Patrick Willems

List of Publications by Year
in descending order

136 papers	6,420 citations	57758 44 h-index	79698 73 g-index
138 all docs	138 docs citations	138 times ranked	6483 citing authors

#	Article	IF	Citations
1	Spatial and temporal rainfall variability in mountainous areas: A case study from the south Ecuadorian Andes. Journal of Hydrology, 2006, 329, 413-421.	5.4	346
2	Climate change impact assessment on urban rainfall extremes and urban drainage: Methods and shortcomings. Atmospheric Research, 2012, 103, 106-118.	4.1	300
3	Statistical precipitation downscaling for small-scale hydrological impact investigations of climate change. Journal of Hydrology, 2011, 402, 193-205.	5.4	234
4	A time series tool to support the multi-criteria performance evaluation of rainfall-runoff models. Environmental Modelling and Software, 2009, 24, 311-321.	4.5	194
5	Assessing the impact of land use change on hydrology by ensemble modeling (LUCHEM). I: Model intercomparison with current land use. Advances in Water Resources, 2009, 32, 129-146.	3.8	177
6	Assessment of climate change impact on hydrological extremes in two source regions of the Nile River Basin. Hydrology and Earth System Sciences, 2011, 15, 209-222.	4.9	168
7	Compound intensity/duration/frequency-relationships of extreme precipitation for two seasons and two storm types. Journal of Hydrology, 2000, 233, 189-205.	5.4	153
8	Global sensitivity analysis of yield output from the water productivity model. Environmental Modelling and Software, 2014, 51, 323-332.	4.5	139
9	Inter-comparison of statistical downscaling methods for projection of extreme precipitation in Europe. Hydrology and Earth System Sciences, 2015, 19, 1827-1847.	4.9	139
10	Revision of urban drainage design rules after assessment of climate change impacts on precipitation extremes at Uccle, Belgium. Journal of Hydrology, 2013, 496, 166-177.	5.4	137
11	Trends and multidecadal oscillations in rainfall extremes, based on a more than 100â€year time series of 10 min rainfall intensities at Uccle, Belgium. Water Resources Research, 2008, 44, .	4.2	136
12	Spaceâ€"time rainfall variability in the Paute basin, Ecuadorian Andes. Hydrological Processes, 2007, 21, 3316-3327.	2.6	132
13	Assessing the impact of land use change on hydrology by ensemble modelling (LUCHEM) II: Ensemble combinations and predictions. Advances in Water Resources, 2009, 32, 147-158.	3.8	128
14	Heat stress increase under climate change twice as large in cities as in rural areas: A study for a densely populated midlatitude maritime region. Geophysical Research Letters, 2017, 44, 8997-9007.	4.0	125
15	Multidecadal oscillatory behaviour of rainfall extremes in Europe. Climatic Change, 2013, 120, 931-944.	3.6	110
16	A framework for testing the ability of models to project climate change and its impacts. Climatic Change, 2014, 122, 271-282.	3.6	104
17	Probabilistic modelling of overflow, surcharge and flooding in urban drainage using the first-order reliability method and parameterization of local rain series. Water Research, 2008, 42, 455-466.	11.3	100
18	A spatial rainfall generator for small spatial scales. Journal of Hydrology, 2001, 252, 126-144.	5.4	97

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19	Temporal variability of hydroclimatic extremes in the Blue Nile basin. Water Resources Research, 2012, 48, .	4.2	97
20	A Review of Radarâ€Rain Gauge Data Merging Methods and Their Potential for Urban Hydrological Applications. Water Resources Research, 2019, 55, 6356-6391.	4.2	92
21	Evaluation of TRMM 3B42 precipitation estimates and WRF retrospective precipitation simulation over the Pacificâ€“Andean region of Ecuador and Peru. Hydrology and Earth System Sciences, 2014, 18, 3179-3193.	4.9	91
22	Assessing the impact of land use change on hydrology by ensemble modeling (LUCHEM) III: Scenario analysis. Advances in Water Resources, 2009, 32, 159-170.	3.8	87
23	Quantification and relative comparison of different types of uncertainties in sewer water quality modeling. Water Research, 2008, 42, 3539-3551.	11.3	85
24	Implications of climate change on hydrological extremes in the Blue Nile basin: A review. Journal of Hydrology: Regional Studies, 2015, 4, 280-293.	2.4	80
25	Climate change scenarios for precipitation and potential evapotranspiration over central Belgium. Theoretical and Applied Climatology, 2010, 99, 273-286.	2.8	78
26	Intercomparison of five lumped and distributed models for catchment runoff and extreme flow simulation. Journal of Hydrology, 2014, 511, 335-349.	5.4	78
27	Developing tailored climate change scenarios for hydrological impact assessments. Journal of Hydrology, 2014, 508, 307-321.	5.4	72
28	Spatio-temporal impact of climate change on the groundwater system. Hydrology and Earth System Sciences, 2012, 16, 1517-1531.	4.9	67
29	Flash-Flood Forecasting in an Andean Mountain Catchmentâ€"Development of a Step-Wise Methodology Based on the Random Forest Algorithm. Water (Switzerland), 2018, 10, 1519.	2.7	67
30	Runoff and vegetation stress of green roofs under different climate change scenarios. Landscape and Urban Planning, 2014, 122, 68-77.	7.5	61
31	Considering sink strength to model crop production under elevated atmospheric CO2. Agricultural and Forest Meteorology, 2011, 151, 1753-1762.	4.8	60
32	Adjustment of extreme rainfall statistics accounting for multidecadal climate oscillations. Journal of Hydrology, 2013, 490, 126-133.	5.4	60
33	Climate change impact on water resource extremes in a headwater region of the Tarim basin in China. Hydrology and Earth System Sciences, 2011, 15, 3511-3527.	4.9	58
34	Lagged influence of Atlantic and Pacific climate patterns on European extreme precipitation. Scientific Reports, 2018, 8, 5748.	3.3	58
35	Parsimonious rainfallâ€“runoff model construction supported by time series processing and validation of hydrological extremes â€" Part 1: Step-wise model-structure identification and calibration approach. Journal of Hydrology, 2014, 510, 578-590.	5.4	54
36	Climate change impact on river flows and catchment hydrology: a comparison of two spatially distributed models. Hydrological Processes, 2013, 27, 3649-3662.	2.6	53

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37	Local impact analysis of climate change on precipitation extremes: are high-resolution climate models needed for realistic simulations?. Hydrology and Earth System Sciences, 2016, 20, 3843-3857.	4.9	53
38	The relative impact of climate change and urban expansion on peak flows: a case study in central Belgium. Hydrological Processes, 2011, 25, 2846-2858.	2.6	51
39	A holistic model for coastal flooding using system diagrams and the Source-Pathway-Receptor (SPR) concept. Natural Hazards and Earth System Sciences, 2012, 12, 1431-1439.	3.6	51
40	Climate changes of hydrometeorological and hydrological extremes in the Paute basin, Ecuadorean Andes. Hydrology and Earth System Sciences, 2014, 18, 631-648.	4.9	50
41	More prolonged droughts by the end of the century in the Middle East. Environmental Research Letters, 2018, 13, 104005.	5.2	50
42	Parameter estimation in semi-distributed hydrological catchment modelling using a multi-criteria objective function. Hydrological Processes, 2007, 21, 2998-3008.	2.6	49
43	Spatial and temporal variability of rainfall in the Nile Basin. Hydrology and Earth System Sciences, 2015, 19, 2227-2246.	4.9	48
44	Precipitation intensityâ€"durationâ€"frequency curves for central Belgium with an ensemble of EURO-CORDEX simulations, and associated uncertainties. Atmospheric Research, 2018, 200, 1-12.	4.1	48
45	A non-parametric data-based approach for probabilistic flood forecasting in support of uncertainty communication. Environmental Modelling and Software, 2012, 33, 92-105.	4.5	47
46	Bias correction in hydrologic GPD based extreme value analysis by means of a slowly varying function. Journal of Hydrology, 2007, 338, 221-236.	5.4	45
47	Evaporation estimates from Nasser Lake, Egypt, based on three floating station data and Bowen ratio energy budget. Theoretical and Applied Climatology, 2010, 100, 439-465.	2.8	45
48	Quantifying field-scale effects of elevated carbon dioxide concentration on crops. Climate Research, 2012, 54, 35-47.	1.1	45
49	Flood regulation using nonlinear model predictive control. Control Engineering Practice, 2010, 18, 1147-1157.	5.5	44
50	Stochastic description of the rainfall input errors in lumped hydrological models. Stochastic Environmental Research and Risk Assessment, 2001, 15, 132-152.	4.0	42
51	Assessment of the sensitivity and prediction uncertainty of evaporation models applied to Nasser Lake, Egypt. Journal of Hydrology, 2010, 395, 10-22.	5.4	42
52	Decadal oscillations in rainfall and air temperature in the Paute River Basinâ€"Southern Andes of Ecuador. Theoretical and Applied Climatology, 2012, 108, 267-282.	2.8	42
53	Development of discharge-stage curves affected by hysteresis using time varying models, model trees and neural networks. Environmental Modelling and Software, 2014, 55, 107-119.	4.5	40
54	Enhancement of radar rainfall estimates for urban hydrology through optical flow temporal interpolation and Bayesian gauge-based adjustment. Journal of Hydrology, 2015, 531, 408-426.	5.4	38

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55	Seasonally varying footprint of climate change on precipitation in the Middle East. Scientific Reports, 2018, 8, 4435.	3.3	38
56	Comparison of statistical downscaling methods for climate change impact analysis on precipitation-driven drought. Hydrology and Earth System Sciences, 2021, 25, 3493-3517.	4.9	38
57	Development and testing of a fast conceptual river water quality model. Water Research, 2017, 113, 62-71.	11.3	37
58	Improving the predictions of a MIKE SHE catchmentâ€scale application by using a multiâ€criteria approach. Hydrological Processes, 2008, 22, 2159-2179.	2.6	36
59	Amplified Drought and Flood Risk Under Future Socioeconomic and Climatic Change. Earth's Future, 2021, 9, e2021EF002295.	6.3	36
60	A Hybrid Model for Fast and Probabilistic Urban Pluvial Flood Prediction. Water Resources Research, 2020, 56, e2019WR025128.	4.2	35
61	Looking beyond general metrics for model comparison â€" lessons from an international model intercomparison study. Hydrology and Earth System Sciences, 2017, 21, 423-440.	4.9	34
62	On the usefulness of remote sensing input data for spatially distributed hydrological modelling: case of the Tarim River basin in China. Hydrological Processes, 2012, 26, 335-344.	2.6	33
63	Integrated Modeling System for Water Resources Management of Tarim River Basin. Environmental Engineering Science, 2010, 27, 255-269.	1.6	32
64	Influence of climate variability on representative QDF predictions of the upper Blue Nile basin. Journal of Hydrology, 2011, 411, 355-365.	5.4	32
65	Multi-model approach to quantify groundwater-level prediction uncertainty using an ensemble of global climate models and multiple abstraction scenarios. Hydrology and Earth System Sciences, 2019, 23, 2279-2303.	4.9	32
66	Regional and global climate projections increase mid-century yield variability and crop productivity in Belgium. Regional Environmental Change, 2016, 16, 659-672.	2.9	31
67	Regional frequency analysis of extreme rainfall in Belgium based on radar estimates. Hydrology and Earth System Sciences, 2017, 21, 5385-5399.	4.9	31
68	Assessing the Effects of Climate Change on Compound Flooding in Coastal River Areas. Water Resources Research, 2021, 57, .	4.2	31
69	Model uncertainty analysis by variance decomposition. Physics and Chemistry of the Earth, 2012, 42-44, 21-30.	2.9	29
70	Enhanced object-based tracking algorithm for convective rain storms and cells. Atmospheric Research, 2018, 201, 144-158.	4.1	29
71	Soil moisture content retrieval based on apparent thermal inertia for Xinjiang province in China. International Journal of Remote Sensing, 2012, 33, 3870-3885.	2.9	28
72	Method for testing the accuracy of rainfallâ€"runoff models in predicting peak flow changes due to rainfall changes, in a climate changing context. Journal of Hydrology, 2012, 414-415, 425-434.	5.4	28

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73	Conceptual river water quality model with flexible model structure. Environmental Modelling and Software, 2018, 104, 102-117.	4.5	28
74	Probabilistic flood risk assessment over large geographical regions. Water Resources Research, 2013, 49, 3330-3344.	4.2	27
75	Parameterization of river incision models requires accounting for environmental heterogeneity: insights from the tropical Andes. Earth Surface Dynamics, 2020, 8, 447-470.	2.4	27
76	Behind the scenes of streamflow model performance. Hydrology and Earth System Sciences, 2021, 25, 1069-1095.	4.9	26
77	Random number generator or sewer water quality model?. Water Science and Technology, 2006, 54, 387-394.	2.5	25
78	Flood control of the Demer by using Model Predictive Control. Control Engineering Practice, 2013, 21, 1776-1787.	5.5	25
79	Spatially Distributed Conceptual Hydrological Model Building: A Generic Topâ€Down Approach Starting From Lumped Models. Water Resources Research, 2018, 54, 8064-8085.	4.2	25
80	Areal rainfall correction coefficients for small urban catchments. Atmospheric Research, 2005, 77, 48-59.	4.1	24
81	Greenâ€“blue water in the city: quantification of impact of source control versus end-of-pipe solutions on sewer and river floods. Water Science and Technology, 2014, 70, 1825-1837.	2.5	24
82	Does drought advance the onset of autumn leaf senescence in temperate deciduous forest trees?. Biogeosciences, 2021, 18, 3309-3330.	3.3	22
83	Temporal and spatial variations in hydro-climatic extremes in the Lake Victoria basin. Physics and Chemistry of the Earth, 2012, 50-52, 24-33.	2.9	21
84	Singularity-sensitive gauge-based radar rainfall adjustment methods for urban hydrological applications. Hydrology and Earth System Sciences, 2015, 19, 4001-4021.	4.9	21
85	Effect of watershed delineation and areal rainfall distribution on runoff prediction using the SWAT model. Hydrology Research, 2009, 40, 505-519.	2.7	20
86	Parsimonious Model for Combined Sewer Overflow Pollution. Journal of Environmental Engineering, ASCE, 2010, 136, 316-325.	1.4	20
87	Evaluation and inter-comparison of Global Climate Modelsâ€™ performance over Katonga and Ruizi catchments in Lake Victoria basin. Physics and Chemistry of the Earth, 2010, 35, 618-633.	2.9	19
88	On the relationship between historical landâ€use change and water availability: the case of the lower Tarim River region in northwestern China. Hydrological Processes, 2013, 27, 251-261.	2.6	18
89	Concept of technical support to scienceâ€“policy interfacing with respect to the implementation of the European water framework directive. Environmental Science and Policy, 2007, 10, 464-473.	4.9	17
90	An elusive search for regional flood frequency estimates in the River Nile basin. Hydrology and Earth System Sciences, 2012, 16, 3149-3163.	4.9	17

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91	Fractal analysis of urban catchments and their representation in semi-distributed models: imperviousness and sewer system. Hydrology and Earth System Sciences, 2017, 21, 2361-2375.	4.9	17
92	Uncertainty Analysis of Climate Change Impact on River Flow Extremes Based on a Large Multi-Model Ensemble. Water Resources Management, 2019, 33, 4319-4333.	3.9	17
93	Water displacement by sewer infrastructure in the Grote Nete catchment, Belgium, and its hydrological regime effects. Hydrology and Earth System Sciences, 2014, 18, 1119-1136.	4.9	16
94	Probabilistic modelling of sewer system overflow emissions. Water Science and Technology, 1999, 39, 47.	2.5	14
95	At site flood frequency analysis for the Nile Equatorial basins. Physics and Chemistry of the Earth, 2006, 31, 919-927.	2.9	14
96	Computationally efficient modelling of tidal rivers using conceptual reservoir-type models. Environmental Modelling and Software, 2016, 77, 19-31.	4.5	14
97	Assessment of the potential implications of a 1.5ÂÂ°C versus higher global temperature rise for the Afobaka hydropower scheme in Suriname. Regional Environmental Change, 2018, 18, 2283-2295.	2.9	14
98	Using Local Weather Radar Data for Sewer System Modeling: Case Study in Flanders, Belgium. Journal of Hydrologic Engineering - ASCE, 2013, 18, 269-278.	1.9	13
99	Evaluation of reservoir operation strategies for irrigation in the Macul Basin, Ecuador. Journal of Hydrology: Regional Studies, 2016, 5, 213-225.	2.4	13
100	Energy optimization of the urban drainage system by integrated real-time control during wet and dry weather conditions. Urban Water Journal, 2018, 15, 362-370.	2.1	13
101	Climate or land cover variations: what is driving observed changes in river peak flows? A data-based attribution study. Hydrology and Earth System Sciences, 2019, 23, 871-882.	4.9	13
102	Urban flood hazard analysis in present and future climate after statistical downscaling: a case study in Ha Tinh city, Vietnam. Urban Water Journal, 2021, 18, 257-274.	2.1	13
103	'The lived experience of climate change': creating open educational resources and virtual mobility for an innovative, integrative and competence-based track at Masters level. International Journal of Technology Enhanced Learning, 2011, 3, 111.	0.7	12
104	Rainfall extremes, weather and climate drivers in complex terrain: A data-driven approach based on signal enhancement methods and EV modeling. Journal of Hydrology, 2018, 563, 283-302.	5.4	12
105	Model uncertainty reduction for real-time flood control by means of a flexible data assimilation approach and reduced conceptual models. Journal of Hydrology, 2018, 564, 490-500.	5.4	12
106	Probabilistic flood prediction for urban sub-catchments using sewer models combined with logistic regression models. Urban Water Journal, 2019, 16, 687-697.	2.1	12
107	Relation between design floods based on daily maxima and daily means: use of the Peak Over Threshold approach in the Upper Nysa KÅ‚odzka Basin (SW Poland). Geomatics, Natural Hazards and Risk, 2017, 8, 585-606.	4.3	11
108	Statistical methodology for on-site wind resource and power potential assessment under current and future climate conditions: a case study of Suriname. SN Applied Sciences, 2019, 1, 1.	2.9	10

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109	Science-policy interfacing in support of the Water Framework Directive implementation. Water Science and Technology, 2009, 60, 47-54.	2.5	9
110	Modelling hydrological effects of wetland restoration: a differentiated view. Water Science and Technology, 2009, 59, 433-441.	2.5	9
111	Examining trends of hydro-meteorological extremes in the Shire River Basin in Malawi. Physics and Chemistry of the Earth, 2019, 112, 91-102.	2.9	9
112	Stochastic generation of spatial rainfall for urban drainage areas. Water Science and Technology, 1999, 39, 23.	2.5	8
113	Weather Typingâ€Based Flood Frequency Analysis Verified for Exceptional Historical Events of Past 500 Years Along the Meuse River. Water Resources Research, 2017, 53, 8459-8474.	4.2	8
114	A flexible and efficient multi-model framework in support of water management. Proceedings of the International Association of Hydrological Sciences, 0, 373, 1-6.	1.0	8
115	A site-specific land and water management model in MIKE SHE. Hydrology Research, 2007, 38, 333-350.	2.7	6
116	Rainfall in the urban context: Forecasting, risk and climate change. Atmospheric Research, 2012, 103, 1-3.	4.1	6
117	Evaluation of change factor-based statistical downscaling methods for impact analysis in urban hydrology. Urban Water Journal, 2020, 17, 785-794.	2.1	6
118	Uncovering the shortcomings of a weather typing method. Hydrology and Earth System Sciences, 2020, 24, 2671-2686.	4.9	6
119	Adopting the downward approach in hydrological model development: the Bradford catchment case study. Hydrological Processes, 2011, 25, 1681-1693.	2.6	5
120	Authorâ€™s response to the commentary by S.Fischer & A.Schumann on â€œMultidecadal oscillatory behaviour of rainfall extremes in Europe (Climatic Change, 120(4), 931â€“944)â€. Climatic Change, 2015, 130, 83-85.	3.6	5
121	Real-Time River Flood Control under Historical and Future Climatic Conditions: Flanders Case Study. Journal of Water Resources Planning and Management - ASCE, 2020, 146, 05019022.	2.6	5
122	Invigorating Hydrological Research Through Journal Publications. Water Resources Research, 2020, 56, .	4.2	5
123	On the Below- and Aboveground Phenology in Deciduous Trees: Observing the Fine-Root Lifespan, Turnover Rate, and Phenology of Fagus sylvatica L., Quercus robur L., and Betula pendula Roth for Two Growing Seasons. Forests, 2021, 12, 1680.	2.1	5
124	Design of self-cleansing sanitary sewer systems with the use of flushing devices. Water Science and Technology, 2009, 60, 901-908.	2.5	4
125	The AMSL LST algorithm validated for the Xinjiang Autonomous Region in China. International Journal of Remote Sensing, 2012, 33, 3886-3906.	2.9	4
126	Assessment of Rainfall Variability and Its Relationship to ENSO in a Sub-Andean Watershed in Central Bolivia. Water (Switzerland), 2018, 10, 701.	2.7	4

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127	Testing the Efficiency of Parameter Disaggregation for Distributed Rainfall-Runoff Modelling. Water (Switzerland), 2021, 13, 972.	2.7	4
128	Impact of dependence in river flow data on flood frequency analysis based on regression in quantile plots: Analysis and solutions. Water Resources Research, 2011, 47, .	4.2	3
129	Integrated river flow modelling: A case study. Urban Water Journal, 2012, 9, 259-276.	2.1	3
130	Joint editorial: Invigorating hydrological research through journal publications. Hydrology and Earth System Sciences, 2018, 22, 5735-5739.	4.9	3
131	Impact of seasonal changes in vegetation on the river model prediction accuracy and realâ€time flood control performance. Journal of Flood Risk Management, 2020, 13, e12651.	3.3	3
132	The essential role of expertise on natural resources in climate change Master's education. International Journal of Innovation and Sustainable Development, 2012, 6, 31.	0.4	2
133	On the correlation between precipitation and potential evapotranspiration climate change signals for hydrological impact analyses. Hydrological Sciences Journal, 2019, 64, 420-433.	2.6	2
134	Multisource remote sensing supported large scale fully distributed hydrological modeling of the Tarim River Basin in Central Asia. , 2009, , .		1
135	Soil Moisture Content Retrieval in an Arid to Semi-Arid Region in the Xinjiang Province. , 2008, , .		0
136	Joint editorial: Invigorating hydrological research through journal publications. Proceedings of the International Association of Hydrological Sciences, 0, 380, 3-8.	1.0	0