Praveen Kumar

List of Publications by Year
in descending order

142	7,521	57631	60497
papers	citations	44 h-index	81 g-index

145	145	145	8039
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Wavelet analysis for geophysical applications. Reviews of Geophysics, 1997, 35, 385-412.	9.0	803
2	A catchment-based approach to modeling land surface processes in a general circulation model: 1. Model structure. Journal of Geophysical Research, 2000, 105, 24809-24822.	3.3	673
3	The future of hydrology: An evolving science for a changing world. Water Resources Research, 2010, 46, .	1.7	487
4	A catchment-based approach to modeling land surface processes in a general circulation model: 2. Parameter estimation and model demonstration. Journal of Geophysical Research, 2000, 105, 24823-24838.	3.3	226
5	Impact of Atmospheric Moisture Storage on Precipitation Recycling. Journal of Climate, 2006, 19, 1513-1530.	1.2	216
6	A multicomponent decomposition of spatial rainfall fields: 1. Segregation of large- and small-scale features using wavelet transforms. Water Resources Research, 1993, 29, 2515-2532.	1.7	200
7	Ecohydrologic process networks: 1. Identification. Water Resources Research, 2009, 45, .	1.7	154
8	A model for hydraulic redistribution incorporating coupled soil-root moisture transport. Hydrology and Earth System Sciences, 2008, 12, 55-74.	1.9	141
9	Topographic Influence on the Seasonal and Interannual Variation of Water and Energy Balance of Basins in North America. Journal of Climate, 2001, 14, 1989-2014.	1.2	128
10	Implications for the hydrologic cycle under climate change due to the expansion of bioenergy crops in the Midwestern United States. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 15085-15090.	3.3	125
11	Decreasing, not increasing, leaf area will raise crop yields under global atmospheric change. Global Change Biology, 2017, 23, 1626-1635.	4.2	112
12	Precipitation Recycling Variability and Ecoclimatological Stabilityâ€"A Study Using NARR Data. Part II: North American Monsoon Region. Journal of Climate, 2008, 21, 5187-5203.	1.2	110
13	Wavelet Analysis in Geophysics: An Introduction. Wavelet Analysis and Its Applications, 1994, 4, 1-43.	0.2	102
14	Mitigating land loss in coastal Louisiana by controlled diversion of Mississippi River sand. Nature Geoscience, 2012, 5, 534-537.	5.4	100
15	Power law catchmentâ€scale recessions arising from heterogeneous linear smallâ€scale dynamics. Water Resources Research, 2009, 45, .	1.7	98
16	A multicomponent decomposition of spatial rainfall fields: 2. Self-similarity in fluctuations. Water Resources Research, 1993, 29, 2533-2544.	1.7	95
17	Designing a network of critical zone observatories to explore the living skin of the terrestrial Earth. Earth Surface Dynamics, 2017, 5, 841-860.	1.0	92
18	Simultaneous improvement in productivity, water use, and albedo through crop structural modification. Global Change Biology, 2014, 20, 1955-1967.	4.2	88

#	Article	IF	Citations
19	Typology of hydrologic predictability. Water Resources Research, 2011, 47, .	1.7	86
20	Precipitation Recycling in the Indian Subcontinent during Summer Monsoon. Journal of Hydrometeorology, 2014, 15, 2050-2066.	0.7	86
21	Role of Oceanic and Land Moisture Sources and Transport in the Seasonal and Interannual Variability of Summer Monsoon in India. Journal of Climate, 2017, 30, 1839-1859.	1.2	82
22	Kinematic dispersion in stream networks 1. Coupling hydraulic and network geometry. Water Resources Research, 2002, 38, 26-1-26-14.	1.7	77
23	A data mining approach for understanding topographic control on climate-induced inter-annual vegetation variability over the United States. Remote Sensing of Environment, 2005, 98, 1-20.	4.6	74
24	Critical transition in critical zone of intensively managed landscapes. Anthropocene, 2018, 22, 10-19.	1.6	72
25	Interannual Variability of Deep-Layer Hydrologic Memory and Mechanisms of Its Influence on Surface Energy Fluxes. Journal of Climate, 2005, 18, 5024-5045.	1.2	69
26	Precipitation Recycling Variability and Ecoclimatological Stabilityâ€"A Study Using NARR Data. Part I: Central U.S. Plains Ecoregion. Journal of Climate, 2008, 21, 5165-5186.	1.2	68
27	Temporal information partitioning: Characterizing synergy, uniqueness, and redundancy in interacting environmental variables. Water Resources Research, 2017, 53, 5920-5942.	1.7	66
28	Ecohydrologic process networks: 2. Analysis and characterization. Water Resources Research, 2009, 45, .	1.7	65
29	Ecohydrological responses of dense canopies to environmental variability: 1. Interplay between vertical structure and photosynthetic pathway. Journal of Geophysical Research, 2010, 115, .	3.3	61
30	An environmental cost-benefit analysis of alternative green roofing strategies. Ecological Engineering, 2016, 95, 1-9.	1.6	61
31	Legacy Effects in Material Flux: Structural Catchment Changes Predate Long-Term Studies. BioScience, 2012, 62, 575-584.	2.2	59
32	The Role of Critical Zone Observatories in Critical Zone Science. Developments in Earth Surface Processes, 2015, , 15-78.	2.8	57
33	Role of Oceanic and Terrestrial Atmospheric Moisture Sources in Intraseasonal Variability of Indian Summer Monsoon Rainfall. Scientific Reports, 2017, 7, 12729.	1.6	56
34	A multiple scale state-space model for characterizing subgrid scale variability of near-surface soil moisture. IEEE Transactions on Geoscience and Remote Sensing, 1999, 37, 182-197.	2.7	55
35	Coherent modes in multiscale variability of streamflow over the United States. Water Resources Research, 2000, 36, 1049-1067.	1.7	55
36	Three-dimensional volume-averaged soil moisture transport model with a scalable parameterization of subgrid topographic variability. Water Resources Research, 2007, 43, .	1.7	52

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37	The influence of photosynthetic acclimation to rising CO₂ and warmer temperatures on leaf and canopy photosynthesis models. Global Biogeochemical Cycles, 2015, 29, 194-206.	1.9	51
38	Impacts of hydraulic redistribution on grassâ€“tree competition vs facilitation in a semiâ€arid savanna. New Phytologist, 2017, 215, 1451-1461.	3.5	51
39	Surface Boundary Conditions for Mesoscale Regional Climate Models. Earth Interactions, 2005, 9, 1-28.	0.7	50
40	Optimality approaches to describe characteristic fluvial patterns on landscapes. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 1387-1395.	1.8	50
41	Climate, soil, and vegetation controls on the temporal variability of vadose zone transport. Water Resources Research, 2011, 47, .	1.7	49
42	Temporal Information Partitioning Networks (TIPNets): A process network approach to infer ecohydrologic shifts. Water Resources Research, 2017, 53, 5899-5919.	1.7	48
43	Role of Terrestrial Hydrologic Memory in Modulating ENSO Impacts in North America. Journal of Climate, 2002, 15, 3569-3585.	1.2	46
44	GPU-based high-performance computing for integrated surfaceâ€“sub-surface flow modeling. Environmental Modelling and Software, 2015, 73, 1-13.	1.9	46
45	Water cycle dynamics in a changing environment: Improving predictability through synthesis. Water Resources Research, 2011, 47, .	1.7	45
46	Power law scaling of topographic depressions and their hydrologic connectivity. Geophysical Research Letters, 2014, 41, 1553-1559.	1.5	45
47	Information Driven Ecohydrologic Self-Organization. Entropy, 2010, 12, 2085-2096.	1.1	44
48	Hydrogeomorphological differentiation between floodplains and terraces. Earth Surface Processes and Landforms, 2018, 43, 218-228.	1.2	44
49	Competitive and mutualistic dependencies in multispecies vegetation dynamics enabled by hydraulic redistribution. Water Resources Research, 2012, 48, .	1.7	43
50	Kinematic dispersion in stream networks 2. Scale issues and self-similar network organization. Water Resources Research, 2002, 38, 27-1-27-15.	1.7	42
51	NVAP and Reanalysis-2 Global Precipitable Water Products : Intercomparison and Variability Studies. Bulletin of the American Meteorological Society, 2005, 86, 245-256.	1.7	42
52	Hydrocomplexity: Addressing water security and emergent environmental risks. Water Resources Research, 2015, 51, 5827-5838.	1.7	42
53	Seasonal rain changes. Nature Climate Change, 2013, 3, 783-784.	8.1	40
54	Assessment of Floodplain Vulnerability during Extreme Mississippi River Flood 2011. Environmental Science & Technology, 2014, 48, 2619-2625.	4.6	39

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55	Patterns of change in high frequency precipitation variability over North America. Scientific Reports, 2017, 7, 10853.	1.6	39
56	A Conjunctive Surfaceâ€“Subsurface Flow Representation for Mesoscale Land Surface Models. Journal of Hydrometeorology, 2013, 14, 1421-1442.	0.7	38
57	A probability-weighted moment test to assess simple scaling. Stochastic Hydrology & Hydraulics, 1994, 8, 173-183.	0.5	37
58	Assimilation of near-surface temperature using extended Kalman filter. Advances in Water Resources, 2003, 26, 79-93.	1.7	37
59	A service-oriented architecture for coupling web service models using the Basic Model Interface (BMI). Environmental Modelling and Software, 2017, 92, 107-118.	1.9	37
60	Debatesâ€”Does Information Theory Provide a New Paradigm for Earth Science? Causality, Interaction, and Feedback. Water Resources Research, 2020, 56, e2019WR024940.	1.7	37
61	A wavelet based methodology for scale-space anisotropic analysis. Geophysical Research Letters, 1995, 22, 2777-2780.	1.5	36
62	Numerical simulations of hydraulic redistribution across climates: The role of the root hydraulic conductivities. Water Resources Research, 2015, 51, 8529-8550.	1.7	36
63	Dynamic process connectivity explains ecohydrologic responses to rainfall pulses and drought. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E8604-E8613.	3.3	36
64	Passive regulation of soil biogeochemical cycling by root water transport. Water Resources Research, 2013, 49, 3729-3746.	1.7	35
65	Critical Zone services as environmental assessment criteria in intensively managed landscapes. Earth's Future, 2017, 5, 617-632.	2.4	34
66	Functional Topology of Evolving Urban Drainage Networks. Water Resources Research, 2017, 53, 8966-8979.	1.7	34
67	Predicting the direct and indirect impacts of climate change on malaria in coastal Kenya. PLoS ONE, 2019, 14, e0211258.	1.1	33
68	Kinematic dispersion effects of hillslope velocities. Water Resources Research, 2004, 40, .	1.7	32
69	Variability, Feedback, and Cooperative Process Dynamics: Elements of a Unifying Hydrologic Theory. Geography Compass, 2007, 1, 1338-1360.	1.5	31
70	The Intensively Managed Landscape Critical Zone Observatory: A Scientific Testbed for Understanding Critical Zone Processes in Agroecosystems. Vadose Zone Journal, 2018, 17, 1-21.	1.3	31
71	Signatures of Hydrologic Function Across the Critical Zone Observatory Network. Water Resources Research, 2021, 57, e2019WR026635.	1.7	31
72	Hydrodynamic and geomorphologic dispersion: scale effects in the Illinois River Basin. Journal of Hydrology, 2004, 288, 237-257.	2.3	30

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73	A New Look at Rainfall Fluctuations and Scaling Properties of Spatial Rainfall Using Orthogonal Wavelets. Journal of Applied Meteorology and Climatology, 1993, 32, 209-222.	1.7	29
74	Layer averaged Richard's equation with lateral flow. Advances in Water Resources, 2004, 27, 521-531.	1.7	29
75	Emergence of selfâ€similar tree network organization. Complexity, 2008, 13, 30-37.	0.9	29
76	Threshold Dynamics in Soil Carbon Storage for Bioenergy Crops. Environmental Science & Technology, 2014, 48, 12090-12098.	4.6	28
77	Assessing the value of seasonal climate forecast information through an endâ€toâ€end forecasting framework: Application to U.S. 2012 drought in central Illinois. Water Resources Research, 2014, 50, 6592-6609.	1.7	28
78	Steering operational synergies in terrestrial observation networks: opportunity for advancing Earth system dynamics modelling. Earth System Dynamics, 2018, 9, 593-609.	2.7	28
79	Hydraulic geometry and the nonlinearity of the network instantaneous response. Water Resources Research, 2004, 40, .	1.7	27
80	Ecohydrological responses of dense canopies to environmental variability: 2. Role of acclimation under elevated CO₂. Journal of Geophysical Research, 2010, 115, .	3.3	27
81	Role of coherent structures in the stochastic-dynamic variability of precipitation. Journal of Geophysical Research, 1996, 101, 26393-26404.	3.3	25
82	Incorporating Reanalysis-Based Short-Term Forecasts from a Regional Climate Model in an Irrigation Scheduling Optimization Problem. Journal of Water Resources Planning and Management - ASCE, 2014, 140, 699-713.	1.3	25
83	Basin level statistical properties of topographic index for North America. Advances in Water Resources, 2000, 23, 571-578.	1.7	24
84	Interaction Between Ecohydrologic Dynamics and Microtopographic Variability Under Climate Change. Water Resources Research, 2017, 53, 8383-8403.	1.7	24
85	Impact of Hydraulic Redistribution on Multispecies Vegetation Water Use in a Semiarid Savanna Ecosystem: An Experimental and Modeling Synthesis. Water Resources Research, 2018, 54, 4009-4027.	1.7	24
86	Impacts of Subsurface Tile Drainage on Ageâ€"Concentration Dynamics of Inorganic Nitrogen in Soil. Water Resources Research, 2019, 55, 1470-1489.	1.7	24
87	Mean age distribution of inorganic soilâ€nitrogen. Water Resources Research, 2016, 52, 5516-5536.	1.7	20
88	Characterizing Vegetation Canopy Structure Using Airborne Remote Sensing Data. IEEE Transactions on Geoscience and Remote Sensing, 2017, 55, 1160-1178.	2.7	20
89	A Modeling Study of the ENSO Influence on the Terrestrial Energy Profile in North America. Journal of Climate, 2004, 17, 1657-1670.	1.2	19
90	Towards Sustainable Curation and Preservation: The SEAD Project's Data Services Approach. , 2015, , .		19

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91	A graphical user interface for numerical modeling of acclimation responses of vegetation to climate change. Computers and Geosciences, 2012, 49, 91-101.	2.0	18
92	Role of Microâ€Topographic Variability on the Distribution of Inorganic Soilâ€Nitrogen Age in Intensively Managed Landscape. Water Resources Research, 2017, 53, 8404-8422.	1.7	18
93	Impacts of Quaternary History on Critical Zone Structure and Processes: Examples and a Conceptual Model From the Intensively Managed Landscapes Critical Zone Observatory. Frontiers in Earth Science, 2018, 6, .	0.8	18
94	Wetlandscape Fractal Topography. Geophysical Research Letters, 2018, 45, 6983-6991.	1.5	18
95	Modeling the Role of Root Exudation in Critical Zone Nutrient Dynamics. Water Resources Research, 2020, 56, e2019WR026606.	1.7	18
96	Information transfer from causal history in complex system dynamics. Physical Review E, 2019, 99, 012306.	0.8	17
97	Field trials to detect drainage pipe networks using thermal and RGB data from unmanned aircraft. Agricultural Water Management, 2020, 229, 105895.	2.4	17
98	Emergent and divergent resilience behavior in catastrophic shift systems. Ecological Modelling, 2015, 298, 87-105.	1.2	16
99	A catchment-based land surface model for GCMS and the framework for its evaluation. Physics and Chemistry of the Earth, 1999, 24, 769-773.	0.3	15
100	Information Theoretic Measures to Infer Feedback Dynamics in Coupled Logistic Networks. Entropy, 2015, 17, 7468-7492.	1.1	15
101	Mapping subsurface tile drainage systems with thermal images. Agricultural Water Management, 2019, 218, 94-101.	2.4	15
102	Antecedent Conditions Control Thresholds of Tileâ€Runoff Generation and Nitrogen Export in Intensively Managed Landscapes. Water Resources Research, 2022, 58, .	1.7	15
103	On the Feasibility of Characterizing Soil Properties From AVIRIS Data. IEEE Transactions on Geoscience and Remote Sensing, 2015, 53, 5133-5147.	2.7	14
104	Brown Dog: Leveraging everything towards autocuration. , 2015, , .		13
105	Stochastic lattice-based modelling of malaria dynamics. Malaria Journal, 2018, 17, 250.	0.8	12
106	Impact of irrigation scheduling methods on corn yield under climate change. Agricultural Water Management, 2021, 255, 106990.	2.4	12
107	SEAD Virtual Archive: Building a Federation of Institutional Repositories for Long-Term Data Preservation in Sustainability Science. International Journal of Digital Curation, 2013, 8, 172-180.	0.1	12
108	Interactions of information transfer along separable causal paths. Physical Review E, 2018, 97, 042310.	0.8	11

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109	Threeâ€Dimensional Modeling of the Coevolution of Landscape and Soil Organic Carbon. Water Resources Research, 2019, 55, 1218-1241.	1.7	11
110	Comment on â€œClimate and agricultural land use change impacts on streamflow in the upper midwestern United Statesâ€•by Satish C. Gupta et al.. Water Resources Research, 2016, 52, 7536-7539.	1.7	10
111	Using Information Flow for Whole System Understanding From Component Dynamics. Water Resources Research, 2019, 55, 8305-8329.	1.7	10
112	Inevitable self-similar topology of binary trees and their diverse hierarchical density. European Physical Journal B, 2007, 60, 247-258.	0.6	9
113	Power-Law Behavior in Geometric Characteristics ofÂFull Binary Trees. Journal of Statistical Physics, 2011, 142, 862-878.	0.5	9
114	Sustainable long term scientific data publication: Lessons learned from a prototype Observatory Information System for the Illinois River Basin. Environmental Modelling and Software, 2014, 54, 73-87.	1.9	9
115	A Changing Climatology of Precipitation Persistence across the United States Using Information-Based Measures. Journal of Hydrometeorology, 2019, 20, 1649-1666.	0.7	9
116	Convergent Hydraulic Redistribution and Groundwater Access Supported Facilitative Dependency Between Trees and Grasses in a Semiâ€Arid Environment. Water Resources Research, 2021, 57, e2020WR028103.	1.7	9
117	Estimating Transmissivity from the Water Level Fluctuations of a Sinusoidally Forced Well. Ground Water, 1999, 37, 855-860.	0.7	8
118	A Numerical Water Tracer Model for Understanding Event-Scale Hydrometeorological Phenomena. Journal of Hydrometeorology, 2018, 19, 947-967.	0.7	8
119	Sustainability of soil organic carbon in consolidated gully land in Chinaâ€™s Loess Plateau. Scientific Reports, 2020, 10, 16927.	1.6	8
120	A new dynamic wetness index (DWI) predicts soil moisture persistence and correlates with key indicators of surface soil geochemistry. Geoderma, 2020, 368, 114239.	2.3	8
121	Hydrologic Applications of MRAN Algorithm. Journal of Hydrologic Engineering - ASCE, 2007, 12, 124-129.	0.8	7
122	Hydraulic redistribution buffers climate variability and regulates grassâ€tree interactions in a semiarid riparian savanna. Ecohydrology, 2021, 14, e2271.	1.1	7
123	Radiocarbon and Stable Carbon Isotopes of Labile and Inert Organic Carbon in the Critical Zone Observatory in Illinois, USA. Radiocarbon, 2018, 60, 989-999.	0.8	6
124	Harnessing emerging technologies to reduce Gulf hypoxia. Nature Sustainability, 2019, 2, 889-891.	11.5	6
125	The Power of Environmental Observatories for Advancing Multidisciplinary Research, Outreach, and Decision Support: The Case of the Minnesota River Basin. Water Resources Research, 2019, 55, 3576-3592.	1.7	6
126	Predicting the Water Requirement for Rice Production as Affected by Projected Climate Change in Bihar, India. Water (Switzerland), 2020, 12, 3312.	1.2	6

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127	AVHRR estimates of surface temperature during the Southern Great Plains 1997 Experiment. Journal of Geophysical Research, 2000, 105, 20791-20801.	3.3	4
128	Reply to comment by J. Szilagyi on â€œPower law catchmentâ€scale recessions arising from heterogeneous linear smallâ€scale dynamicsâ€• Water Resources Research, 2009, 45, .	1.7	4
129	An Architecture for Automatic Deployment of Brown Dog Services at Scale into Diverse Computing Infrastructures. , 2016, , .		4
130	Identification and characterization of information-networks in long-tail data collections. Environmental Modelling and Software, 2017, 94, 100-111.	1.9	4
131	Brown Dog. , 2018, , .		4
132	Characterizing relative degrees of clumping structure in vegetation canopy using waveform LiDAR. Remote Sensing of Environment, 2019, 232, 111281.	4.6	4
133	A Framework for Global Characterization of Soil Properties Using Repeat Hyperspectral Satellite Data. IEEE Transactions on Geoscience and Remote Sensing, 2019, 57, 3308-3323.	2.7	4
134	Discerning the thermodynamic feasibility of the spontaneous coexistence of multiple functional vegetation groups. Scientific Reports, 2020, 10, 18321.	1.6	3
135	Bundled Causal History Interaction. Entropy, 2020, 22, 360.	1.1	3
136	Virtual laboratory for understanding impact of heterogeneity on ecohydrologic processes across scales. Environmental Modelling and Software, 2022, 149, 105283.	1.9	3
137	Hydrologic Dispersion in Fluvial Networks. , 2008, , 307-335.		2
138	Autocuration Cyberinfrastructure for Scientific Discovery and Preservation. , 2015, , .		2
139	REWTCrunch: A Modeling Framework for Vegetation Induced Reactive Zone Processes in the Critical Zone. Journal of Geophysical Research G: Biogeosciences, 2022, 127, .	1.3	2
140	Impacts of Landscape Evolution on Heterotrophic Carbon Loss in Intensively Managed Landscapes. Frontiers in Water, 2021, 3, .	1.0	1
141	Reply to comment by Talbot et al. on â€œLayer averaged Richardsâ€™ equation with lateral flowâ€• Advances in Water Resources, 2004, 27, 1043-1044.	1.7	0
142	A Multicomponent Self-Similar Characterization of Rainfall Fluctuations. The IMA Volumes in Mathematics and Its Applications, 1996, , 239-254.	0.5	0