Stefan Kollet

List of Publications by Year
in descending order

82 papers	6,522 citations	136950 32 h-index	66911 78 g-index
94 all docs	94 docs citations	94 times ranked	7118 citing authors

#	Article	IF	Citations
1	A review on regional convectionâ€permitting climate modeling: Demonstrations, prospects, and challenges. Reviews of Geophysics, 2015, 53, 323-361.	23.0	907
2	Integrated surfaceâ€"groundwater flow modeling: A free-surface overland flow boundary condition in a parallel groundwater flow model. Advances in Water Resources, 2006, 29, 945-958.	3.8	660
3	Hyperresolution global land surface modeling: Meeting a grand challenge for monitoring Earth's terrestrial water. Water Resources Research, 2011, 47, .	4.2	634
4	Modeling Soil Processes: Review, Key Challenges, and New Perspectives. Vadose Zone Journal, 2016, 15, 1-57.	2.2	445
5	Interdependence of groundwater dynamics and land-energy feedbacks under climate change. Nature Geoscience, 2008, 1, 665-669.	12.9	320
6	Hyper-resolution global hydrological modelling: what is next?. Hydrological Processes, 2015, 29, 310-320.	2.6	280
7	The groundwaterâ€"land-surfaceâ€"atmosphere connection: Soil moisture effects on the atmospheric boundary layer in fully-coupled simulations. Advances in Water Resources, 2007, 30, 2447-2466.	3.8	226
8	Surfaceâ€subsurface model intercomparison: A first set of benchmark results to diagnose integrated hydrology and feedbacks. Water Resources Research, 2014, 50, 1531-1549.	4.2	222
9	A high-resolution simulation of groundwater and surface water over most of the continental US with the integrated hydrologic model ParFlow v3. Geoscientific Model Development, 2015, 8, 923-937.	3.6	215
10	Changing structure of European precipitation: Longer wet periods leading to more abundant rainfalls. Geophysical Research Letters, 2010, 37, .	4.0	198
11	Soil hydrology: Recent methodological advances, challenges, and perspectives. Water Resources Research, 2015, 51, 2616-2633.	4.2	149
12	A Scale-Consistent Terrestrial Systems Modeling Platform Based on COSMO, CLM, and ParFlow. Monthly Weather Review, 2014, 142, 3466-3483.	1.4	140
13	Soil structureÂis an important omission in Earth System Models. Nature Communications, 2020, 11, 522.	12.8	138
14	The integrated hydrologic model intercomparison project, <scp>IHâ€MIP2</scp>: A second set of benchmark results to diagnose integrated hydrology and feedbacks. Water Resources Research, 2017, 53, 867-890.	4.2	113
15	A comparison of two physics-based numerical models for simulating surface waterâ€"groundwater interactions. Advances in Water Resources, 2010, 33, 456-467.	3.8	108
16	Patterns and dynamics of riverâ€"aquifer exchange with variably-saturated flow using a fully-coupled model. Journal of Hydrology, 2009, 375, 383-393.	5.4	97
17	The imprint of climate and geology on the residence times of groundwater. Geophysical Research Letters, 2016, 43, 701-708.	4.0	93
18	Stream depletion predictions using pumping test data from a heterogeneous streamâ€"aquifer system (a) Tj ETQq0 0 0 rgBT /Overlock 1	5.4	83

#	ARTICLE	IF	CITATIONS
19	Quantifying the effects of three-dimensional subsurface heterogeneity on Hortonian runoff processes using a coupled numerical, stochastic approach. Advances in Water Resources, 2008, 31, 807-817.	3.8	80
20	Monitoring and Modeling the Terrestrial System from Pores to Catchments: The Transregional Collaborative Research Center on Patterns in the Soilâ€"Vegetationâ€"Atmosphere System. Bulletin of the American Meteorological Society, 2015, 96, 1765-1787.	3.3	80
21	Studying the influence of groundwater representations on land surfaceâ€atmosphere feedbacks during the European heat wave in 2003. Journal of Geophysical Research D: Atmospheres, 2016, 121, 13,301.	3.3	74
22	Inter-comparison of three distributed hydrological models with respect to seasonal variability of soil moisture patterns at a small forested catchment. Journal of Hydrology, 2016, 533, 234-249.	5.4	73
23	Global Groundwater Modeling and Monitoring: Opportunities and Challenges. Water Resources Research, 2021, 57, .	4.2	62
24	Simulating coupled surfaceâ€"subsurface flows with ParFlow v3.5.0: capabilities, applications, and ongoing development of an open-source, massively parallel, integrated hydrologic model. Geoscientific Model Development, 2020, 13, 1373-1397.	3.6	61
25	The Influence of Rain Sensible Heat and Subsurface Energy Transport on the Energy Balance at the Land Surface. Vadose Zone Journal, 2009, 8, 846-857.	2.2	57
26	Infiltration from the Pedon to Global Grid Scales: An Overview and Outlook for Land Surface Modeling. Vadose Zone Journal, 2019, 18, 1-53.	2.2	56
27	Implementation and scaling of the fully coupled Terrestrial Systems Modeling Platform (TerrSysMP) Tj ETQq1 1 0.784314 rgBT /Overlock Geoscientific Model Development, 2014, 7, 2531-2543.	3.6	54
28	TerrSysMPâ€"PDAF (version 1.0): a modular high-performance data assimilation framework for an integrated land surfaceâ€"subsurface model. Geoscientific Model Development, 2016, 9, 1341-1360.	3.6	54
29	Spatio-temporal validation of long-term 3D hydrological simulations of a forested catchment using empirical orthogonal functions and wavelet coherence analysis. Journal of Hydrology, 2015, 529, 1754-1767.	5.4	49
30	Patterns in Soilâ€"Vegetationâ€"Atmosphere Systems: Monitoring, Modeling, and Data Assimilation. Vadose Zone Journal, 2010, 9, 821-827.	2.2	47
31	Human Water Use Impacts on the Strength of the Continental Sink for Atmospheric Water. Geophysical Research Letters, 2018, 45, 4068-4076.	4.0	36
32	Impacts of grid resolution on surface energy fluxes simulated with an integrated surface-groundwater flow model. Hydrology and Earth System Sciences, 2015, 19, 4317-4326.	4.9	35
33	A 3â€‰km spatially and temporally consistent European daily soil moisture reanalysis from 2000 to 2015. Scientific Data, 2020, 7, 111.	5.3	33
34	The subsurfaceâ€"land surfaceâ€"atmosphere connection under convective conditions. Advances in Water Resources, 2015, 83, 240-249.	3.8	32
35	Introduction of a web service for cloud computing with the integrated hydrologic simulation platform ParFlow. Computers and Geosciences, 2012, 48, 334-336.	4.2	28
36	Pan-European groundwater to atmosphere terrestrial systems climatology from a physically consistent simulation. Scientific Data, 2019, 6, 320.	5.3	27

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37	Reply to comment by Keith J. Beven and Hannah L. Cloke on â€œHyperresolution global land surface modeling: Meeting a grand challenge for monitoring Earth's terrestrial waterâ€. Water Resources Research, 2012, 48, .	4.2	26
38	Boundedness of Turbulent Temperature Probability Distributions, and their Relation to the Vertical Profile in the Convective Boundary Layer. Boundary-Layer Meteorology, 2010, 134, 459-486.	2.3	25
39	Evaluating the Influence of Plant-Specific Physiological Parameterizations on the Partitioning of Land Surface Energy Fluxes. Journal of Hydrometeorology, 2015, 16, 517-533.	1.9	24
40	Land use change impacts on European heat and drought: remote land-atmosphere feedbacks mitigated locally by shallow groundwater. Environmental Research Letters, 2019, 14, 044012.	5.2	24
41	Influence of aquifer heterogeneity and return flow on pumping test data interpretation. Journal of Hydrology, 2005, 300, 267-285.	5.4	23
42	Comparison of different assimilation methodologies of groundwater levels to improve predictions of root zone soil moisture with an integrated terrestrial system model. Advances in Water Resources, 2018, 111, 224-238.	3.8	23
43	The concept of dualâ€boundary forcing in land surfaceâ€subsurface interactions of the terrestrial hydrologic and energy cycles. Water Resources Research, 2014, 50, 8531-8548.	4.2	22
44	Improving soil moisture and runoff simulations at 3â€‰km over Europe using land surface data assimilation. Hydrology and Earth System Sciences, 2019, 23, 277-301.	4.9	22
45	Evidence of daily hydrological loading in GPS time series over Europe. Journal of Geodesy, 2019, 93, 2145-2153.	3.6	21
46	Developing food, water and energy nexus workflows. International Journal of Digital Earth, 2020, 13, 299-308.	3.9	21
47	Scale dependent parameterization of soil hydraulic conductivity in 3D simulation of hydrological processes in a forested headwater catchment. Journal of Hydrology, 2016, 536, 365-375.	5.4	20
48	Effects of horizontal grid resolution on evapotranspiration partitioning using TerrSysMP. Journal of Hydrology, 2018, 557, 910-915.	5.4	20
49	Connection Between Root Zone Soil Moisture and Surface Energy Flux Partitioning Using Modeling, Observations, and Data Assimilation for a Temperate Grassland Site in Germany. Journal of Geophysical Research G: Biogeosciences, 2018, 123, 2839-2862.	3.0	20
50	Sensitivity of Latent Heat Fluxes to Initial Values and Parameters of a Landâ€Surface Model. Vadose Zone Journal, 2010, 9, 984-1001.	2.2	18
51	Quantifying the Impact of Subsurfaceâ€Land Surface Physical Processes on the Predictive Skill of Subseasonal Mesoscale Atmospheric Simulations. Journal of Geophysical Research D: Atmospheres, 2018, 123, 9131-9151.	3.3	18
52	High resolution modelling of soil moisture patterns with TerrSysMP: A comparison with sensor network data. Journal of Hydrology, 2017, 547, 309-331.	5.4	17
53	Introduction of an Experimental Terrestrial Forecasting/Monitoring System at Regional to Continental Scales Based on the Terrestrial Systems Modeling Platform (v1.1.0). Water (Switzerland), 2018, 10, 1697.	2.7	17
54	Enhancing speed and scalability of the ParFlow simulation code. Computational Geosciences, 2018, 22, 347-361.	2.4	16

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55	Using Long Short-Term Memory networks to connect water table depth anomalies to precipitation anomalies over Europe. Hydrology and Earth System Sciences, 2021, 25, 3555-3575.	4.9	15
56	Towards a computationally efficient free-surface groundwater flow boundary condition for large-scale hydrological modelling. Advances in Water Resources, 2019, 123, 225-233.	3.8	13
57	Evaluating the dualâ€boundary forcing concept in subsurfaceâ€“land surface interactions of the hydrological cycle. Hydrological Processes, 2016, 30, 1563-1573.	2.6	12
58	A serendipitous, long-term infiltration experiment: Water and tritium circulation beneath the CAMBRIC trench at the Nevada Test Site. Journal of Contaminant Hydrology, 2009, 108, 12-28.	3.3	11
59	An Interannual Probabilistic Assessment of Subsurface Water Storage Over Europe Using a Fully Coupled Terrestrial Model. Water Resources Research, 2021, 57, e2020WR027828.	4.2	11
60	Assimilation of Highâ€Resolution Soil Moisture Data Into an Integrated Terrestrial Model for a Smallâ€Scale Headâ€Water Catchment. Water Resources Research, 2019, 55, 10358-10385.	4.2	10
61	Leveraging HPC accelerator architectures with modern techniques â€” hydrologic modeling on GPUs with ParFlow. Computational Geosciences, 2021, 25, 1579-1590.	2.4	10
62	Catchment tomography - An approach for spatial parameter estimation. Advances in Water Resources, 2017, 107, 147-159.	3.8	7
63	Improvement of surface runâ€off in the hydrological model ParFlow by a scaleâ€consistent river parameterization. Hydrological Processes, 2019, 33, 2006-2019.	2.6	7
64	Performance of a PDE-Based Hydrologic Model in a Flash Flood Modeling Framework in Sparsely-Gauged Catchments. Water (Switzerland), 2020, 12, 2157.	2.7	7
65	Boundary condition and oceanic impacts on the atmospheric water balance in limited area climate model ensembles. Scientific Reports, 2021, 11, 6228.	3.3	7
66	"A Stream Depletion Field Experiment," by Bruce Hunt, Julian Weir, and Bente Clausen, March-April 2001 issue, v. 39, no. 2: 283-289.. Ground Water, 2002, 40, 448-449.	1.3	6
67	Response of Convective Boundary Layer and Shallow Cumulus to Soil Moisture Heterogeneity: A Largeâ€Eddy Simulation Study. Journal of Advances in Modeling Earth Systems, 2019, 11, 4305-4322.	3.8	6
68	Towards the representation of groundwater in the Joint <scp>UK</scp> Land Environment Simulator. Hydrological Processes, 2020, 34, 2843-2863.	2.6	6
69	Groundwater Model Impacts Multiannual Simulations of Heat Waves. Geophysical Research Letters, 2022, 49, .	4.0	6
70	Largeâ€eddy simulation of catchmentâ€scale circulation. Quarterly Journal of the Royal Meteorological Society, 2019, 145, 1218-1233.	2.7	4
71	Presentation and discussion of the high-resolution atmosphereâ€“land-surfaceâ€“subsurface simulation dataset of the simulated Neckar catchment for the period 2007â€“2015. Earth System Science Data, 2021, 13, 4437-4464.	9.9	4
72	A run control framework to streamline profiling, porting, and tuning simulation runs and provenance tracking of geoscientific applications. Geoscientific Model Development, 2018, 11, 2875-2895.	3.6	3

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73	Potential Added Value of Incorporating Human Water Use on the Simulation of Evapotranspiration and Precipitation in a Continentalâ€Scale Bedrockâ€toâ€Atmosphere Modeling System: A Validation Study Considering Observational Uncertainty. Journal of Advances in Modeling Earth Systems, 2019, 11, 1959-1980.	3.8	3
74	The topographic control on land surface energy fluxes: A statistical approach to bias correction. Journal of Hydrology, 2020, 584, 124669.	5.4	3
75	Comment on â€œSensitivity Analysis and Determination of Streambed Leakance and Aquifer Hydraulic Propertiesâ€• by Xunhong Chen and Xi Chen, Journal of Hydrology, 2003, vol. 284, 270â€"284. Journal of Hydrology, 2005, 303, 328-330.	5.4	2
76	Novel basin modelling concept for simulating deformation from mechanical compaction using level sets. Computational Geosciences, 2017, 21, 835-848.	2.4	2
77	Variant Approach for Identifying Spurious Relations That Deep Learning Models Learn. Frontiers in Water, 2021, 3, .	2.3	2
78	An Indirect Approach Based on Long Short-Term Memory Networks to Estimate Groundwater Table Depth Anomalies Across Europe With an Application for Drought Analysis. Frontiers in Water, 2021, 3, .	2.3	2
79	Technical note: Inference in hydrology from entropy balance considerations. Hydrology and Earth System Sciences, 2016, 20, 2801-2809.	4.9	1
80	Thank You to Our 2019 Reviewers. Water Resources Research, 2020, 56, e2020WR027684.	4.2	0
81	Thank You to Our 2020 Reviewers. Water Resources Research, 2021, 57, e2021WR029938.	4.2	0
82	Thank You to Our 2021 Reviewers. Water Resources Research, 2022, 58, .	4.2	0