Soil Redistribution Model for Undisturbed and Cultivated Sites Based on Chernobyl-Derived Cesium-137 Fallout. Journal of Environmental Quality, 2005, 34, 1302-1310.	2.0	7
71	Long-term monitoring of the Danube riverâ€"Sampling techniques, radionuclide metrology and radioecological assessment. Applied Radiation and Isotopes, 2009, 67, 894-900.	1.5	7
72	Satellite-based drought analysis in the Zambezi River Basin: Was the 2019 drought the most extreme in several decades as locally perceived?. Journal of Hydrology: Regional Studies, 2021, 34, 100789.	2.4	7

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73	Improving the Representation of Longâ€Term Storage Variations With Conceptual Hydrological Models in Dataâ€Scarce Regions. Water Resources Research, 2021, 57, e2020WR028837.	4.2	7
74	Climate-controlled root zone parameters show potential to improve water flux simulations by land surface models. Earth System Dynamics, 2021, 12, 725-743.	7.1	7
75	Long-term environmental monitoring and application of low-level 3H, 7Be, 137Cs and 210Pb activity concentrations in the non-biotic compartments of the Danube in Austria. Applied Radiation and Isotopes, 2004, 61, 313-317.	1.5	6
76	Is a simple model based on two mixing reservoirs able to reproduce the intra-annual dynamics of DOC and NO3 stream concentrations in an agricultural headwater catchment?. Science of the Total Environment, 2021, 794, 148715.	8.0	6
77	Impact of Dataset Size on the Signature-Based Calibration of a Hydrological Model. Water (Switzerland), 2021, 13, 970.	2.7	5
78	Integration of observed and model-derived groundwater levels in landslide threshold models in Rwanda. Natural Hazards and Earth System Sciences, 2022, 22, 1723-1742.	3.6	4
79	Applying non-parametric Bayesian networks to estimate maximum daily river discharge: potential and challenges. Hydrology and Earth System Sciences, 2022, 26, 1695-1711.	4.9	2
80	Soil properties and distribution of radionuclides of selected soil profiles from Southern Costa Rica. Neues Jahrbuch Fur Geologie Und Palaontologie - Abhandlungen, 2008, 246, 283-297.	0.4	1
81	Estimating the Aquiferâ€™s Renewable Water to Mitigate the Challenges of Upcoming Megadrought Events. Water Resources Management, 2021, 35, 4927-4942.	3.9	1
82	Reply to comment by Porporato and Calabrese on â€œStorage selection functions: A coherent framework for quantifying how catchments store and release water and solutesâ€• Water Resources Research, 2016, 52, 616-618.	4.2	0