Binayak Mohanty

List of Publications by Year
in descending order

125 papers	5,955 citations	71102 41 h-index	82547 72 g-index
132 all docs	132 docs citations	132 times ranked	5423 citing authors

#	Article	IF	Citations
1	Upscaling sparse groundâ€based soil moisture observations for the validation of coarseâ€resolution satellite soil moisture products. Reviews of Geophysics, 2012, 50, .	23.0	493
2	Numerical Analysis of Coupled Water, Vapor, and Heat Transport in the Vadose Zone. Vadose Zone Journal, 2006, 5, 784-800.	2.2	400
3	SMEX02: Field scale variability, time stability and similarity of soil moisture. Remote Sensing of Environment, 2004, 92, 436-446.	11.0	305
4	Hillslope Hydrology in Global Change Research and Earth System Modeling. Water Resources Research, 2019, 55, 1737-1772.	4.2	281
5	ECOSTRESS: NASA's Next Generation Mission to Measure Evapotranspiration From the International Space Station. Water Resources Research, 2020, 56, e2019WR026058.	4.2	220
6	Soil Moisture Remote Sensing: Stateâ€ofâ€theâ€Science. Vadose Zone Journal, 2017, 16, 1-9.	2.2	200
7	Spatial analysis of saturated hydraulic conductivity in a soil with macropores. Soil and Tillage Research, 1997, 10, 115-131.	0.4	142
8	SPATIAL VARIABILITY OF HYDRAULIC PROPERTIES IN A MULTI-LAYERED SOIL PROFILE. Soil Science, 1996, 161, 167-181.	0.9	142
9	Spatial analysis of hydraulic conductivity measured using disc infiltrometers. Water Resources Research, 1994, 30, 2489-2498.	4.2	138
10	New piecewise-continuous hydraulic functions for modeling preferential flow in an intermittent-flood-irrigated field. Water Resources Research, 1997, 33, 2049-2063.	4.2	126
11	Comparison of Saturated Hydraulic Conductivity Measurement Methods for a Glacialâ€Till Soil. Soil Science Society of America Journal, 1994, 58, 672-677.	2.2	107
12	Root Zone Soil Moisture Assessment Using Remote Sensing and Vadose Zone Modeling. Vadose Zone Journal, 2006, 5, 296-307.	2.2	107
13	Physical controls of nearâ€surface soil moisture across varying spatial scales in an agricultural landscape during SMEX02. Water Resources Research, 2010, 46, .	4.2	95
14	Analysis and mapping of field-scale soil moisture variability using high-resolution, ground-based data during the Southern Great Plains 1997 (SGP97) Hydrology Experiment. Water Resources Research, 2000, 36, 1023-1031.	4.2	91
15	Soil Hydraulic Conductivities and their Spatial and Temporal Variations in a Vertisol. Soil Science Society of America Journal, 2006, 70, 1872-1881.	2.2	87
16	Development and analysis of the Soil Water Infiltration Global database. Earth System Science Data, 2018, 10, 1237-1263.	9.9	85
17	Evolution of soil moisture spatial structure in a mixed vegetation pixel during the Southern Great Plains 1997 (SGP97) Hydrology Experiment. Water Resources Research, 2000, 36, 3675-3686.	4.2	82
18	Modeling and assimilation of root zone soil moisture using remote sensing observations in Walnut Gulch Watershed during SMEX04. Remote Sensing of Environment, 2008, 112, 415-429.	11.0	81

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19	Spatial Averaging of van Genuchten Hydraulic Parameters for Steadyâ€State Flow in Heterogeneous Soils: A Numerical Study. Vadose Zone Journal, 2002, 1, 261-272.	2.2	70
20	Including Topography and Vegetation Attributes for Developing Pedotransfer Functions. Soil Science Society of America Journal, 2006, 70, 1430-1440.	2.2	68
21	Inverse estimation of parameters for multidomain flow models in soil columns with different macropore densities. Water Resources Research, 2011, 47, 2010WR009451.	4.2	68
22	Saturated hydraulic conductivity and soil water retention properties across a soil-slope transition. Water Resources Research, 2000, 36, 3311-3324.	4.2	66
23	Spatiotemporal analyses of soil moisture from point to footprint scale in two different hydroclimatic regions. Water Resources Research, 2011, 47, .	4.2	61
24	Preferential transport of nitrate to a tile drain in an intermittent-flood-irrigated field: Model development and experimental evaluation. Water Resources Research, 1998, 34, 1061-1076.	4.2	59
25	Subsurface stormflow is important in semiarid karst shrublands. Geophysical Research Letters, 2008, 35, .	4.0	58
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	Inverse Dualâ€Permeability Modeling of Preferential Water Flow in a Soil Column and Implications for Fieldâ€Scale Solute Transport. Vadose Zone Journal, 2006, 5, 59-76.	2.2	55
28	Nearâ€surface soil moisture assimilation for quantifying effective soil hydraulic properties using genetic algorithm: 1. Conceptual modeling. Water Resources Research, 2008, 44, .	4.2	53
29	Temporal dynamics of PSR-based soil moisture across spatial scales in an agricultural landscape during SMEX02: A wavelet approach. Remote Sensing of Environment, 2008, 112, 522-534.	11.0	52
30	Evolution of physical controls for soil moisture in humid and subhumid watersheds. Water Resources Research, 2013, 49, 1244-1258.	4.2	51
31	Effective Hydraulic Parameters in Horizontally and Vertically Heterogeneous Soils for Steady-State Landâ€“Atmosphere Interaction. Journal of Hydrometeorology, 2007, 8, 715-729.	1.9	50
32	Soil Hydraulic Property Estimation Using Remote Sensing: A Review. Vadose Zone Journal, 2013, 12, 1-9.	2.2	50
33	Soil property database: Southern Great Plains 1997 Hydrology Experiment. Water Resources Research, 2002, 38, 5-1-5-7.	4.2	49
34	Upscaling of soil hydraulic properties for steady state evaporation and infiltration. Water Resources Research, 2002, 38, 17-1-17-13.	4.2	46
35	Impacts of Juniper Vegetation and Karst Geology on Subsurface Flow Processes in the Edwards Plateau, Texas. Vadose Zone Journal, 2006, 5, 1076-1085.	2.2	45
36	Development of a deterministic downscaling algorithm for remote sensing soil moisture footprint using soil and vegetation classifications. Water Resources Research, 2013, 49, 6208-6228.	4.2	45

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37	Effective hydraulic parameters for steady state vertical flow in heterogeneous soils. Water Resources Research, 2003, 39, .	4.2	44
38	Water flow processes in a soil column with a cylindrical macropore: Experiment and hierarchical modeling. Water Resources Research, 2005, 41, .	4.2	44
39	Multiscale Pedotransfer Functions for Soil Water Retention. Vadose Zone Journal, 2007, 6, 868-878.	2.2	44
40	Enhancing PTFs with remotely sensed data for multi-scale soil water retention estimation. Journal of Hydrology, 2011, 399, 201-211.	5.4	44
41	Nearâ€Surface Soil Moisture Assimilation for Quantifying Effective Soil Hydraulic Properties under Different Hydroclimatic Conditions. Vadose Zone Journal, 2008, 7, 39-52.	2.2	41
42	INFILTRATION AND MACROPOROSITY UNDER A ROW CROP AGRICULTURAL FIELD IN A GLACIAL TILL SOIL 1. Soil Science, 1996, 161, 205-213.	0.9	41
43	Nearâ€surface soil moisture assimilation for quantifying effective soil hydraulic properties using genetic algorithms: 2. Using airborne remote sensing during SGP97 and SMEX02. Water Resources Research, 2009, 45, .	4.2	40
44	Landâ€surface controls on nearâ€surface soil moisture dynamics: Traversing remote sensing footprints. Water Resources Research, 2016, 52, 6365-6385.	4.2	40
45	Scaling of near-saturated hydraulic conductivity measured using disc infiltrometers. Water Resources Research, 1998, 34, 1195-1205.	4.2	39
46	Evaluation of soil water dynamics and crop yield under furrow irrigation with a two-dimensional flow and crop growth coupled model. Agricultural Water Management, 2014, 141, 10-22.	5.6	39
47	Numerical evaluation of a second-order water transfer term for variably saturated dual-permeability models. Water Resources Research, 2004, 40, .	4.2	36
48	Spatial variability of residual nitrate-nitrogen under two tillage systems in central Iowa: A composite three-dimensional resistant and exploratory approach. Water Resources Research, 1994, 30, 237-251.	4.2	35
49	Uncertainty in dual permeability model parameters for structured soils. Water Resources Research, 2012, 48, WR010500.	4.2	35
50	Gap Filling of Highâ€Resolution Soil Moisture for SMAP/Sentinelâ€1: A Twoâ€Layer Machine Learningâ€Based Framework. Water Resources Research, 2019, 55, 6986-7009.	4.2	35
51	Correspondence and Upscaling of Hydraulic Functions for Steadyâ€State Flow in Heterogeneous Soils. Vadose Zone Journal, 2004, 3, 527-533.	2.2	34
52	Global sensitivity analysis and calibration of parameters for a physically-based agro-hydrological model. Environmental Modelling and Software, 2016, 83, 88-102.	4.5	34
53	A Robust-Resistant Approach to Interpret Spatial Behavior of Saturated Hydraulic Conductivity of a Glacial Till Soil Under No-Tillage System. Water Resources Research, 1991, 27, 2979-2992.	4.2	31
54	Effective scaling factor for transient infiltration in heterogeneous soils. Journal of Hydrology, 2006, 319, 96-108.	5.4	31

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55	Lateral Water Diffusion in an Artificial Macroporous System: Modeling and Experimental Evidence. Vadose Zone Journal, 2003, 2, 212-221.	2.2	31
56	Effective soil moisture estimate and its uncertainty using multimodel simulation based on Bayesian Model Averaging. Journal of Geophysical Research D: Atmospheres, 2015, 120, 8023-8042.	3.3	30
57	On topographic controls of soil hydraulic parameter scaling at hillslope scales. Water Resources Research, 2012, 48, .	4.2	29
58	Inverse Mobileâ€“Immobile Modeling of Transport During Transient Flow: Effects of Betweenâ€Domain Transfer and Initial Water Content. Vadose Zone Journal, 2004, 3, 1309-1321.	2.2	28
59	Spatiotemporal Analysis of Soil Moisture and Optimal Sampling Design for Regionalâ€Scale Soil Moisture Estimation in a Tropical Watershed of India. Water Resources Research, 2019, 55, 2057-2078.	4.2	28
60	Comparison of alternative methods for deriving hydraulic properties and scaling factors from single-disc tension infiltrometer measurements. Water Resources Research, 2002, 38, 25-1-25-14.	4.2	27
61	Multiscale Bayesian neural networks for soil water content estimation. Water Resources Research, 2008, 44, .	4.2	27
62	Soil hydraulic properties in oneâ€dimensional layered soil profile using layerâ€specific soil moisture assimilation scheme. Water Resources Research, 2012, 48, .	4.2	27
63	An unmixing algorithm for remotely sensed soil moisture. Water Resources Research, 2013, 49, 408-425.	4.2	27
64	Influence of lateral subsurface flow and connectivity on soil water storage in land surface modeling. Journal of Geophysical Research D: Atmospheres, 2016, 121, 704-721.	3.3	27
65	Analytical solutions for steady state vertical infiltration. Water Resources Research, 2002, 38, 20-1-20-5.	4.2	26
66	On the Effective Averaging Schemes of Hydraulic Properties at the Landscape Scale. Vadose Zone Journal, 2006, 5, 308-316.	2.2	26
67	Parameter conditioning with a noisy Monte Carlo genetic algorithm for estimating effective soil hydraulic properties from space. Water Resources Research, 2008, 44, .	4.2	25
68	Global sensitivity analysis of the radiative transfer model. Water Resources Research, 2015, 51, 2428-2443.	4.2	25
69	Impact of the Linked Surface Water-Soil Water-Groundwater System on Transport of E. coli in the Subsurface. Water, Air, and Soil Pollution, 2016, 227, 1.	2.4	25
70	Validation of SMAP Soil Moisture Products Using Ground-Based Observations for the Paddy Dominated Tropical Region of India. IEEE Transactions on Geoscience and Remote Sensing, 2019, 57, 8479-8491.	6.3	25
71	Spatial Averaging of van Genuchten Hydraulic Parameters for Steady-State Flow in Heterogeneous Soils: A Numerical Study. Vadose Zone Journal, 2002, 1, 261-272.	2.2	25
72	Uncertainties of Water Fluxes in Soilâ€“Vegetationâ€“Atmosphere Transfer Models: Inverting Surface Soil Moisture and Evapotranspiration Retrieved from Remote Sensing. Vadose Zone Journal, 2012, 11, vzj2011.0167.	2.2	24

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73	Estimating Escherichia coli loads in streams based on various physical, chemical, and biological factors. Water Resources Research, 2013, 49, 2896-2906.	4.2	24
74	Enhanced Biogeochemical Cycling and Subsequent Reduction of Hydraulic Conductivity Associated with Soilâ€Layer Interfaces in the Vadose Zone. Journal of Environmental Quality, 2011, 40, 1941-1954.	2.0	22
75	Global Flash Drought Monitoring Using Surface Soil Moisture. Water Resources Research, 2021, 57, e2021WR029901.	4.2	22
76	Temporal dynamics of biogeochemical processes at the Norman Landfill site. Water Resources Research, 2013, 49, 6909-6926.	4.2	21
77	Hot Spots and Persistence of Nitrate in Aquifers Across Scales. Entropy, 2016, 18, 25.	2.2	21
78	Reduction of Feasible Parameter Space of the Inverted Soil Hydraulic Parameter Sets for Kosugi Model. Soil Science, 2013, 178, 267-280.	0.9	20
79	Scaling hydraulic properties of a macroporous soil. Water Resources Research, 1999, 35, 1927-1931.	4.2	18
80	Soil Hydraulic Parameter Upscaling for Steadyâ€State Flow with Root Water Uptake. Vadose Zone Journal, 2004, 3, 1464-1470.	2.2	18
81	Soil microorganisms regulate extracellular enzyme production to maximize their growth rate. Biogeochemistry, 2022, 158, 303-312.	3.5	18
82	Impact of Saturated Hydraulic Conductivity on the Prediction of Tile Flow. Soil Science Society of America Journal, 1998, 62, 1522-1529.	2.2	17
83	Enhancing Water Cycle Measurements for Future Hydrologic Research. Bulletin of the American Meteorological Society, 2007, 88, 669-676.	3.3	17
84	A topographyâ€based scaling algorithm for soil hydraulic parameters at hillslope scales: Field testing. Water Resources Research, 2012, 48, .	4.2	17
85	Remote Sensing for Vadose Zone Hydrologyâ€”A Synthesis from the Vantage Point. Vadose Zone Journal, 2013, 12, 1-6.	2.2	16
86	A physically based hydrological connectivity algorithm for describing spatial patterns of soil moisture in the unsaturated zone. Journal of Geophysical Research D: Atmospheres, 2017, 122, 2096-2114.	3.3	16
87	Profile Soil Moisture Across Spatial Scales Under Different Hydroclimatic Conditions. Soil Science, 2010, 175, 315-319.	0.9	15
88	Estimating Effective Soil Hydraulic Properties Using Spatially Distributed Soil Moisture and Evapotranspiration. Vadose Zone Journal, 2013, 12, 1-16.	2.2	15
89	Effective parameterizations of three nonwetting phase relative permeability models. Water Resources Research, 2015, 51, 6520-6531.	4.2	15
90	Multiscale Surface Roughness for Improved Soil Moisture Estimation. IEEE Transactions on Geoscience and Remote Sensing, 2020, 58, 5264-5276.	6.3	15

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91	A Markov chain Monte Carlo algorithm for upscaled soilâ€vegetationâ€atmosphereâ€transfer modeling to evaluate satelliteâ€based soil moisture measurements. Water Resources Research, 2008, 44, .	4.2	14
92	Characterization of effective saturated hydraulic conductivity in an agricultural field using KarhunenâŁLoÃ¨ve expansion with the Markov chain Monte Carlo technique. Water Resources Research, 2010, 46, .	4.2	14
93	A Nonstationary Geostatistical Framework for Soil Moisture Prediction in the Presence of Surface Heterogeneity. Water Resources Research, 2019, 55, 729-753.	4.2	14
94	Weighted objective function selector algorithm for parameter estimation of SVAT models with remote sensing data. Water Resources Research, 2013, 49, 6959-6978.	4.2	13
95	Estimating soil water characteristic curve using landscape features and soil thermal properties. Soil and Tillage Research, 2019, 189, 1-14.	5.6	13
96	Global Surface Soil Moisture Drydown Patterns. Water Resources Research, 2021, 57, .	4.2	13
97	Correspondence and Upscaling of Hydraulic Functions for Steady-State Flow in Heterogeneous Soils. Vadose Zone Journal, 2004, 3, 527-533.	2.2	13
98	Effect of observation scale on remote sensing based estimates of evapotranspiration in a semi-arid row cropped orchard environment. Precision Agriculture, 2017, 18, 762-778.	6.0	12
99	Improved Tension Infiltrometer for Measuring Low Fluid Flow Rates in Unsaturated Fractured Rock. Vadose Zone Journal, 2005, 4, 885-890.	2.2	12
100	An integrated Markov chain Monte Carlo algorithm for upscaling hydrological and geochemical parameters from column to field scale. Science of the Total Environment, 2015, 512-513, 428-443.	8.0	11
101	A Nomograph to Incorporate Geophysical Heterogeneity in Soil Moisture Downscaling. Water Resources Research, 2019, 55, 34-54.	4.2	11
102	Investigating the capability of estimating soil thermal conductivity using topographical attributes for the Southern Great Plains, USA. Soil and Tillage Research, 2021, 206, 104811.	5.6	11
103	Toward Developing a Generalizable Pedotransfer Function for Saturated Hydraulic Conductivity Using Transfer Learning and Predictor Selector Algorithm. Water Resources Research, 2021, 57, e2020WR028862.	4.2	11
104	Comment on â€œA simulation analysis of the advective effect on evaporation using a twoâ€phase heat and mass flow modelâ€• by Yijian Zeng, Zhongbo Su, Li Wan, and Jun Wen. Water Resources Research, 2013, 49, 7831-7835.	4.2	10
105	Space-time modeling of soil moisture. Advances in Water Resources, 2017, 109, 343-354.	3.8	9
106	Prediction of Relative Air Permeability of Porous Media With Weibull Pore Size Distribution. Water Resources Research, 2019, 55, 10037-10049.	4.2	9
107	Upscaling Soil Hydraulic Parameters in the Picacho Mountain Region Using Bayesian Neural Networks. Transactions of the ASABE, 2012, 55, 463-473.	1.1	8
108	Spatial Averaging of van Genuchten Hydraulic Parameters for Steady-State Flow in Heterogeneous Soils. Vadose Zone Journal, 2002, 1, 261.	2.2	8

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109	A comparative study of multiple approaches to soil hydraulic parameter scaling applied at the hillslope scale. Water Resources Research, 2012, 48, .	4.2	7
110	Development of non-parametric evolutionary algorithm for predicting soil moisture dynamics. Journal of Hydrology, 2018, 564, 208-221.	5.4	7
111	Effects of Water Retention Curves and Permeability Equations on the Prediction of Relative Air Permeability. Geophysical Research Letters, 2021, 48, e2021GL092459.	4.0	7
112	Upscaling the Coupled Water and Heat Transport in the Shallow Subsurface. Water Resources Research, 2018, 54, 995-1012.	4.2	6
113	Multiscale Data Fusion for Surface Soil Moisture Estimation: A Spatial Hierarchical Approach. Water Resources Research, 2019, 55, 10443-10465.	4.2	6
114	An Explicit Scheme to Represent the Bidirectional Hydrologic Exchanges Between the Vadose Zone, Phreatic Aquifer, and River. Water Resources Research, 2020, 56, e2020WR027571.	4.2	6
115	Soil Moisture Retrieval Using SMAP L-Band Radiometer and RISAT-1 C-Band SAR Data in the Paddy Dominated Tropical Region of India. IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2021, 14, 10644-10664.	4.9	6
116	Evidence of Aqueous Iron Sulfide Clusters in the Vadose Zone. Vadose Zone Journal, 2014, 13, 1-12.	2.2	5
117	Modeling Onsite Wastewater Treatment Systems in a Coastal Texas Watershed. Water, Air, and Soil Pollution, 2016, 227, 1.	2.4	4
118	Characterization of groundwater variability using hydrological, geological, and climatic factors in data-scarce tropical savanna region of India. Journal of Hydrology: Regional Studies, 2021, 37, 100887.	2.4	4
119	Context-Aware Deep Representation Learning for Geo-Spatiotemporal Analysis. , 2020, , .		4
120	Analysis of Temperature Effects on Tension Infiltrometry of Low Permeability Materials. Vadose Zone Journal, 2005, 4, 481-487.	2.2	2
121	Characterization of Backscatter by Surface Features in L-Band Active Microwave Remote Sensing of Soil Moisture. , 2008, , .		2
122	On the Radiative Transfer Model for Soil Moisture across Space, Time and Hydro-Climates. Remote Sensing, 2020, 12, 2645.	4.0	2
123	A Framework for Assessing Soil Moisture Deficit and Crop Water Stress at Multiple Space and Time Scales Under Climate Change Scenarios Using Model Platform, Satellite Remote Sensing, and Decision Support System. Springer Remote Sensing/photogrammetry, 2017, , 173-196.	0.4	1
124	Multi-scale surface roughness model for soil moisture retrieval. , 2017, , .		0
125	A semianalytical solution of the modified twoâ€dimensional diffusive root growth model. Vadose Zone Journal, 2021, 20, e20132.	2.2	0