Susan L Brantley

List of Publications by Year
in descending order

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91 papers	6,820 citations	53794 45 h-index	62596 80 g-index
105 all docs	105 docs citations	105 times ranked	5752 citing authors

#	Article	IF	Citations
1	Microbial chemolithotrophic oxidation of pyrite in a subsurface shale weathering environment: Geologic considerations and potential mechanisms. Geobiology, 2022, 20, 271-291.	2.4	4
2	Measurements of Atmospheric Methane Emissions from Stray Gas Migration: A Case Study from the Marcellus Shale. ACS Earth and Space Chemistry, 2022, 6, 909-919.	2.7	0
3	Geochemical Evidence of Potential Groundwater Contamination with Human Health Risks Where Hydraulic Fracturing Overlaps with Extensive Legacy Hydrocarbon Extraction. Environmental Science & Technology, 2022, 56, 10010-10019.	10.0	6
4	Developing boron isotopes to elucidate shale weathering in the critical zone. Chemical Geology, 2021, 559, 119900.	3.3	12
5	Signatures of Hydrologic Function Across the Critical Zone Observatory Network. Water Resources Research, 2021, 57, e2019WR026635.	4.2	31
6	Toward catchment hydroâ€biogeochemical theories. Wiley Interdisciplinary Reviews: Water, 2021, 8, e1495.	6.5	65
7	Seismic Ambient Noise Analyses Reveal Changing Temperature and Water Signals to 10s of Meters Depth in the Critical Zone. Journal of Geophysical Research F: Earth Surface, 2021, 126, e2020JF005823.	2.8	9
8	Machine learning deciphers CO&lt;sub&gt;2&lt;/sub&gt; sequestration and subsurface flowpaths from stream chemistry. Hydrology and Earth System Sciences, 2021, 25, 3397-3409.	4.9	15
9	The Limits of Homogenization: What Hydrological Dynamics can a Simple Model Represent at the Catchment Scale?. Water Resources Research, 2021, 57, e2020WR029528.	4.2	13
10	Detecting anomalous methane in groundwater within hydrocarbon production areas across the United States. Water Research, 2021, 200, 117236.	11.3	13
11	How the capacity of bedrock to collect dust and produce soil affects phosphorus bioavailability in the northern Appalachian Mountains of Pennsylvania. Earth Surface Processes and Landforms, 2021, 46, 2807-2823.	2.5	3
12	Vertical Connectivity Regulates Water Transit Time and Chemical Weathering at the Hillslope Scale. Water Resources Research, 2021, 57, e2020WR029207.	4.2	21
13	Soil Carbon Dioxide Flux Partitioning in a Calcareous Watershed With Agricultural Impacts. Journal of Geophysical Research G: Biogeosciences, 2021, 126, e2021JG006379.	3.0	5
14	The future low-temperature geochemical data-scape as envisioned by the U.S. geochemical community. Computers and Geosciences, 2021, 157, 104933.	4.2	3
15	Relating land surface, water table, and weathering fronts with a conceptual valve model for headwater catchments. Hydrological Processes, 2021, 35, e14010.	2.6	11
16	3D Seismic Anatomy of a Watershed Reveals Climateâ€Topography Coupling That Drives Water Flowpaths and Bedrock Weathering. Journal of Geophysical Research F: Earth Surface, 2021, 126, e2021JF006281.	2.8	7
17	Chemical reactions, porosity, and microfracturing in shale during weathering: The effect of erosion rate. Geochimica Et Cosmochimica Acta, 2020, 269, 63-100.	3.9	68
18	Deep abiotic weathering of pyrite. Science, 2020, 370, .	12.6	63

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19	Seismic refraction tracks porosity generation and possible CO ₂ production at depth under a headwater catchment. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 18991-18997.	7.1	28
20	Methane concentrations in streams reveal gas leak discharges in regions of oil, gas, and coal development. Science of the Total Environment, 2020, 737, 140105.	8.0	14
21	Gas well integrity and methane migration: evaluation of published evidence during shale-gas development in the USA. Hydrogeology Journal, 2020, 28, 1481-1502.	2.1	19
22	Exploring an â€˜ideal hill': how lithology and transport mechanisms affect the possibility of a steady state during weathering and erosion. Earth Surface Processes and Landforms, 2020, 45, 652-665.	2.5	10
23	A numerical examination of the effect of sulfide dissolution on silicate weathering. Earth and Planetary Science Letters, 2020, 539, 116239.	4.4	12
24	Exploring How to Use Groundwater Chemistry to Identify Migration of Methane near Shale Gas Wells in the Appalachian Basin. Environmental Science & Technology, 2019, 53, 9317-9327.	10.0	20
25	Streamflow Generation From Catchments of Contrasting Lithologies: The Role of Soil Properties, Topography, and Catchment Size. Water Resources Research, 2019, 55, 9234-9257.	4.2	26
26	Soil CO₂ and O₂ Concentrations Illuminate the Relative Importance of Weathering and Respiration to Seasonal Soil Gas Fluctuations. Soil Science Society of America Journal, 2019, 83, 1167-1180.	2.2	13
27	Reactive Transport Models of Weathering. Elements, 2019, 15, 103-106.	0.5	17
28	Climate preconditions the Critical Zone: Elucidating the role of subsurface fractures in the evolution of asymmetric topography. Earth and Planetary Science Letters, 2019, 513, 197-205.	4.4	26
29	Links between physical and chemical weathering inferred from a 65-m-deep borehole through Earthâ€™s critical zone. Scientific Reports, 2019, 9, 4495.	3.3	72
30	Ideas and perspectives: Proposed best practices for collaboration at cross-disciplinary observatories. Biogeosciences, 2019, 16, 4661-4669.	3.3	1
31	The impact of depth-dependent water content on steady state weathering and eroding systems. Geochimica Et Cosmochimica Acta, 2019, 244, 40-55.	3.9	11
32	The Effect of Lithology and Agriculture at the Susquehanna Shale Hills Critical Zone Observatory. Vadose Zone Journal, 2018, 17, 1-15.	2.2	23
33	Detecting and explaining why aquifers occasionally become degraded near hydraulically fractured shale gas wells. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12349-12358.	7.1	54
34	Susquehanna Shale Hills Critical Zone Observatory: Shale Hills in the Context of Shaver's Creek Watershed. Vadose Zone Journal, 2018, 17, 1-19.	2.2	36
35	Relating soil gas to weathering using rock and regolith geochemistry. Numerische Mathematik, 2018, 318, 727-763.	1.4	9
36	Big Groundwater Data Sets Reveal Possible Rare Contamination Amid Otherwise Improved Water Quality for Some Analytes in a Region of Marcellus Shale Development. Environmental Science & Technology, 2018, 52, 7149-7159.	10.0	53

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37	Particle fluxes in groundwater change subsurface shale rock chemistry over geologic time. Earth and Planetary Science Letters, 2018, 500, 180-191.	4.4	16
38	Ideas and perspectives: Strengthening the biogeosciences in environmental research networks. Biogeosciences, 2018, 15, 4815-4832.	3.3	24
39	Feedbacks among O2 and CO2 in deep soil gas, oxidation of ferrous minerals, and fractures: A hypothesis for steady-state regolith thickness. Earth and Planetary Science Letters, 2017, 460, 29-40.	4.4	27
40	Understanding watershed hydrogeochemistry: 2. Synchronized hydrological and geochemical processes drive stream chemostatic behavior. Water Resources Research, 2017, 53, 2346-2367.	4.2	76
41	The Effect of Fractures on Weathering of Igneous and Volcaniclastic Sedimentary Rocks in the Puerto Rican Tropical Rain Forest. Procedia Earth and Planetary Science, 2017, 17, 972-975.	0.6	11
42	Weathering of rock to regolith: The activity of deep roots in bedrock fractures. Geoderma, 2017, 300, 11-31.	5.1	93
43	Weathering and erosion of fractured bedrock systems. Earth Surface Processes and Landforms, 2017, 42, 2090-2108.	2.5	39
44	Models of transport and reaction describing weathering of fractured rock with mobile and immobile water. Journal of Geophysical Research F: Earth Surface, 2017, 122, 735-757.	2.8	14
45	A reactive transport model for Marcellus shale weathering. Geochimica Et Cosmochimica Acta, 2017, 217, 421-440.	3.9	38
46	Controls on deep critical zone architecture: a historical review and four testable hypotheses. Earth Surface Processes and Landforms, 2017, 42, 128-156.	2.5	218
47	Expanding the role of reactive transport models in critical zone processes. Earth-Science Reviews, 2017, 165, 280-301.	9.1	207
48	Toward a conceptual model relating chemical reaction fronts to water flow paths in hills. Geomorphology, 2017, 277, 100-117.	2.6	113
49	Hyporheic zone influences on concentrationâ€discharge relationships in a headwater sandstone stream. Water Resources Research, 2017, 53, 4643-4667.	4.2	49
50	Designing a network of critical zone observatories to explore the living skin of the terrestrial Earth. Earth Surface Dynamics, 2017, 5, 841-860.	2.4	92
51	Reviews and syntheses: on the roles trees play in building and plumbing the critical zone. Biogeosciences, 2017, 14, 5115-5142.	3.3	130
52	Designing a suite of measurements to understand the critical zone. Earth Surface Dynamics, 2016, 4, 211-235.	2.4	49
53	Architecture of the deep critical zone in the RÃo Icacos watershed (Luquillo Critical Zone) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 Processes and Landforms, 2016, 41, 1826-1840.	2.5	34
54	Oxidative dissolution under the channel leads geomorphological evolution at the Shale Hills catchment. Numerische Mathematik, 2016, 316, 981-1026.	1.4	55

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55	Landscape heterogeneity drives contrasting concentrationâ€“discharge relationships in shale headwater catchments. Hydrology and Earth System Sciences, 2015, 19, 3333-3347.	4.9	115
56	How Oxidation and Dissolution in Diabase and Granite Control Porosity during Weathering. Soil Science Society of America Journal, 2015, 79, 55-73.	2.2	59
57	The Role of Critical Zone Observatories in Critical Zone Science. Developments in Earth Surface Processes, 2015, , 15-78.	2.8	57
58	Evaluating a groundwater supply contamination incident attributed to Marcellus Shale gas development. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6325-6330.	7.1	236
59	Topographic controls on the depth distribution of soil CO2 in a small temperate watershed. Applied Geochemistry, 2015, 63, 58-69.	3.0	39
60	Stream Measurements Locate Thermogenic Methane Fluxes in Groundwater Discharge in an Area of Shale-Gas Development. Environmental Science & Technology, 2015, 49, 4057-4065.	10.0	45
61	The CO 2 consumption potential during gray shale weathering: Insights from the evolution of carbon isotopes in the Susquehanna Shale Hills critical zone observatory. Geochimica Et Cosmochimica Acta, 2014, 142, 260-280.	3.9	55
62	Designing a Suite of Models to Explore Critical Zone Function. Procedia Earth and Planetary Science, 2014, 10, 7-15.	0.6	40
63	Water resource impacts during unconventional shale gas development: The Pennsylvania experience. International Journal of Coal Geology, 2014, 126, 140-156.	5.0	241
64	Porosity and surface area evolution during weathering of two igneous rocks. Geochimica Et Cosmochimica Acta, 2013, 109, 400-413.	3.9	76
65	Magnesite dissolution rates at different spatial scales: The role of mineral spatial distribution and flow velocity. Geochimica Et Cosmochimica Acta, 2013, 108, 91-106.	3.9	103
66	Exploring geochemical controls on weathering and erosion of convex hillslopes: beyond the empirical regolith production function. Earth Surface Processes and Landforms, 2013, 38, 1793-1807.	2.5	97
67	Where fast weathering creates thin regolith and slow weathering creates thick regolith. Earth Surface Processes and Landforms, 2013, 38, 847-858.	2.5	99
68	Regolith production and transport in the Susquehanna Shale Hills Critical Zone Observatory, Part 1: Insights from Uâ€series isotopes. Journal of Geophysical Research F: Earth Surface, 2013, 118, 722-740.	2.8	70
69	Probing deep weathering in the Shale Hills Critical Zone Observatory, Pennsylvania (USA): the hypothesis of nested chemical reaction fronts in the subsurface. Earth Surface Processes and Landforms, 2013, 38, 1280-1298.	2.5	131
70	Regolith production and transport at the Susquehanna Shale Hills Critical Zone Observatory, Part 2: Insights from meteoric ¹⁰Be. Journal of Geophysical Research F: Earth Surface, 2013, 118, 1877-1896.	2.8	92
71	Spatiotemporal Patterns of Water Stable Isotope Compositions at the Shale Hills Critical Zone Observatory: Linkages to Subsurface Hydrologic Processes. Vadose Zone Journal, 2013, 12, 1-16.	2.2	359
72	Earthcasting the future Critical Zone. Elementa, 2013, 1, .	3.2	23

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73	The effect of curvature on weathering rind formation: Evidence from Uranium-series isotopes in basaltic andesite weathering clasts in Guadeloupe. Geochimica Et Cosmochimica Acta, 2012, 80, 92-107.	3.9	75
74	Using a reactive transport model to elucidate differences between laboratory and field dissolution rates in regolith. Geochimica Et Cosmochimica Acta, 2012, 93, 235-261.	3.9	97
75	Fe cycling in the Shale Hills Critical Zone Observatory, Pennsylvania: An analysis of biogeochemical weathering and Fe isotope fractionation. Geochimica Et Cosmochimica Acta, 2012, 99, 18-38.	3.9	75
76	Soils Reveal Widespread Manganese Enrichment from Industrial Inputs. Environmental Science & Technology, 2011, 45, 241-247.	10.0	67
77	Learning to Read the Chemistry of Regolith to Understand the Critical Zone. Annual Review of Earth and Planetary Sciences, 2011, 39, 387-416.	11.0	168
78	Soil chemistry and shale weathering on a hillslope influenced by convergent hydrologic flow regime at the Susquehanna/Shale Hills Critical Zone Observatory. Applied Geochemistry, 2011, 26, S51-S56.	3.0	25
79	How mineralogy and slope aspect affect REE release and fractionation during shale weathering in the Susquehanna/Shale Hills Critical Zone Observatory. Chemical Geology, 2011, 290, 31-49.	3.3	93
80	Opening the â€œBlack Boxâ€ Water Chemistry Reveals Hydrological Controls on Weathering in the Susquehanna Shale Hills Critical Zone Observatory. Vadose Zone Journal, 2011, 10, 928-942.	2.2	79
81	Characterization of deep weathering and nanoporosity development in shale--A neutron study. American Mineralogist, 2011, 96, 498-512.	1.9	97
82	Rock to regolith. Nature Geoscience, 2010, 3, 305-306.	12.9	37
83	Mineral weathering and elemental transport during hillslope evolution at the Susquehanna/Shale Hills Critical Zone Observatory. Geochimica Et Cosmochimica Acta, 2010, 74, 3669-3691.	3.9	216
84	Regolith production rates calculated with uranium-series isotopes at Susquehanna/Shale Hills Critical Zone Observatory. Earth and Planetary Science Letters, 2010, 297, 211-225.	4.4	125
85	Controls on rind thickness on basaltic andesite clasts weathering in Guadeloupe. Chemical Geology, 2010, 276, 129-143.	3.3	60
86	Evolution of porosity and diffusivity associated with chemical weathering of a basalt clast. Journal of Geophysical Research, 2009, 114, .	3.3	117
87	Kinetics of Mineral Dissolution. , 2008, , 151-210.		141
88	Basalt weathering across scales. Earth and Planetary Science Letters, 2007, 261, 321-334.	4.4	219
89	Proposed initiative would study Earth's weathering engine. Eos, 2004, 85, 265.	0.1	67
90	Mineral dissolution in the Cape Cod aquifer, Massachusetts, USA: I . Reaction stoichiometry and impact of accessory feldspar and glauconite on strontium isotopes, solute concentrations, and REY distribution 1 1Associate Editor: L. M. Walter. Geochimica Et Cosmochimica Acta, 2004, 68, 1199-1216.	3.9	35

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91	The effect of time on the weathering of silicate minerals: why do weathering rates differ in the laboratory and field?. Chemical Geology, 2003, 202, 479-506.	3.3	940