James E Freer

List of Publications by Year
in descending order

131 papers	14,795 citations	18482 62 h-index	19190 118 g-index
137 all docs	137 docs citations	137 times ranked	11607 citing authors

#	Article	IF	Citations
1	Equifinality, data assimilation, and uncertainty estimation in mechanistic modelling of complex environmental systems using the GLUE methodology. Journal of Hydrology, 2001, 249, 11-29.	5.4	1,716
2	Sensitivity analysis of environmental models: A systematic review with practical workflow. Environmental Modelling and Software, 2016, 79, 214-232.	4.5	926
3	A decade of Predictions in Ungauged Basins (PUB)â€"a review. Hydrological Sciences Journal, 2013, 58, 1198-1255.	2.6	821
4	Bayesian Estimation of Uncertainty in Runoff Prediction and the Value of Data: An Application of the GLUE Approach. Water Resources Research, 1996, 32, 2161-2173.	4.2	658
5	Technical note: Inherent benchmark or not? Comparing Nashâ€"Sutcliffe and Klingâ€"Gupta efficiency scores. Hydrology and Earth System Sciences, 2019, 23, 4323-4331.	4.9	582
6	A unified approach for processâ€based hydrologic modeling: 1. Modeling concept. Water Resources Research, 2015, 51, 2498-2514.	4.2	354
7	A high-resolution global flood hazard model. Water Resources Research, 2015, 51, 7358-7381.	4.2	353
8	Benchmarking observational uncertainties for hydrology: rainfall, river discharge and water quality. Hydrological Processes, 2012, 26, 4078-4111.	2.6	345
9	The role of bedrock topography on subsurface storm flow. Water Resources Research, 2002, 38, 5-1-5-16.	4.2	322
10	Quantifying contributions to storm runoff through end-member mixing analysis and hydrologic measurements at the Panola Mountain Research Watershed (Georgia, USA). Hydrological Processes, 2001, 15, 1903-1924.	2.6	299
11	A dynamic TOPMODEL. Hydrological Processes, 2001, 15, 1993-2011.	2.6	289
12	Toward a Generalization of the TOPMODEL Concepts: Topographic Indices of Hydrological Similarity. Water Resources Research, 1996, 32, 2135-2145.	4.2	261
13	So just why would a modeller choose to be incoherent?. Journal of Hydrology, 2008, 354, 15-32.	5.4	221
14	Using hysteresis analysis of high-resolution water quality monitoring data, including uncertainty, to infer controls on nutrient and sediment transfer in catchments. Science of the Total Environment, 2016, 543, 388-404.	8.0	221
15	Flood-plain mapping: a critical discussion of deterministic and probabilistic approaches. Hydrological Sciences Journal, 2010, 55, 364-376.	2.6	213
16	Calibration of hydrological models using flow-duration curves. Hydrology and Earth System Sciences, 2011, 15, 2205-2227.	4.9	203
17	A unified approach for processâ€based hydrologic modeling: 2. Model implementation and case studies. Water Resources Research, 2015, 51, 2515-2542.	4.2	173
18	Process consistency in models: The importance of system signatures, expert knowledge, and process complexity. Water Resources Research, 2014, 50, 7445-7469.	4.2	170

#	Article	IF	Citations
19	Equifinality and uncertainty in physically based soil erosion models: application of the GLUE methodology to WEPP-the Water Erosion Prediction Project-for sites in the UK and USA. Earth Surface Processes and Landforms, 2000, 25, 825-845.	2.5	160
20	A novel framework for discharge uncertainty quantification applied to 500 <scp>UK</scp> gauging stations. Water Resources Research, 2015, 51, 5531-5546.	4.2	159
21	Constraining dynamic TOPMODEL responses for imprecise water table information using fuzzy rule based performance measures. Journal of Hydrology, 2004, 291, 254-277.	5.4	158
22	Towards a limits of acceptability approach to the calibration of hydrological models: Extending observation error. Journal of Hydrology, 2009, 367, 93-103.	5.4	137
23	Impacts of uncertain river flow data on rainfallâ€runoff model calibration and discharge predictions. Hydrological Processes, 2010, 24, 1270-1284.	2.6	136
24	Catchment properties, function, and conceptual model representation: is there a correspondence?. Hydrological Processes, 2014, 28, 2451-2467.	2.6	135
25	Consistency between hydrological models and field observations: linking processes at the hillslope scale to hydrological responses at the watershed scale. Hydrological Processes, 2009, 23, 311-319.	2.6	128
26	Improving the stability of a simple formulation of the shallow water equations for 2â€D flood modeling. Water Resources Research, 2012, 48, .	4.2	127
27	Hydrological processesâ€"Letters. Topographic controls on subsurface storm flow at the hillslope scale for two hydrologically distinct small catchmetns. Hydrological Processes, 1997, 11, 1347-1352.	2.6	125
28	Major agricultural changes required to mitigate phosphorus losses under climate change. Nature Communications, 2017, 8, 161.	12.8	121
29	Most computational hydrology is not reproducible, so is it really science?. Water Resources Research, 2016, 52, 7548-7555.	4.2	119
30	Tracking the uncertainty in flood alerts driven by grand ensemble weather predictions. Meteorological Applications, 2009, 16, 91-101.	2.1	109
31	Technical Note: Testing an improved index for analysing storm dischargeâ€"concentration hysteresis. Hydrology and Earth System Sciences, 2016, 20, 625-632.	4.9	108
32	A Comparison of Methods for Streamflow Uncertainty Estimation. Water Resources Research, 2018, 54, 7149-7176.	4.2	108
33	Spatial Variability of Soil Phosphorus in Relation to the Topographic Index and Critical Source Areas. Journal of Environmental Quality, 2005, 34, 2263-2277.	2.0	104
34	Uncertainty in hydrological signatures for gauged and ungauged catchments. Water Resources Research, 2016, 52, 1847-1865.	4.2	104
35	High-frequency monitoring of nitrogen and phosphorus response in three rural catchments to the end of the 2011â€"2012 drought in England. Hydrology and Earth System Sciences, 2014, 18, 3429-3448.	4.9	103
36	Base cation concentrations in subsurface flow from a forested hillslope: The role of flushing frequency. Water Resources Research, 1998, 34, 3535-3544.	4.2	100

#	Article	IF	Citations
37	A Quantitative Hydrological Climate Classification Evaluated With Independent Streamflow Data. Water Resources Research, 2018, 54, 5088-5109.	4.2	100
38	When does spatial resolution become spurious in probabilistic flood inundation predictions?. Hydrological Processes, 2016, 30, 2014-2032.	2.6	94
39	Modelling climate impact on floods with ensemble climate projections. Quarterly Journal of the Royal Meteorological Society, 2013, 139, 282-297.	2.7	92
40	Quantifying the importance of spatial resolution and other factors through global sensitivity analysis of a flood inundation model. Water Resources Research, 2016, 52, 9146-9163.	4.2	92
41	New method developed for studying flow on hillslopes. Eos, 1996, 77, 465-472.	0.1	90
42	Modelling the chloride signal at Plynlimon, Wales, using a modified dynamic TOPMODEL incorporating conservative chemical mixing (with uncertainty). Hydrological Processes, 2007, 21, 292-307.	2.6	89
43	The Geochemical Evolution of Riparian Ground Water in a Forested Piedmont Catchment. Ground Water, 2003, 41, 913-925.	1.3	88
44	Satellite-supported flood forecasting in river networks: A real case study. Journal of Hydrology, 2015, 523, 706-724.	5.4	88
45	CAMELS-GB: hydrometeorological time series and landscape attributes for 671 catchments in Great Britain. Earth System Science Data, 2020, 12, 2459-2483.	9.9	87
46	Comment on â€œHydrological forecasting uncertainty assessment: Incoherence of the GLUE methodologyâ€•by Pietro Mantovan and Ezio Todini. Journal of Hydrology, 2007, 338, 315-318.	5.4	86
47	Uncertainty assessment of a process-based integrated catchment model of phosphorus. Stochastic Environmental Research and Risk Assessment, 2009, 23, 991-1010.	4.0	86
48	Constraining Conceptual Hydrological Models With Multiple Information Sources. Water Resources Research, 2018, 54, 8332-8362.	4.2	85
49	Stochastic capture zone delineation within the generalized likelihood uncertainty estimation methodology: Conditioning on head observations. Water Resources Research, 2001, 37, 625-638.	4.2	83
50	Ensemble evaluation of hydrological model hypotheses. Water Resources Research, 2010, 46, .	4.2	83
51	Diffuse Phosphorus Models in the United States and Europe: Their Usages, Scales, and Uncertainties. Journal of Environmental Quality, 2009, 38, 1956-1967.	2.0	80
52	Improving the theoretical underpinnings of processâ€based hydrologic models. Water Resources Research, 2016, 52, 2350-2365.	4.2	80
53	Application of a Generalized TOPMODEL to the Small Ringelbach Catchment, Vosges, France. Water Resources Research, 1996, 32, 2147-2159.	4.2	77
54	The impact of uncertainty in satellite data on the assessment of flood inundation models. Journal of Hydrology, 2012, 414-415, 162-173.	5.4	77

#	Article	IF	Citations
55	Modelling the hydrological response of mediterranean catchments, Prades, Catalonia. The use of distributed models as aids to hypothesis formulation. Hydrological Processes, 1997, 11, 1287-1306.	2.6	76
56	Efficient incorporation of channel cross-section geometry uncertainty into regional and global scale flood inundation models. Journal of Hydrology, 2015, 529, 169-183.	5.4	76
57	The Abuse of Popular Performance Metrics in Hydrologic Modeling. Water Resources Research, 2021, 57, e2020WR029001.	4.2	76
58	Uncertainties in Data and Models to Describe Event Dynamics of Agricultural Sediment and Phosphorus Transfer. Journal of Environmental Quality, 2009, 38, 1137-1148.	2.0	75
59	Modular Assessment of Rainfallâ€"Runoff Models Toolbox (MARRMoT) v1.2: an open-source, extendable framework providing implementations of 46 conceptual hydrologic models as continuous state-space formulations. Geoscientific Model Development, 2019, 12, 2463-2480.	3.6	74
60	Processes affecting transfer of sediment and colloids, with associated phosphorus, from intensively farmed grasslands: an overview of key issues. Hydrological Processes, 2006, 20, 4407-4413.	2.6	73
61	A Brief Analysis of Conceptual Model Structure Uncertainty Using 36 Models and 559 Catchments. Water Resources Research, 2020, 56, e2019WR025975.	4.2	72
62	Diagnostic evaluation of multiple hypotheses of hydrological behaviour in a limits-of-acceptability framework for 24 UK catchments. Hydrological Processes, 2014, 28, 6135-6150.	2.6	71
63	Conceptualization in catchment modelling: simply learning?. Hydrological Processes, 2008, 22, 2389-2393.	2.6	65
64	Assessing catchment-scale erosion and yields of suspended solids from improved temperate grassland. Journal of Environmental Monitoring, 2010, 12, 731.	2.1	63
65	Virtual laboratories: new opportunities for collaborative water science. Hydrology and Earth System Sciences, 2015, 19, 2101-2117.	4.9	63
66	Benchmarking the predictive capability of hydrological models for river flow and flood peak predictions across over 1000Âcatchments in Great Britain. Hydrology and Earth System Sciences, 2019, 23, 4011-4032.	4.9	63
67	Rethinking the Contribution of Drained and Undrained Grasslands to Sedimentâ€Related Water Quality Problems. Journal of Environmental Quality, 2008, 37, 906-914.	2.0	62
68	Conditioning model output statistics of regional climate model precipitation on circulation patterns. Nonlinear Processes in Geophysics, 2012, 19, 623-633.	1.3	61
69	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
70	Detecting the effects of spatial variability of rainfall on hydrological modelling within an uncertainty analysis framework. Hydrological Processes, 2009, 23, 1988-2003.	2.6	59
71	Scaling up the phosphorus signal from soil hillslopes to headwater catchments. Freshwater Biology, 2012, 57, 7-25.	2.4	58
72	Simulating Runoff Under Changing Climatic Conditions: A Framework for Model Improvement. Water Resources Research, 2018, 54, 9812-9832.	4.2	58

#	Article	IF	Citations
73	A rule based quality control method for hourly rainfall data and a 1â€‰km resolution gridded hourly rainfall dataset for Great Britain: CEH-GEAR1hr. Journal of Hydrology, 2018, 564, 930-943.	5.4	58
74	Multivariate seasonal period model rejection within the generalised likelihood uncertainty estimation procedure. Water Science and Application, 2003, , 69-87.	0.3	55
75	Hydrological Dynamics of the Panola Mountain Research Watershed, Georgia. Ground Water, 2003, 41, 973-988.	1.3	54
76	A large set of potential past, present and future hydro-meteorological time series for the UK. Hydrology and Earth System Sciences, 2018, 22, 611-634.	4.9	54
77	A history of TOPMODEL. Hydrology and Earth System Sciences, 2021, 25, 527-549.	4.9	54
78	Comment on â€œPursuing the method of multiple working hypotheses for hydrological modelingâ€•by P. Clark et al.. Water Resources Research, 2012, 48, .	4.2	53
79	Dynamic TOPMODEL: A new implementation in R and its sensitivity to time and space steps. Environmental Modelling and Software, 2015, 72, 155-172.	4.5	53
80	Drought and climate change impacts on cooling water shortages and electricity prices in Great Britain. Nature Communications, 2020, 11, 2239.	12.8	53
81	Spotting East African Mammals in Open Savannah from Space. PLoS ONE, 2014, 9, e115989.	2.5	52
82	Quantifying local rainfall dynamics and uncertain boundary conditions into a nested regionalâ€local flood modeling system. Water Resources Research, 2017, 53, 2770-2785.	4.2	51
83	DECIPHeR v1: Dynamic fluxEs and ConnectIvity for Predictions of HydRology. Geoscientific Model Development, 2019, 12, 2285-2306.	3.6	51
84	Modelling hydrologic responses in a small forested catchment (Panola Mountain, Georgia, USA): a comparison of the original and a new dynamic TOPMODEL. Hydrological Processes, 2003, 17, 345-362.	2.6	50
85	Multiple sources of predictive uncertainty in modeled estimates of net ecosystem CO2 exchange. Ecological Modelling, 2009, 220, 3259-3270.	2.5	49
86	Methods for detecting change in hydrochemical time series in response to targeted pollutant mitigation in river catchments. Journal of Hydrology, 2014, 514, 297-312.	5.4	49
87	The impact of uncertain precipitation data on insurance loss estimates using a flood catastrophe model. Hydrology and Earth System Sciences, 2014, 18, 2305-2324.	4.9	48
88	Discharge and nutrient uncertainty: implications for nutrient flux estimation in small streams. Hydrological Processes, 2016, 30, 135-152.	2.6	48
89	Epistemic uncertainties and natural hazard risk assessment â€“ Part 1: A review of different natural hazard areas. Natural Hazards and Earth System Sciences, 2018, 18, 2741-2768.	3.6	45
90	Factors affecting the spatial pattern of bedrock groundwater recharge at the hillslope scale. Hydrological Processes, 2015, 29, 4594-4610.	2.6	40

#	Article	IF	Citations
91	Developing observational methods to drive future hydrological science: Can we make a start as a community?. Hydrological Processes, 2020, 34, 868-873.	2.6	34
92	A novel application of natural fluorescence to understand the sources and transport pathways of pollutants from livestock farming in small headwater catchments. Science of the Total Environment, 2012, 417-418, 169-182.	8.0	32
93	Comparing ensemble projections of flooding against flood estimation by continuous simulation. Journal of Hydrology, 2014, 511, 205-219.	5.4	32
94	Global bimodal precipitation seasonality: A systematic overview. International Journal of Climatology, 2019, 39, 558-567.	3.5	31
95	Determining the sources of nutrient flux to water in headwater catchments: Examining the speciation balance to inform the targeting of mitigation measures. Science of the Total Environment, 2019, 648, 1179-1200.	8.0	31
96	The Spatial Dynamics of Droughts and Water Scarcity in England and Wales. Water Resources Research, 2020, 56, e2020WR027187.	4.2	31
97	Atmospheric Sampling on Ascension Island Using Multirotor UAVs. Sensors, 2017, 17, 1189.	3.8	29
98	Science versus politics: truth and uncertainty in predictive modelling. Hydrological Processes, 2009, 23, 2549-2554.	2.6	28
99	Sensitivity of a hydraulic model to channel erosion uncertainty during extreme flooding. Hydrological Processes, 2015, 29, 261-279.	2.6	26
100	A geospatial framework to support integrated biogeochemical modelling in the United Kingdom. Environmental Modelling and Software, 2015, 68, 219-232.	4.5	26
101	Hydrological controls on DOCâ€‰â€':â€‰â€¯nitrate resource stoichiometry in a lowland, agricultural catchment, southern UK. Hydrology and Earth System Sciences, 2017, 21, 4785-4802.	4.9	25
102	Title is missing!. Water, Air, and Soil Pollution, 2003, 142, 71-94.	2.4	24
103	Recent climatic trends and linkages to river discharge in Central Vietnam. Hydrological Processes, 2014, 28, 1587-1601.	2.6	24
104	Investigating the application of climate models in flood projection across the UK. Hydrological Processes, 2014, 28, 2810-2823.	2.6	24
105	Effects of variability in probable maximum precipitation patterns on flood losses. Hydrology and Earth System Sciences, 2018, 22, 2759-2773.	4.9	24
106	Comparing empirical models for sediment and phosphorus transfer from soils to water at field and catchment scale under data uncertainty. European Journal of Soil Science, 2012, 63, 211-223.	3.9	23
107	Processes affecting transfer of sediment and colloids, with associated phosphorus, from intensively farmed grasslands: a critical note on modelling of phosphorus transfers. Hydrological Processes, 2007, 21, 557-562.	2.6	22
108	Process-based modelling to evaluate simulated groundwater levels and frequencies in aÂChalk catchment in south-western England. Natural Hazards and Earth System Sciences, 2018, 18, 445-461.	3.6	22

#	Article	IF	Citations
109	Remote sensing and identification of volcanic plumes using fixedâ€wing UAVs over VolcÃ¡n de Fuego, Guatemala. Journal of Field Robotics, 2019, 36, 1192-1211.	6.0	22
110	The potential benefits of on-farm mitigation scenarios for reducing multiple pollutant loadings in prioritised agri-environment areas across England. Environmental Science and Policy, 2017, 73, 100-114.	4.9	21
111	Processes influencing model-data mismatch in drought-stressed, fire-disturbed eddy flux sites. Journal of Geophysical Research, 2011, 116, .	3.3	20
112	Improving estuary models by reducing uncertainties associated with river flows. Estuarine, Coastal and Shelf Science, 2018, 207, 63-73.	2.1	15
113	What about reservoirs? Questioning anthropogenic and climatic interferences on water availability. Hydrological Processes, 2020, 34, 5441-5455.	2.6	15
114	Catchment similarity concepts for understanding dynamic biogeochemical behaviour of river basins. Hydrological Processes, 2014, 28, 1554-1560.	2.6	14
115	Methane mole fraction and Î´¹³C above and below the trade wind inversion at Ascension Island in air sampled by aerial robotics. Geophysical Research Letters, 2016, 43, 11,893.	4.0	14
116	The evolving perceptual model of streamflow generation at the Panola Mountain Research Watershed. Hydrological Processes, 2021, 35, e14127.	2.6	12
117	BVLOS UAS Operations in Highly-Turbulent Volcanic Plumes. Frontiers in Robotics and AI, 2020, 7, 549716.	3.2	10
118	Prediction of storm transfers and annual loads with data-based mechanistic models using high-frequency data. Hydrology and Earth System Sciences, 2017, 21, 6425-6444.	4.9	9
119	Incorporating Uncertainty Into Multiscale Parameter Regionalization to Evaluate the Performance of Nationally Consistent Parameter Fields for a Hydrological Model. Water Resources Research, 2021, 57, e2020WR028393.	4.2	9
120	The impact of different rainfall products on landscape modelling simulations. Earth Surface Processes and Landforms, 2020, 45, 2512-2523.	2.5	8
121	Towards more realistic runoff projections by removing limits on simulated soil moisture deficit. Journal of Hydrology, 2021, 600, 126505.	5.4	8
122	Assessment of projected changes in upland environments using simple climatic indices. Climate Research, 2010, 45, 87-104.	1.1	7
123	Assessing the hydrological and geomorphic behaviour of a landscape evolution model within a limitsâ€ofâ€acceptability uncertainty analysis framework. Earth Surface Processes and Landforms, 2021, 46, 1981-2003.	2.5	6
124	The Impact of Scale on Probabilistic Flood Inundation Maps Using a 2D Hydraulic Model with Uncertain Boundary Conditions. , 2014, , .		5
125	The usability of 250 m resolution data from the UK Meteorological Office Unified Model as input data for a hydrological model. Meteorological Applications, 2008, 15, 207-217.	2.1	4
126	The Maimai <scp>M8</scp> experimental catchment database: Forty years of processâ€based research on steep, wet hillslopes. Hydrological Processes, 2021, 35, e14112.	2.6	4

#	Article	IF	Citations
127	Struggling with Epistemic Uncertainties in Environmental Modelling of Natural Hazards. , 2014, , .		2
128	Reply to comment by Melsen et al. on â€œMost computational hydrology is not reproducible, so is it really science?â€• Water Resources Research, 2017, 53, 2570-2571.	4.2	2
129	Reply to comment by AÃ±el on â€œMost computational hydrology is not reproducible, so is it really science?â€• Water Resources Research, 2017, 53, 2575-2576.	4.2	1
130	Consistency assessment of rating curve data in various locations using Bidirectional Reach (BReach). Hydrology and Earth System Sciences, 2017, 21, 5315-5337.	4.9	1
131	Hydrological processesâ€"Letters. Topographic controls on subsurface storm flow at the hillslope scale for two hydrologically distinct small catchmetns. Hydrological Processes, 1997, 11, 1347-1352.	2.6	1