Patrick M Reed

List of Publications by Year in Descending Order

136 papers	7,073 citations	46 h-index	82 g-index
168 ext. papers	8,315 ext. citations	5.5 avg, IF	6.38 L-index

#	Paper	IF	Citations
136	Unintended consequences of climate change mitigation for African river basins. *Nature Climate Change*, **2022**, 12, 187-192	21.4	2
135	Multisector Dynamics: Advancing the Science of Complex Adaptive Human-Earth Systems. *Earth's Future*, **2022**, 10,	7.9	2
134	Unveiling uncertainties to enhance sustainability transformations in infrastructure decision-making. *Current Opinion in Environmental Sustainability*, **2022**, 55, 101172	7.2	1
133	A State-of-the-Art Review of Optimal Reservoir Control for Managing Conflicting Demands in a Changing World. *Water Resources Research*, **2021**, 57, e2021WR029927	5.4	6
132	Coordination and control limits in standard representations of multi-reservoir operations in hydrological modeling. *Hydrology and Earth System Sciences*, **2021**, 25, 1365-1388	5.5	4
131	Evaluating the economic impact of water scarcity in a changing world. *Nature Communications*, **2021**, 12, 1915	17.4	37
130	Adaptive mitigation strategies hedge against extreme climate futures. *Climatic Change*, **2021**, 166, 1	4.5	1
129	Planned relocation: Pluralistic and integrated science and governance. *Science*, **2021**, 372, 1276-1279	33.3	4
128	Diagnosing the Time-Varying Value of Forecasts in Multiobjective Reservoir Control. *Journal of Water Resources Planning and Management - ASCE*, **2021**, 147,	2.8	5
127	California's food-energy-water system: An open source simulation model of adaptive surface and groundwater management in the Central Valley. *Environmental Modelling and Software*, **2021**, 141, 105032	5.2	2
126	The effects of air pollution sources / sensor array configurations on the likelihood of obtaining accurate source term estimations. *Atmospheric Environment*, **2021**, 246, 117754	5.3	4
125	An open source reservoir and sediment simulation framework for identifying and evaluating siting, design, and operation alternatives. *Environmental Modelling and Software*, **2021**, 136, 104947	5.2	4
124	Designing With Information Feedbacks: Forecast Informed Reservoir Sizing and Operation. *Water Resources Research*, **2021**, 57, e2020WR028112	5.4	6
123	Improving the Robustness of Reservoir Operations with Stochastic Dynamic Programming. *Journal of Water Resources Planning and Management - ASCE*, **2021**, 147,	2.8	2
122	Improving Information-Based Coordinated Operations in Interbasin Water Transfer Megaprojects: Case Study in Southern India. *Journal of Water Resources Planning and Management - ASCE*, **2021**, 147, 04021075	2.8	1
121	Impacts of irrigation efficiency on water-dependent sectors are heavily controlled by region-specific institutions and infrastructures. *Journal of Environmental Management*, **2021**, 300, 113731	7.9	1
120	Managing Financial Risk Trade-Offs for Hydropower Generation Using Snowpack-Based Index Contracts. *Water Resources Research*, **2020**, 56, e2020WR027212	5.4	2

119	Navigating Deeply Uncertain Tradeoffs in Harvested Predator-Prey Systems. *Complexity*, **2020**, 2020, 1-18	1.6	3
118	Defining Robustness, Vulnerabilities, and Consequential Scenarios for Diverse Stakeholder Interests in Institutionally Complex River Basins. *Earth's Future*, **2020**, 8, e2020EF001503	7.9	12
117	An open source model for quantifying risks in bulk electric power systems from spatially and temporally correlated hydrometeorological processes. *Environmental Modelling and Software*, **2020** , 126, 104667	5.2	12
116	Rhodium: Python Library for Many-Objective Robust Decision Making and Exploratory Modeling. *Journal of Open Research Software*, **2020**, 8,	2.3	8
115	Low cost satellite constellations for nearly continuous global coverage. *Nature Communications*, **2020**, 11, 200	17.4	18
114	Accounting for Adaptive Water Supply Management When Quantifying Climate and Land Cover Change Vulnerability. *Water Resources Research*, **2020**, 56, e2019WR025614	5.4	10
113	Advancing Diagnostic Model Evaluation to Better Understand Water Shortage Mechanisms in Institutionally Complex River Basins. *Water Resources Research*, **2020**, 56, e2020WR028079	5.4	3
112	Can modern multi-objective evolutionary algorithms discover high-dimensional financial risk portfolio tradeoffs for snow-dominated water-energy systems?. *Advances in Water Resources*, **2020**, 145, 103718	4.7	5
111	Water pathways: An open source stochastic simulation system for integrated water supply portfolio management and infrastructure investment planning. *Environmental Modelling and Software*, **2020**, 132, 104772	5.2	9
110	Water rights shape crop yield and revenue volatility tradeoffs for adaptation in snow dependent systems. *Nature Communications*, **2020**, 11, 3473	17.4	6
109	Compound hydrometeorological extremes across multiple timescales drive volatility in California electricity market prices and emissions. *Applied Energy*, **2020**, 276, 115541	10.7	2
108	Can Exploratory Modeling of Water Scarcity Vulnerabilities and Robustness Be Scenario Neutral?. *Earth's Future*, **2020**, 8, e2020EF001650	7.9	13
107	Deep Uncertainties in Sea-Level Rise and Storm Surge Projections: Implications for Coastal Flood Risk Management. *Risk Analysis*, **2020**, 40, 153-168	3.9	24
106	Structuring and evaluating decision support processes to enhance the robustness of complex human–natural systems. *Environmental Modelling and Software*, **2020**, 123, 104551	5.2	29
105	What Is Controlling Our Control Rules? Opening the Black Box of Multireservoir Operating Policies Using Time-Varying Sensitivity Analysis. *Water Resources Research*, **2019**, 55, 5962-5984	5.4	27
104	Robust abatement pathways to tolerable climate futures require immediate global action. *Nature Climate Change*, **2019**, 9, 290-294	21.4	26
103	Identifying Actionable Compromises: Navigating Multi-City Robustness Conflicts to Discover Cooperative Safe Operating Spaces for Regional Water Supply Portfolios. *Water Resources Research* , **2019**, 55, 9024-9050	5.4	14
102	Search Space Representation and Reduction Methods to Enhance Multiobjective Water Supply Monitoring Design. *Water Resources Research*, **2019**, 55, 2257-2278	5.4	4

101	Discovering Dependencies, Trade-Offs, and Robustness in Joint Dam Design and Operation: An Ex-Post Assessment of the Kariba Dam. *Earth's Future*, **2019**, 7, 1367-1390	7.9	17
100	Balancing Hydropower Development and Ecological Impacts in the Mekong: Tradeoffs for Sambor Mega Dam. *Journal of Water Resources Planning and Management - ASCE*, **2019**, 145, 05018019	2.8	39
99	Scalable Multiobjective Control for Large-Scale Water Resources Systems Under Uncertainty. *IEEE Transactions on Control Systems Technology*, **2018**, 26, 1492-1499	4.8	42
98	Skill (or lack thereof) of data-model fusion techniques to provide an early warning signal for an approaching tipping point. *PLoS ONE*, **2018**, 13, e0191768	3.7	8
97	Chapter 17 : Sectoral Interdependencies, Multiple Stressors, and Complex Systems. Impacts, Risks, and Adaptation in the United States: The Fourth National Climate Assessment, Volume II **2018**,		3
96	Large Ensemble Analytic Framework for Consequence-Driven Discovery of Climate Change Scenarios. *Earth's Future*, **2018**, 6, 488-504	7.9	30
95	Exploring How Changing Monsoonal Dynamics and Human Pressures Challenge Multireservoir Management for Flood Protection, Hydropower Production, and Agricultural Water Supply. *Water Resources Research*, **2018**, 54, 4638-4662	5.4	47
94	Integrating Raw Water Transfers into an Eastern United States Management Context. *Journal of Water Resources Planning and Management - ASCE*, **2018**, 144, 05018012	2.8	7
93	Direct policy search for robust multi-objective management of deeply uncertain socio-ecological tipping points. *Environmental Modelling and Software*, **2017**, 92, 125-141	5.2	40
92	The food-energy-water nexus: Transforming science for society. *Water Resources Research*, **2017**, 53, 3550-3556	5.4	135
91	Reducing regional drought vulnerabilities and multi-city robustness conflicts using many-objective optimization under deep uncertainty. *Advances in Water Resources*, **2017**, 104, 195-209	4.7	40
90	Balancing exploration, uncertainty and computational demands in many objective reservoir optimization. *Advances in Water Resources*, **2017**, 109, 196-210	4.7	37
89	Rival framings: A framework for discovering how problem formulation uncertainties shape risk management trade-offs in water resources systems. *Water Resources Research*, **2017**, 53, 7208-7233	5.4	54
88	Synthetic Drought Scenario Generation to Support Bottom-Up Water Supply Vulnerability Assessments. *Journal of Water Resources Planning and Management - ASCE*, **2016**, 142, 04016050	2.8	45
87	Curses, Tradeoffs, and Scalable Management: Advancing Evolutionary Multiobjective Direct Policy Search to Improve Water Reservoir Operations. *Journal of Water Resources Planning and Management - ASCE*, **2016**, 142, 04015050	2.8	124
86	Battling Arrow's Paradox to Discover Robust Water Management Alternatives. *Journal of Water Resources Planning and Management - ASCE*, **2016**, 142, 04015053	2.8	29
85	Climate risk management requires explicit representation of societal trade-offs. *Climatic Change*, **2016**, 134, 713-723	4.5	25
84	A diagnostic assessment of evolutionary algorithms for multi-objective surface water reservoir control. *Advances in Water Resources*, **2016**, 92, 172-185	4.7	74

83	Cooperative drought adaptation: Integrating infrastructure development, conservation, and water transfers into adaptive policy pathways. *Water Resources Research*, **2016**, 52, 7327-7346	5.4	62
82	Internationally coordinated multi-mission planning is now critical to sustain the space-based rainfall observations needed for managing floods globally. *Environmental Research Letters*, **2015**, 10, 024010	6.2	15
81	How Should Robustness Be Defined for Water Systems Planning under Change?. *Journal of Water Resources Planning and Management - ASCE*, **2015**, 141, 04015012	2.8	189
80	Many-objective optimization and visual analytics reveal key trade-offs for London's water supply. *Journal of Hydrology*, **2015**, 531, 1040-1053	6	82
79	Large-scale parallelization of the Borg multiobjective evolutionary algorithm to enhance the management of complex environmental systems. *Environmental Modelling and Software*, **2015**, 69, 353-369	5.2	43
78	An open source framework for many-objective robust decision making. *Environmental Modelling and Software*, **2015**, 74, 114-129	5.2	89
77	The future of water resources systems analysis: Toward a scientific framework for sustainable water management. *Water Resources Research*, **2015**, 51, 6110-6124	5.4	163
76	Flood and drought hydrologic monitoring: the role of model parameter uncertainty. *Hydrology and Earth System Sciences*, **2015**, 19, 3239-3251	5.5	33
75	Many-objective robust decision making for managing an ecosystem with a deeply uncertain threshold response. *Ecology and Society*, **2015**, 20,	4.1	51
74	Confronting tipping points: Can multi-objective evolutionary algorithms discover pollution control tradeoffs given environmental thresholds?. *Environmental Modelling and Software*, **2015**, 73, 27-43	5.2	25
73	Battle of the Water Networks II. *Journal of Water Resources Planning and Management - ASCE*, **2014**, 140, 04014009	2.8	67
72	Many-objective reservoir policy identification and refinement to reduce policy inertia and myopia in water management. *Water Resources Research*, **2014**, 50, 3355-3377	5.4	97
71	Beyond optimality: Multistakeholder robustness tradeoffs for regional water portfolio planning under deep uncertainty. *Water Resources Research*, **2014**, 50, 7692-7713	5.4	122
70	Navigating financial and supply reliability tradeoffs in regional drought management portfolios. *Water Resources Research*, **2014**, 50, 4906-4923	5.4	66
69	Evolutionary algorithms and other metaheuristics in water resources: Current status, research challenges and future directions. *Environmental Modelling and Software*, **2014**, 62, 271-299	5.2	391
68	Identifying parametric controls and dependencies in integrated assessment models using global sensitivity analysis. *Environmental Modelling and Software*, **2014**, 59, 10-29	5.2	50
67	Evolving many-objective water management to exploit exascale computing. *Water Resources Research*, **2014**, 50, 8367-8373	5.4	21
66	Improving the protection of aquatic ecosystems by dynamically constraining reservoir operation via direct policy conditioning. *IFAC Postprint Volumes IPPV / International Federation of Automatic Control*, **2014**, 47, 6252-6257		

65	Inaction and climate stabilization uncertainties lead to severe economic risks. *Climatic Change*, **2014** , 127, 463-474	4.5	12
64	A Framework for the Discovery of Passive-Control, Minimum Energy Satellite Constellations **2014**,		2
63	Many objective visual analytics: rethinking the design of complex engineered systems. *Structural and Multidisciplinary Optimization*, **2013**, 48, 201-219	3.6	70
62	Optimal Design of Water Distribution Systems Using Many-Objective Visual Analytics. *Journal of Water Resources Planning and Management - ASCE*, **2013**, 139, 624-633	2.8	108
61	Scalability Analysis of the Asynchronous, Master-Slave Borg Multiobjective Evolutionary Algorithm **2013**,		1
60	Many objective robust decision making for complex environmental systems undergoing change. *Environmental Modelling and Software*, **2013**, 42, 55-71	5.2	270
59	Visual analytics clarify the scalability and effectiveness of massively parallel many-objective optimization: A groundwater monitoring design example. *Advances in Water Resources*, **2013**, 56, 1-13	4.7	44
58	Water quality trading with asymmetric information, uncertainty and transaction costs: A stochastic agent-based simulation. *Resources and Energy Economics*, **2013**, 35, 60-90	3.2	64
57	Evolutionary multiobjective optimization in water resources: The past, present, and future. *Advances in Water Resources*, **2013**, 51, 438-456	4.7	324
56	Operational constraints and hydrologic variability limit hydropower in supporting wind integration. *Environmental Research Letters*, **2013**, 8, 024037	6.2	15
55	Time-varying sensitivity analysis clarifies the effects of watershed model formulation on model behavior. *Water Resources Research*, **2013**, 49, 1400-1414	5.4	93
54	Borg: an auto-adaptive many-objective evolutionary computing framework. *Evolutionary Computation*, **2013**, 21, 231-59	4.3	412
53	Developing predictive insight into changing water systems: use-inspired hydrologic science for the Anthropocene. *Hydrology and Earth System Sciences*, **2013**, 17, 5013-5039	5.5	103
52	From maps to movies: high-resolution time-varying sensitivity analysis for spatially distributed watershed models. *Hydrology and Earth System Sciences*, **2013**, 17, 5109-5125	5.5	46
51	Technical Note: Method of Morris effectively reduces the computational demands of global sensitivity analysis for distributed watershed models. *Hydrology and Earth System Sciences*, **2013**, 17, 2893-2903	5.5	102
50	Many-objective de Novo water supply portfolio planning under deep uncertainty. *Environmental Modelling and Software*, **2012**, 34, 87-104	5.2	106
49	Evaluating wind-following and ecosystem services for hydroelectric dams in PJM. *Journal of Regulatory Economics*, **2012**, 41, 139-154	1.3	5
48	Diagnostic assessment of search controls and failure modes in many-objective evolutionary optimization. *Evolutionary Computation*, **2012**, 20, 423-52	4.3	156

47	Reducing the Complexity of Multiobjective Water Distribution System Optimization through Global Sensitivity Analysis. *Journal of Water Resources Planning and Management - ASCE*, **2012**, 138, 196-207	2.8	71
46	Save now, pay later? Multi-period many-objective groundwater monitoring design given systematic model errors and uncertainty. *Advances in Water Resources*, **2012**, 35, 55-68	4.7	34
45	When are multiobjective calibration trade-offs in hydrologic models meaningful?. *Water Resources Research*, **2012**, 48,	5.4	104
44	Diagnostic assessment of the borg MOEA for many-objective product family design problems **2012**,		22
43	Many-objective groundwater monitoring network design using bias-aware ensemble Kalman filtering, evolutionary optimization, and visual analytics. *Water Resources Research*, **2011**, 47,	5.4	103
42	Comparative analysis of multiobjective evolutionary algorithms for random and correlated instances of multiobjective d-dimensional knapsack problems. *European Journal of Operational Research*, **2011**, 211, 466-479	5.6	35
41	Many-Objective Evolutionary Optimisation and Visual Analytics for Product Family Design **2011**, 137-159		8
40	State of the Art for Genetic Algorithms and Beyond in Water Resources Planning and Management. *Journal of Water Resources Planning and Management - ASCE*, **2010**, 136, 412-432	2.8	410
39	The Mid-Atlantic Watershed Atlas (MAWA): Open access data search & watershed-based community building. *Environmental Modelling and Software*, **2010**, 25, 808-812	5.2	5
38	Many-objective reconfiguration of operational satellite constellations with the Large-Cluster Epsilon Non-dominated Sorting Genetic Algorithm-II **2009**,		14
37	Water Resources Management: The Myth, the Wicked, and the Future. *Journal of Water Resources Planning and Management - ASCE*, **2009**, 135, 411-413	2.8	47
36	Advances in the identification and evaluation of complex environmental systems models. *Journal of Hydroinformatics*, **2009**, 11, 266-281	2.6	16
35	A top-down framework for watershed model evaluation and selection under uncertainty. *Environmental Modelling and Software*, **2009**, 24, 901-916	5.2	70
34	Sensitivity-guided reduction of parametric dimensionality for multi-objective calibration of watershed models. *Advances in Water Resources*, **2009**, 32, 1154-1169	4.7	157
33	Managing population and drought risks using many-objective water portfolio planning under uncertainty. *Water Resources Research*, **2009**, 45,	5.4	114
32	Multiobjective sensitivity analysis to understand the information content in streamflow observations for distributed watershed modeling. *Water Resources Research*, **2009**, 45,	5.4	53
31	An Evolving Paradigm for Publication in the Water Resources Management Field. *Journal of Contemporary Water Research and Education*, **2008**, 139, 37-39	1.2	
30	Characterization of watershed model behavior across a hydroclimatic gradient. *Water Resources Research*, **2008**, 44,	5.4	138

29	Pareto-Hypervolumes for the Reconfiguration of Satellite Constellations **2008**,		3
28	Rainfall characteristics define the value of streamflow observations for distributed watershed model identification. *Geophysical Research Letters*, **2008**, 35,	4.9	44
27	Addressing model bias and uncertainty in three dimensional groundwater transport forecasts for a physical aquifer experiment. *Geophysical Research Letters*, **2008**, 35,	4.9	13
26	Reducing uncertainty in predictions in ungauged basins by combining hydrologic indices regionalization and multiobjective optimization. *Water Resources Research*, **2008**, 44,	5.4	120
25	Parallel Evolutionary Multi-Objective Optimization on Large, Heterogeneous Clusters: An Applications Perspective. *Journal of Aerospace Computing, Information, and Communication*, **2008**, 5, 460-478		13
24	Genetic Algorithms (GAs) and Evolutionary Strategy to Optimize Electronic Nose Sensor Selection. *Transactions of the ASABE*, **2007**, 51, 321-330	0.9	8
23	Using interactive archives in evolutionary multiobjective optimization: A case study for long-term groundwater monitoring design. *Environmental Modelling and Software*, **2007**, 22, 683-692	5.2	45
22	A framework for Visually Interactive Decision-making and Design using Evolutionary Multi-objective Optimization (VIDEO). *Environmental Modelling and Software*, **2007**, 22, 1691-1704	5.2	126
21	Bridging river basin scales and processes to assess human-climate impacts and the terrestrial hydrologic system. *Water Resources Research*, **2006**, 42,	5.4	26
20	Parallelization Strategies for Evolutionary Multiobjective Optimization **2006**, 1		
19	Computational Scaling Analysis of Multiobjective Evolutionary Algorithms in Long-Term Groundwater Monitoring Applications **2006**, 1		0
18	Multi-Objective Design Optimization for Product Platform and Product Family Design Using Genetic Algorithms **2005**, 999		18
17	The Value of Online Adaptive Search: A Performance Comparison of NSGAII, ε-NSGAII and ε-MOEA. *Lecture Notes in Computer Science*, **2005**, 386-398	0.9	32
16	Multiobjective Tools and Strategies for Calibrating Integrated Models **2005**, 1		1
15	Comparison of Multi-Objective Evolutionary Algorithms for Long-Term Monitoring Design **2005**, 1		4
14	Simplifying the Parameterization of Real-Coded Evolutionary Algorithms **2004**, 1		1
13	Spatial interpolation methods for nonstationary plume data. *Ground Water*, **2004**, 42, 190-202	2.4	44
12	Striking the Balance: Long-Term Groundwater Monitoring Design for Conflicting Objectives. *Journal of Water Resources Planning and Management - ASCE*, **2004**, 130, 140-149	2.8	138

List of Publications

11	Efficient and Reliable Evolutionary Multiobjective Optimization Using ε-Dominance Archiving and Adaptive Population Sizing. *Lecture Notes in Computer Science*, **2004**, 390-391	0.9	2
10	Multiobjective Long-Term Groundwater Monitoring Design: The Benefits of Biasing Search Towards Key Tradeoffs **2004**, 1		
9	GROUNDWATER MONITORING DESIGN: A CASE STUDY COMBINING EPSILON DOMINANCE ARCHIVING AND AUTOMATIC PARAMETERIZATION FOR THE NSGA-II. *Advances in Natural Computation*, **2004**, 79-100		6
8	Simplifying multiobjective optimization: An automated design methodology for the nondominated sorted genetic algorithm-II. *Water Resources Research*, **2003**, 39,	5.4	87
7	A multiobjective approach to cost effective long-term groundwater monitoring using an elitist nondominated sorted genetic algorithm with historical data. *Journal of Hydroinformatics*, **2001**, 3, 71-89	2.6	64
6	A Multiobjective Approach to Long-Term Groundwater Monitoring Design **2000**, 1		2
5	Designing a competent simple genetic algorithm for search and optimization. *Water Resources Research*, **2000**, 36, 3757-3761	5.4	119
4	Cost-effective long-term groundwater monitoring design using a genetic algorithm and global mass interpolation. *Water Resources Research*, **2000**, 36, 3731-3741	5.4	130
3	Technical note: Method of Morris effectively reduces the computational demands of global sensitivity analysis for distributed watershed models		7
2	Flood and drought hydrologic monitoring: the role of model parameter uncertainty		2
1	Managing financial risk tradeoffs for hydropower generation using snowpack-based index contracts		2