

Alexander Sun

List of Publications by Year in descending order

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108
papers

4,802
citations

81900

39
h-index

102487

66
g-index

118
all docs

118
docs citations

118
times ranked

4467
citing authors

#	ARTICLE	IF	CITATIONS
1	Global models underestimate large decadal declining and rising water storage trends relative to GRACE satellite data. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E1080-E1089.	7.1	376
2	Drought and flood monitoring for a large karst plateau in Southwest China using extended GRACE data. Remote Sensing of Environment, 2014, 155, 145-160.	11.0	321
3	GRACE satellite monitoring of large depletion in water storage in response to the 2011 drought in Texas. Geophysical Research Letters, 2013, 40, 3395-3401.	4.0	315
4	How can Big Data and machine learning benefit environment and water management: a survey of methods, applications, and future directions. Environmental Research Letters, 2019, 14, 073001.	5.2	233
5	Monthly streamflow forecasting using Gaussian Process Regression. Journal of Hydrology, 2014, 511, 72-81.	5.4	187
6	Predicting groundwater level changes using GRACE data. Water Resources Research, 2013, 49, 5900-5912.	4.2	157
7	Combining Physically Based Modeling and Deep Learning for Fusing GRACE Satellite Data: Can We Learn From Mismatch?. Water Resources Research, 2019, 55, 1179-1195.	4.2	131
8	Is southwestern China experiencing more frequent precipitation extremes?. Environmental Research Letters, 2014, 9, 064002.	5.2	122
9	Predicting CO ₂ Plume Migration in Heterogeneous Formations Using Conditional Deep Convolutional Generative Adversarial Network. Water Resources Research, 2019, 55, 5830-5851.	4.2	105
10	The concept of block-effective macrodispersivity and a unified approach for grid-scale- and plume-scale-dependent transport. Journal of Fluid Mechanics, 1999, 395, 161-180.	3.4	94
11	Evaluation of carbon dioxide storage and miscible gas EOR in shale oil reservoirs. Fuel, 2019, 241, 1223-1235.	6.4	91
12	Tracking Seasonal Fluctuations in Land Water Storage Using Global Models and GRACE Satellites. Geophysical Research Letters, 2019, 46, 5254-5264.	4.0	84
13	Karst catchments exhibited higher degradation stress from climate change than the non-karst catchments in southwest China: An ecohydrological perspective. Journal of Hydrology, 2016, 535, 173-180.	5.4	83
14	A constrained robust least squares approach for contaminant release history identification. Water Resources Research, 2006, 42, .	4.2	78
15	Relative importance of climate and land surface changes on hydrologic changes in the US Midwest since the 1930s: Implications for biofuel production. Journal of Hydrology, 2013, 497, 110-120.	5.4	77
16	Thermodynamics phase changes of nanopore fluids. Journal of Natural Gas Science and Engineering, 2015, 25, 134-139.	4.4	73
17	Comparison of Groundwater Storage Changes From GRACE Satellites With Monitoring and Modeling of Major U.S. Aquifers. Water Resources Research, 2020, 56, e2020WR027556.	4.2	73
18	A robust approach for iterative contaminant source location and release history recovery. Journal of Contaminant Hydrology, 2006, 88, 181-196.	3.3	68

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19	Assessing leakage detectability at geologic CO ₂ sequestration sites using the probabilistic collocation method. <i>Advances in Water Resources</i> , 2013, 56, 49-60.	3.8	67
20	Toward calibration of regional groundwater models using GRACE data. <i>Journal of Hydrology</i> , 2012, 422-423, 1-9.	5.4	65
21	Sequential updating of multimodal hydrogeologic parameter fields using localization and clustering techniques. <i>Water Resources Research</i> , 2009, 45, .	4.2	62
22	Predicting field production rates for waterflooding using a machine learning-based proxy model. <i>Journal of Petroleum Science and Engineering</i> , 2020, 194, 107574.	4.2	62
23	A new drought index that considers the joint effects of climate and land surface change. <i>Water Resources Research</i> , 2017, 53, 3262-3278.	4.2	60
24	Probabilistic prediction of hydrologic drought using a conditional probability approach based on the meta-Gaussian model. <i>Journal of Hydrology</i> , 2016, 542, 772-780.	5.4	59
25	Discovering State-Parameter Mappings in Subsurface Models Using Generative Adversarial Networks. <i>Geophysical Research Letters</i> , 2018, 45, 11,137.	4.0	59
26	Comparison of deterministic ensemble Kalman filters for assimilating hydrogeological data. <i>Advances in Water Resources</i> , 2009, 32, 280-292.	3.8	57
27	Inferring aquifer storage parameters using satellite and in situ measurements: Estimation under uncertainty. <i>Geophysical Research Letters</i> , 2010, 37, .	4.0	57
28	Inversion of pressure anomaly data for detecting leakage at geologic carbon sequestration sites. <i>Advances in Water Resources</i> , 2012, 44, 20-29.	3.8	57
29	A learning-based data-driven forecast approach for predicting future reservoir performance. <i>Advances in Water Resources</i> , 2018, 118, 95-109.	3.8	51
30	Decreasing spatial variability in precipitation extremes in southwestern China and the local/large-scale influencing factors. <i>Journal of Geophysical Research D: Atmospheres</i> , 2015, 120, 6480-6488.	3.3	50
31	Reconstruction of GRACE Total Water Storage Through Automated Machine Learning. <i>Water Resources Research</i> , 2021, 57, e2020WR028666.	4.2	50
32	Enabling collaborative decision-making in watershed management using cloud-computing services. <i>Environmental Modelling and Software</i> , 2013, 41, 93-97.	4.5	49
33	Groundwater Contamination in Karst Terranes. <i>Water, Air and Soil Pollution</i> , 2006, 6, 157-170.	0.8	48
34	A robust geostatistical approach to contaminant source identification. <i>Water Resources Research</i> , 2007, 43, .	4.2	48
35	Shale gas wastewater management under uncertainty. <i>Journal of Environmental Management</i> , 2016, 165, 188-198.	7.8	47
36	A harmonic pulse testing method for leakage detection in deep subsurface storage formations. <i>Water Resources Research</i> , 2015, 51, 4263-4281.	4.2	46

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37	A deep learning approach to anomaly detection in geological carbon sequestration sites using pressure measurements. <i>Journal of Hydrology</i> , 2019, 573, 885-894.	5.4	44
38	Model Calibration and Parameter Estimation. , 2015, , .		42
39	Solute flux approach to transport through spatially nonstationary flow in porous media. <i>Water Resources Research</i> , 2000, 36, 2107-2120.	4.2	41
40	Reconstructing annual groundwater storage changes in a large-scale irrigation region using GRACE data and Budyko model. <i>Journal of Hydrology</i> , 2017, 551, 397-406.	5.4	40
41	Inversion of Time-ÉLapse Seismic Reservoir Monitoring Data Using CycleGAN: A Deep Learning-ÉBased Approach for Estimating Dynamic Reservoir Property Changes. <i>Journal of Geophysical Research: Solid Earth</i> , 2020, 125, e2019JB018408.	3.4	39
42	Using pulse testing for leakage detection in carbon storage reservoirs: A field demonstration. <i>International Journal of Greenhouse Gas Control</i> , 2016, 46, 215-227.	4.6	38
43	A Deep-Learning-Based Approach for Reservoir Production Forecast under Uncertainty. <i>SPE Journal</i> , 2021, 26, 1314-1340.	3.1	37
44	Optimal design of pressure-based, leakage detection monitoring networks for geologic carbon sequestration repositories. <i>International Journal of Greenhouse Gas Control</i> , 2013, 19, 251-261.	4.6	35
45	Characterization and modeling of spatial variability in a complex alluvial aquifer: Implications on solute transport. <i>Water Resources Research</i> , 2008, 44, .	4.2	33
46	Using GRACE Satellite Gravimetry for Assessing Large-Scale Hydrologic Extremes. <i>Remote Sensing</i> , 2017, 9, 1287.	4.0	33
47	Patterns of precipitation and soil moisture extremes in Texas, US: A complex network analysis. <i>Advances in Water Resources</i> , 2018, 112, 203-213.	3.8	32
48	Effects of climate and irrigation on GRACE-based estimates of water storage changes in major US aquifers. <i>Environmental Research Letters</i> , 2021, 16, 094009.	5.2	31
49	Optimal carbon storage reservoir management through deep reinforcement learning. <i>Applied Energy</i> , 2020, 278, 115660.	10.1	28
50	Linkages between GRACE water storage, hydrologic extremes, and climate teleconnections in major African aquifers. <i>Environmental Research Letters</i> , 2022, 17, 014046.	5.2	28
51	Spatial Downscaling of TRMM Precipitation Product Using a Combined Multifractal and Regression Approach: Demonstration for South China. <i>Water (Switzerland)</i> , 2015, 7, 3083-3102.	2.7	27
52	Building complex event processing capability for intelligent environmental monitoring. <i>Environmental Modelling and Software</i> , 2019, 116, 1-6.	4.5	27
53	Explore Spatio-ÉTemporal Learning of Large Sample Hydrology Using Graph Neural Networks. <i>Water Resources Research</i> , 2021, 57, e2021WR030394.	4.2	27
54	Stochastic analysis of transient saturated flow through heterogeneous fractured porous media: A double-permeability approach. <i>Water Resources Research</i> , 2000, 36, 865-874.	4.2	26

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55	Evaluation of high-resolution satellite rainfall products using rain gauge data over complex terrain in southwest China. <i>Theoretical and Applied Climatology</i> , 2015, 119, 203-219.	2.8	26
56	Reactive transport in the complex heterogeneous alluvial aquifer of Fortymile Wash, Nevada. <i>Chemosphere</i> , 2017, 179, 379-386.	8.2	25
57	Decreasing spatial variability of drought in southwest China during 1959â€“2013. <i>International Journal of Climatology</i> , 2017, 37, 4610-4619.	3.5	23
58	Why do karst catchments exhibit higher sensitivity to climate change? Evidence from a modified Budyko model. <i>Advances in Water Resources</i> , 2018, 122, 238-250.	3.8	23
59	Downscaling Satellite and Reanalysis Precipitation Products Using Attention-Based Deep Convolutional Neural Nets. <i>Frontiers in Water</i> , 2020, 2, .	2.3	23
60	Cloud computing for integrated stochastic groundwater uncertainty analysis. <i>International Journal of Digital Earth</i> , 2013, 6, 313-337.	3.9	22
61	Metamodeling-based approach for risk assessment and cost estimation: Application to geological carbon sequestration planning. <i>Computers and Geosciences</i> , 2018, 113, 70-80.	4.2	21
62	Normal or abnormal? Machine learning for the leakage detection in carbon sequestration projects using pressure field data. <i>International Journal of Greenhouse Gas Control</i> , 2020, 103, 103189.	4.6	21
63	Machine Learning-Based Optimization of Well Locations and WAG Parameters under Geologic Uncertainty. , 2018, , .		20
64	Development of multi-metamodels to support surface water quality management and decision making. <i>Environmental Earth Sciences</i> , 2015, 73, 423-434.	2.7	18
65	Reactive Transport Modeling of the Enhancement of Density-Driven CO ₂ Convective Mixing in Carbonate Aquifers and its Potential Implication on Geological Carbon Sequestration. <i>Scientific Reports</i> , 2016, 6, 24768.	3.3	18
66	Cost-optimal design of pressure-based monitoring networks for carbon sequestration projects, with consideration of geological uncertainty. <i>International Journal of Greenhouse Gas Control</i> , 2018, 71, 278-292.	4.6	17
67	Prediction of solute spreading during vertical infiltration in unsaturated, bounded heterogeneous porous media. <i>Water Resources Research</i> , 2000, 36, 715-723.	4.2	13
68	Quantification of CO ₂ masses trapped through free convection process in isothermal brine saturated reservoir. <i>International Journal of Heat and Mass Transfer</i> , 2015, 87, 128-137.	4.8	13
69	Identification of a representative dataset for long-term monitoring at the Weyburn CO ₂ -injection enhanced oil recovery site, Saskatchewan, Canada. <i>International Journal of Greenhouse Gas Control</i> , 2016, 54, 454-465.	4.6	13
70	Utilization of multiobjective optimization for pulse testing dataset from a CO ₂ -EOR/sequestration field. <i>Journal of Petroleum Science and Engineering</i> , 2018, 170, 244-266.	4.2	13
71	Efficient deep-learning-based history matching for fluvial channel reservoirs. <i>Journal of Petroleum Science and Engineering</i> , 2021, , 109247.	4.2	13
72	Automatic geologic fault identification from seismic data using 2.5D channel attention U-net. <i>Geophysics</i> , 2022, 87, IM111-IM124.	2.6	13

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73	A Frequency-domain Diagnosis Tool for Early Leakage Detection at Geologic Carbon Sequestration Sites. <i>Energy Procedia</i> , 2014, 63, 4051-4061.	1.8	12
74	New drought index indicates that land surface changes might have enhanced drying tendencies over the Loess Plateau. <i>Ecological Indicators</i> , 2018, 89, 716-724.	6.3	12
75	What roles can water-stressed vegetation play in agricultural droughts?. <i>Science of the Total Environment</i> , 2022, 803, 149810.	8.0	11
76	Modeling Barton Springs Segment of the Edwards Aquifer Using MODFLOW-DCM. , 2005, , 163.		10
77	Structural and hydrogeologic evolution of the Putumayo basin and adjacent fold-thrust belt, Colombia. <i>AAPG Bulletin</i> , 2015, 99, 1893-1927.	1.5	10
78	Simulating in-zone chemistry changes from injection time to longer periods of CO2 storage. <i>Environmental Earth Sciences</i> , 2016, 75, 1.	2.7	10
79	Numerical experiments of density driven CO2 saturated brine migration in heterogeneous two-dimensional geologic fabric materials. <i>International Communications in Heat and Mass Transfer</i> , 2016, 71, 148-156.	5.6	10
80	A theory-based simple extension of Peng's Robinson equation of state for nanopore confined fluids. <i>Journal of Petroleum Exploration and Production</i> , 2017, 7, 1197-1203.	2.4	10
81	Use of machine learning and deep learning methods in groundwater. , 2021, , 545-557.		10
82	Time-lapse seismic data inversion for estimating reservoir parameters using deep learning. <i>Interpretation</i> , 2022, 10, T167-T179.	1.1	9
83	Global terrestrial water storage connectivity revealed using complex climate network analyses. <i>Nonlinear Processes in Geophysics</i> , 2015, 22, 433-446.	1.3	8
84	Projected Landscape Impacts from Oil and Gas Development Scenarios in the Permian Basin, USA. <i>Environmental Management</i> , 2020, 66, 348-363.	2.7	7
85	Reconstruction of GRACE Mass Change Time Series Using a Bayesian Framework. <i>Earth and Space Science</i> , 2022, 9, .	2.6	7
86	Well Spacing Optimization for Permian Basin Based on Integrated Hydraulic Fracturing, Reservoir Simulation, and Machine Learning Study. , 2020, , .		6
87	A Physical Agricultural Drought Index Based on Root Zone Water Availability: Model Development and Application. <i>Geophysical Research Letters</i> , 2020, 47, e2020GL088553.	4.0	6
88	Corrosion model of CO2 injection based on non-isothermal wellbore hydraulics. <i>International Journal of Greenhouse Gas Control</i> , 2016, 54, 219-227.	4.6	5
89	Time-lapse seismic data inversion for estimating reservoir parameters using deep learning. , 2020, , .		5
90	Identifying attributes of CO2 leakage zones in shallow aquifers using a parametric level set method. , 2017, 7, 649-664.		4

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91	Two-Stage Fracturing Wastewater Management in Shale Gas Development. Industrial & Engineering Chemistry Research, 2017, 56, 1570-1579.	3.7	4
92	An Efficient Computational Scheme for Two-Phase Steam Condensation in the Presence of CO2 for Wellbore and Long-Distance Flow. ChemEngineering, 2019, 3, 4.	2.4	4
93	Efficient Ensemble-Based Stochastic Gradient Methods for Optimization Under Geological Uncertainty. Frontiers in Earth Science, 2020, 8, .	1.8	4
94	A Modified Evaporation Model Indicates That the Effects of Air Warming on Global Drying Trends Have Been Overestimated. Journal of Geophysical Research D: Atmospheres, 2021, 126, e2021JD035153.	3.3	4
95	Travel time analysis of tracers and reactive solutes in the unsaturated zone. Journal of Hydraulic Research/De Recherches Hydrauliques, 1998, 36, 979-1002.	1.7	3
96	A Solute Flux Approach to Transport through Bounded, Unsaturated Heterogeneous Porous Media. Vadose Zone Journal, 2004, 3, 513-526.	2.2	3
97	Identification of Geologic Fault Network Geometry by Using a Grid-Based Ensemble Kalman Filter. Journal of Hazardous, Toxic, and Radioactive Waste, 2011, 15, 228-233.	2.0	3
98	Detecting CO2 leakage around the wellbore by monitoring temperature profiles: A scoping analysis. International Journal of Thermal Sciences, 2017, 118, 367-373.	4.9	3
99	Parallel Multiobjective Optimization for the Coupled Compositional /Geomechanical Modeling of Pulse Testing. , 2017, , .		3
100	Hierarchical Fractional Advection-Dispersion Equation (FADE) to Quantify Anomalous Transport in River Corridor over a Broad Spectrum of Scales: Theory and Applications. Mathematics, 2021, 9, 790.	2.2	3
101	A laboratory validation study of the time-lapse oscillatory pumping test for leakage detection in geological repositories. Journal of Hydrology, 2017, 548, 598-604.	5.4	2
102	Combining GRACE and satellite altimetry data to detect change in sediment load to the Bohai Sea. Science of the Total Environment, 2021, , 151677.	8.0	2
103	CONSID: A Toolbox for Contaminant Source Identification. Ground Water, 2008, 46, 638-641.	1.3	1
104	Identification of a Minimum Dataset for CO2-EOR Monitoring at Weyburn, Canada. Energy Procedia, 2017, 114, 7033-7041.	1.8	1
105	Development of a Machine-Learning-Based Workflow for Well Completion Optimization in Permian Basin. , 2020, , .		1
106	A Phase III Randomized Trial of Palliative Radiation for Advanced Central Lung Tumors with Intentional Avoidance of the Esophagus (PROACTIVE). International Journal of Radiation Oncology Biology Physics, 2020, 108, S105-S106.	0.8	1
107	A Solute Flux Approach to Transport through Bounded, Unsaturated Heterogeneous Porous Media. Vadose Zone Journal, 2004, 3, 513-526.	2.2	1
108	Leak Detection in Carbon Sequestration Projects Using Machine Learning Methods: Cranfield Site, Mississippi, USA. , 2020, , .		0