

Kelly K. Caylor
Professor II

This update refers to the period July 1, 2016 to June 30, 2018

Curriculum Vitae

Education

University of Virginia, Ph.D., 2003

University of Virginia, B.A., 1996

Area of Specialization

Ecohydrology, Isotope hydrology, Coupled natural-human systems, Environmental sensing.

Previous Academic or Professional Appointments

2016 -	Full Professor, Bren School of Environmental Science & Management, UCSB
2016 -	Full Professor, Dept. of Geography, University of California, Santa Barbara
2014 - 2016	Director, Environmental Studies Program, Princeton University
2013 - 2016	Associate Professor, Dept. of Civil and Environmental Engineering, Princeton University
2013 - 2016	Affiliated Faculty, Dept. of Ecology and Evolutionary Biology, Princeton University
2007 - 2012	Assistant Professor, Dept. of Civil and Environmental Engineering, Princeton University
2007 -	Adjunct Faculty, Department of Geography, Indiana University
2005 - 2007	Assistant Professor, Department of Geography, Indiana University

Professional Organizations

American Geophysical Union, Association of American Geographers, American Association for the Advancement of Science

PART I. RESEARCH

Cumulative List of Publications (or Creative Activities):

#	Year	Title and Authors	Publisher	Category
1	2002	The southern African Regional Science Initiative (SAFARI 2000): Wet season campaigns , Otter, LB, Scholes, RJ, Dowty, PR, Privette, JP, Caylor, KK, Ringrose, S, Mukelabai, M, Frost, P, Hanan, N, Totolo, O, Veenendall, EM	<i>South African Journal of Science</i>	Refereed Article
2	2002	Determining land surface fractional cover from NDVI and rainfall time series for a savanna ecosystem , Scanlon, TM, Albertson, JD, Caylor, KK, Williams, CA	<i>Remote Sensing of Environment</i>	Refereed Article
3	2002	Trends in savanna structure and composition on an aridity gradient in the Kalahari , Scholes, RJ, Dowty, PR, Caylor, KK, Parsons, DAB, Frost, PGH, Shugart, HH	<i>Journal of Vegetation Science</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
4	2003	Tree spacing along the Kalahari transect in southern Africa , Caylor, KK, Shugart, HH, Dowty, PR, Smith, TM	<i>Journal of Arid Environments</i>	Refereed Article
5	2003	Release of gaseous and particulate carbonaceous compounds from biomass burning during the SAFARI 2000 dry season field campaign , Hely, C, Caylor, KK, Alleaume, S, Swap, RJ, Shugart, HH	<i>JGR - Atmospheres</i>	Refereed Article
6	2003	Regional fuel load for two climatically contrasting years in southern Africa , Hely, C, Dowty, PR, Alleaume, S, Caylor, KK, Korontzi, S, Swap, RJ, Shugart, HH, Justice, CO	<i>JGR - Atmospheres</i>	Refereed Article
7	2003	Soil moisture and plant stress dynamics along the Kalahari precipitation gradient , Porporato, A, Laio, F, Ridolfi, L, Caylor, KK, Rodriguez-Iturbe, I	<i>JGR - Atmospheres</i>	Refereed Article
8	2004	Simulated productivity of heterogeneous patches in Southern African savanna landscapes using a canopy productivity model , Caylor, KK, Shugart, HH	<i>Landscape Ecology</i>	Refereed Article
9	2004	Feasible optimality of vegetation patterns in river basins , Caylor, KK, Scanlon, TM, Rodriguez-Iturbe, I [https://doi.org/10.1029/2004GL020260]	<i>Geophysical Research Letters</i>	Refereed Article
10	2004	Relationship between small-scale structural variability and simulated vegetation productivity across a regional moisture gradient in southern Africa , Caylor, KK, Dowty, PR, Shugart, HH, Ringrose, S	<i>Global Change Biology</i>	Refereed Article
11	2004	Vegetation structure characteristics and relationships of Kalahari woodlands and savannas , Privette, JP, Tian, Y, Roberts, G, Scholes, RJ, Wang, Y, Caylor, KK, Mukelabai, M	<i>Global Change Biology</i>	Refereed Article
12	2004	A simulation analysis of the detectability of understory burns in miombo woodlands , Pereira, JMC, Mota, B, Privette, JL, Caylor, KK, Silva, JMN, Sa, ACL, Ni-Meister, W	<i>Remote Sensing of Environment</i>	Refereed Article
13	2005	Tree canopy effects on simulated water stress in southern African savannas , Caylor, KK, Shugart, HH, Rodriguez-Iturbe, I [https://doi.org/10.1007/s10021-004-0027-9]	<i>Ecosystems</i>	Refereed Article
14	2005	On the coupled ecohydrological and geomorphological organization of river basins , Caylor, KK, Manfreda, S., Rodriguez-Iturbe, I [https://doi.org/10.1016/j.advwatres.2004.08.013]	<i>Advances in Water Resources</i>	Refereed Article
15	2005	Dynamic response of grass cover to rainfall variability: Implications for the function and persistence of savanna ecosystems , Scanlon, TM, Caylor, KK, Manfreda, Salvatore, Levin, Simon, Rodriguez-Iturbe, I [https://doi.org/10.1016/j.advwatres.2004.10.014]	<i>Advances in Water Resources</i>	Refereed Article

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16	2005	Determinants of woody cover in African savannas: A continental scale analysis , Sankaran, M, Hanan, N, Scholes, B, Ratnam, Jayashree, 24 others, Caylor, KK [https://doi.org/10.1038/nature04070]	<i>Nature</i>	Refereed Article
17	2006	On the ecohydrology of structurally heterogeneous semi-arid landscapes , Caylor, KK, D'Odorico, P, Rodriguez-Iturbe, I [https://doi.org/10.1029/2005WR004683]	<i>Water Resources Research</i>	Refereed Article
18	2007	A temporal and spatially explicit Production Efficiency Model for fuel load allocation in southern Africa , Hely, C, Caylor, KK, Dowty, PR, Alleaume, S, Swap, RJ, Shugart, HH, Justice, CO [https://doi.org/10.1007/s10021-007-9082-3]	<i>Ecosystems</i>	Refereed Article
19	2007	Spatial variation in vegetation structure coupled to plant available water at landscape scales in a Brazilian savanna , Ferira, J., Bustamente, M, Garcia-Montiel, DC, Caylor, KK, Davidson, EA [https://doi.org/10.1007/s00442-007-0747-6]	<i>Oecologia</i>	Refereed Article
20	2007	When is breeding for drought tolerance optimal when drought is random? , Sambatti, J, Caylor, KK [https://doi.org/10.1111/j.1469-8137.2007.02067.x]	<i>New Phytologist</i>	Refereed Article
21	2007	On soil moisture-vegetation feedbacks in dryland plant ecosystems , D'Odorico, P, Caylor, KK, Okin, GS, Scanlon, TM	<i>JGR - Biogeosciences</i>	Refereed Article
22	2007	Positive feedbacks promote power-law clustering of Kalahari vegetation , Scanlon, TM, Caylor, KK, Levin, Simon, Rodriguez-Iturbe, I [https://doi.org/10.1038/nature06060]	<i>Nature</i>	Refereed Article
23	2008	Spatial patterns of soil nutrients in two southern African savannas , Okin, GS, Mladenov, N, Wang, L, Cassel, D, Caylor, KK, Ringrose, S [https://doi.org/10.1029/2007JG000584]	<i>JGR - Biogeosciences</i>	Refereed Article
24	2009	On the calibration of continuous, high-precision $\delta^{18}\text{O}$ and $\delta^2\text{H}$ measurements using an off-axis integrated cavity output spectrometer , Wang, L, Caylor, KK, Dragoni, D. [https://doi.org/10.1002/rcm.3905]	<i>Rapid Communications in Mass Spectrometry</i>	Refereed Article
25	2009	Ecohydrological optimization of pattern and process in dryland ecosystems: A tradeoff-based hypothesis , Caylor, KK, Scanlon, TM, Rodriguez-Iturbe, I [https://doi.org/10.1029/2008WR007230]	<i>Water Resources Research</i>	Refereed Article
26	2009	Decoupling structural and environmental determinants of sap velocity: Part II, Observational application , Dragoni, D, Caylor, KK, Schmid, H [https://doi.org/10.1016/j.agrformet.2008.10.006]	<i>Agriculture & Forest Meteorology</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
27	2009	Decoupling structural and environmental determinants of sap velocity: Part I, Theoretical development , Caylor, KK, Dragoni, D. [https://doi.org/10.1016/j.agrformet.2008.10.010]	<i>Agriculture & Forest Meteorology</i>	Refereed Article
28	2009	Spatial heterogeneity and sources of soil carbon in Southern African savannas , Wang, L, Okin, G., Caylor, KK, Macko, S	<i>Geoderma</i>	Refereed Article
29	2010	Combined effect of soil moisture and nitrogen availability variations on grass productivity in African savannas , Wang, L, D'Odorico, P, Ries, L., Caylor, KK, Macko, S [https://doi.org/10.1007/s11104-009-0085-z]	<i>Plant & Soil</i>	Refereed Article
30	2010	Nutrient limitation on above-ground grass production in four savanna types along the Kalahari Transect , Ries-O'Halloran, L, Shugart, HH, Wang, L, Caylor, KK, Ringrose, S [https://doi.org/10.1016/j.jaridenv.2009.08.012]	<i>Journal of Arid Environments</i>	Refereed Article
31	2010	An ecohydrological approach to predict regional species distribution patterns in dryland ecosystems , Franz, T., Caylor, KK, Rodriguez-Iturbe, I., Celia, M., Norbotten, J [https://doi.org/10.1016/j.advwatres.2009.12.003]	<i>Advances in Water Resources</i>	Refereed Article
32	2010	On the importance of accurate depiction of infiltration processes on model soil moisture and vegetation water stress , Manfreda, S., Scanlon, TM, Caylor, KK [https://doi.org/10.1002/eco.79]	<i>Ecohydrology</i>	Refereed Article
33	2010	Partitioning evapotranspiration across gradients of woody plant cover: assessment of a stable isotope technique , Wang, L, Caylor, KK, Villegas, J.C., Barron-Gafford, G, Breshears, DD, Huxman, T [https://doi.org/10.1029/2010GL043228]	<i>Geophysical Research Letters</i>	Refereed Article
34	2010	Herbivores and mutualistic ants interact to regulate tree photosynthesis , King, E.G., Caylor, KK [https://doi.org/10.1111/j.1469-8137.2010.03286.x]	<i>New Phytologist</i>	Refereed Article
35	2011	An ecohydrological approach to predicting hillslope-scale vegetation patterns in dryland ecosystems , Franz, T., Caylor, KK, King, E.G., Nordbotten, J, Celia, MA, Rodriguez-Iturbe, I [https://doi.org/10.1029/2011WR010524]	<i>Water Resources Research</i>	Refereed Article
36	2011	Quantifying Transient Soil Moisture Dynamics Using Multipoint Direct-Current Resistivity in Homogeneous Sand , Franz, T., Nolan, J, Nordbotten, J, Caylor, KK, Slater, L. [https://doi.org/10.2136/vzj2010.0031]	<i>Vadose Zone Journal</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
37	2011	Climatological determinants of woody cover in Africa , Good, S.P., Caylor, KK [https://doi.org/10.1073/pnas.1013100108]	<i>Proceedings of the National Academy of Sciences</i>	Refereed Article
38	2011	Coupling vegetation organization patterns to soil resource heterogeneity in a central Kenyan dryland using geophysical imagery , Franz, T., King, E.G., Caylor, KK, Robinson, DA [https://doi.org/10.1029/2010WR010127]	<i>Water Resources Research</i>	Refereed Article
39	2011	Metabolic principles of river basin organization , Rodriguez-Itrube, I, Caylor, KK, Rinaldo, A. [https://doi.org/10.1073/pnas.1107561108]	<i>Proceedings of the National Academy of Sciences</i>	Refereed Article
40	2011	Ecohydrology in Practice: Strengths, Conveniences, and Opportunities , King, E.G., Caylor, KK [https://doi.org/10.1002/eco.248]	<i>Ecohydrology</i>	Refereed Article
41	2012	Multi-sensor derivation of regional vegetation fractional cover in Africa , Guan, K., Wood, E.F., Caylor, KK [https://doi.org/10.1016/j.rse.2012.06.005]	<i>Remote Sensing of Environment</i>	Refereed Article
42	2012	Scaling ecohydrological and biogeochemical connectivity across multiple scales: a new concept and case applications , Wang, L., Zou, Chris, O'Donnell, F., Good, S., Franz, T., Caylor, KK [https://doi.org/10.1002/eco.1187]	<i>Ecohydrology</i>	Refereed Article
43	2012	Ecohydrological interactions in a two-phase mosaic dryland: implications for regime shifts, resilience, and restoration , King, E.G., Franz, T., Caylor, KK [https://doi.org/10.1002/eco.260]	<i>Ecohydrology</i>	Refereed Article
44	2012	Direct quantification of leaf transpiration isotopic composition , Wang, L, Good, S.P., Caylor, KK [https://doi.org/10.1016/j.agrformet.2011.10.018]	<i>Agriculture & Forest Meteorology</i>	Refereed Article
45	2012	A model-based evaluation of woody plant encroachment impacts on coupled carbon and water cycles , O'Donnell, Caylor, KK [https://doi.org/10.1029/2011JG001899]	<i>JGR - Biogeosciences</i>	Refereed Article
46	2012	Understanding the role of ecohydrological feedbacks in ecosystem-state change in drylands , Turnbull, L, Wilcox, B.P., Belnap, J, Ravi, S, others, Caylor, KK [https://doi.org/10.1002/eco.265]	<i>Ecohydrology</i>	Refereed Article
47	2012	Evaluating ecohydrological theories of woody root distribution in the Kalahari , Bhattachan, A., Dintwe, K., Tathlego, M., O'Donnell, F., Caylor, KK, et al. [https://doi.org/10.1371/journal.pone.0033996]	<i>PLoS One</i>	Refereed Article
48	2012	Uncertainties in the assessment of the isotopic composition of surface fluxes: A direct comparison of techniques using laser-based water vapor isotope analyzers , Good, S.P., Soderberg, K., Wang, L, Caylor, KK [https://doi.org/10.1029/2011JD017168]	<i>JGR - Atmospheres</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
49	2012	Reframing hydrology education to solve coupled human and environmental problems , King, E.G., O'Donnell, F., Caylor, KK [https://doi.org/10.5194/hess-16-4023-2012]	<i>Hydrology and Earth System Science</i>	Refereed Article
50	2012	Stable isotopes of water vapor in the vadose zone: A review of measurement and modeling techniques , Soderberg, K., Good, S.P., Wang, L, Caylor, KK [https://doi.org/10.2136/vzj2011.0165]	<i>Vadose Zone Journal</i>	Refereed Article
51	2012	Dryland ecohydrology and climate change: critical issues and technical advances , Wang, L, D'Odorico, P, Evans, J, Eldridge, T., McCabe, M, Caylor, KK [https://doi.org/10.5194/hess-16-2585-2012]	<i>Hydrology and Earth System Science</i>	Refereed Article
52	2013	Seasonal coupling of canopy structure and function in African tropical forests and its environmental controls , Guan, K., Wolf, A, Medvigy, David, Caylor, KK, Pan, Ming, Wood, E.F. [https://doi.org/10.1890/ES12-00232.1]	<i>Ecosphere</i>	Refereed Article
53	2013	Using atmospheric trajectories to model the isotopic composition of rainfall in central Kenya , Soderberg, K., Good, S.P., O'Connor, M, Wang, L, Ryan, K, Caylor, KK [https://doi.org/10.1890/ES12-00160.1]	<i>Ecosphere</i>	Refereed Article
54	2013	Ecosystem-scale spatial heterogeneity of stable isotopes of soil nitrogen in African savannas , Wang, L., Okin, GS, D'Odorico, P, Caylor, KK, Macko, S [https://doi.org/10.1007/s10980-012-9776-6]	<i>Landscape Ecology</i>	Refereed Article
55	2013	The effect of warming on grassland evapotranspiration partition using laser-based isotope monitoring techniques , Wang, L, Nui, S., Good, S.P., Soderberg, K, others, Caylor, KK [https://doi.org/10.1016/j.gca.2012.12.047]	<i>Geochimica et Cosmochimica Acta</i>	Refereed Article
56	2013	Analytical expressions of variability in ecosystem structure and function obtained from three-dimensional stochastic vegetation modelling , Good, S.P., Rodriguez-Iturbe, I, Caylor, KK [https://doi.org/10.1098/rspa.2013.0003]	<i>Proceedings of the Royal Society, Series A</i>	Refereed Article
57	2013	Virtual water trade and development in Africa , Konar, M, Caylor, KK [https://doi.org/10.5194/hess-17-3969-2013]	<i>Hydrology and Earth System Science</i>	Refereed Article
58	2013	On The Vulnerability of Water Limited Ecosystems to Climate Change , Manfreda, S., Caylor, KK [https://doi.org/10.3390/w5020819]	<i>Water</i>	Refereed Article
59	2014	An analysis of structure: biomass structure relationships for characteristic species of the western Kalahari, Botswana , Meyer, T, D'Odorico, P, Okin, GS, Shugart, HH, Caylor, KK, O'Donnell FC [https://doi.org/10.1111/aje.12086]	<i>Journal of African Ecology</i>	Refereed Article

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60	2014	$\delta^{2}\text{H}$ Isotopic flux partitioning of evapotranspiration over a grass field following a water pulse and subsequent dry down , Good, S.P., Soderberg, K., Guan K., King, E.G., Scanlon, TM, Caylor, KK [https://doi.org/10.1002/2013WR014333]	<i>Water Resources Research</i>	Refereed Article
61	2014	Deriving vegetation phenological time and trajectory information over Africa using SEVIRI daily LAI , Guan, K., Medvigy, D., Wood, E.F., Caylor, KK, Li, S., Jeong, S. [https://doi.org/10.1109/TGRS.2013.2247611]	<i>IEEE Transactions on Geoscience and Remote Sensing</i>	Refereed Article
62	2014	Continental-scale impacts of intra-seasonal rainfall variability on simulated ecosystem responses in Africa , Guan, K., Good, S.P., Caylor, KK, Sato, Hisashui, Li, Haibin, Wood, E.F. [https://doi.org/10.5194/bg-11-6939-2014]	<i>Biogeosciences</i>	Refereed Article
63	2014	Changing water availability during the African maize-growing season, 1979-2010 , Estes, L, Chaney, N., Herrera-Estrada, J., Sheffield, J, Caylor, KK, Wood, E.F. [https://doi.org/10.1088/1748-9326/9/7/075005]	<i>Environmental Research Letters</i>	Refereed Article
64	2014	Global synthesis of vegetation control on evapotranspiration partitioning , Wang, L., Good, S.P., Caylor, K.K., ‘ [https://doi.org/10.1002/2014GL061439]	<i>Geophysical Research Letters</i>	Refereed Article
65	2014	Terrestrial hydrological controls on land surface phenology of African savannas and woodlands , Guan, K., Wood, E.F, Medvigy, David, Wolf, Adam, Kimball, John, Pan, Ming, Caylor, KK, Sheffield, J [https://doi.org/10.1002/2013JG002572]	<i>JGR - Biogeosciences</i>	Refereed Article
66	2015	Photosynthetic seasonality of global tropical forests constrained by hydroclimate , Guan, K., Pan, M., Li, H., Wolf, A, Medvigy, D, Caylor, KK, Sheffield, J, Wood, EF, Mahli, Y, Liang, M., others [https://doi.org/10.1038/ngeo2382]	<i>Nature Geoscience</i>	Refereed Article
67	2015	Termite mounds can increase the robustness of dryland ecosystems to climatic change , Bonachela, JA, Pringle, RM, Shefer, E, Coverdale, TC, Guyon, JA, Caylor, KK, Levin, SA, Tarnita, CE [https://doi.org/10.1126/science.1261487]	<i>Science</i>	Refereed Article
68	2015	Carbon stable isotopes suggest that hippopotamus-vectored nutrients subsidize aquatic consumers in an East African river , McCauley, D.J., Dawson, T, Power, ME, Finlay, JC, Ogada, M, Gower, D., Caylor, KK [https://doi.org/10.1890/ES14-00514.1]	<i>Ecosphere</i>	Refereed Article

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69	2015	A quantitative description of the interspecies diversity of belowground structure in savanna woody plants , O'Donnell, Caylor, KK, Bhattachan, A, Dintwe, Kebonye, D'Odorico, P, Okin, G [https://doi.org/10.1890/ES14-00310.1]	<i>Ecosphere</i>	Refereed Article
70	2015	Dynamic interactions of ecohydrological and biogeochemical processes in water-limited systems , Wang, L., Manzoni, S., Ravi, S., Riveros-Iregui, D., Caylor, KK [https://doi.org/10.1890/ES15-00122.1]	<i>Ecosphere</i>	Refereed Article
71	2015	Warmer and wetter soil stimulates assimilation more than respiration in rainfed agricultural ecosystem on the China Loess Plateau: the role of partially plastic film mulching tillage , Gong, D., Hao, W., Mei, X., Gao, X., Caylor, KK [https://doi.org/10.1371/journal.pone.0136578]	<i>PLoS One</i>	Refereed Article
72	2015	Soil organic C and total N pools in the Kalahari: potential impacts of climate change on C sequestration in savannas , Dintwe, K., Okin, GS, D'Odorico, P, Hrast, T, Mladenov, N., Handorean, A., Bhattachan, A., Caylor, KK [https://doi.org/10.1007/s11104-014-2292-5]	<i>Plant & Soil</i>	Refereed Article
73	2016	Global Patterns of the Contributions of Storm Frequency, Intensity, and Seasonality to Inter-annual Variability of Precipitation , Good, S.P., Guan, K., Caylor, K.K. [https://doi.org/10.1175/JCLI-D-14-00653.1]	<i>Journal of Climate</i>	Refereed Article
74	2016	Improved removal of volatile organic compounds for laser-based spectroscopy of water isotopes. , Chang, E., Wolf, A., Gerlein-Safdi, C., Caylor, KK [https://doi.org/doi.org/10.1002/rcm.7497]	<i>Rapid Communications in Mass Spectrometry</i>	Refereed Article
75	2016	Community Water Governance on Mount Kenya: An Assessment Based on Ostrom's Design Principles of Natural Resource Management , Dell'Angelo, J, McCord, P, Gower, D., Carpenter, S., Caylor, K., Evans, T.P. [https://doi.org/10.1659/MRD-JOURNAL-D-15-00040.1]	<i>Mountain Research & Development</i>	Refereed Article
76	2016	A platform for crowdsourcing the creation of representative, accurate landcover maps , Estes, L, McRitchie, D., Choi, J., Debats, S., Evans, T., Guthe, W., Luo, D., Ragazzo, G., Zempleni, R., Caylor, KK [https://doi.org/10.1016/j.envsoft.2016.01.011]	<i>Environmental Modelling & Software</i>	Refereed Article

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77	2016	A generalized computer vision approach to mapping crop fields in heterogeneous agricultural landscapes , Debats, S., Luo, D., Estes, L.D., Fuchs, T., Caylor, KK [https://doi.org/10.1016/j.rse.2016.03.010]	<i>Remote Sensing of Environment</i>	Refereed Article
78	2016	Explaining inter-annual variability of gross primary productivity from plant phenology and physiology , Zhou, S, Zhang, Y., Caylor, KK, Luo, Y., Xiao, X., Ciais, P., Huang, Y., Wang, G. [https://doi.org/10.1016/j.agrformet.2016.06.010]	<i>Agricultural & Forest Meteorology</i>	Refereed Article
79	2016	Reconciling agriculture, carbon and biodiversity in a savanna transformation frontier , Estes, L., Searchinger, T., Spiegel, M., Tian, D., Sichinga, S., Mwale, M., Kehoe, L., Kuemmerle, T., Berven, A., Chaney, N., Caylor, KK [https://doi.org/10.1098/rstb.2015.0316]	<i>Philosophical Transactions of the Royal Society B - Biological Sciences</i>	Refereed Article
80	2016	Modeling ecohydrological dynamics of smallholder strategies for food production in dryland agricultural systems , Gower, D. B., Dell'Angelo, J., McCord, P.F., Caylor, KK, Evans, T.P. [https://doi.org/10.1088/1748-9326/11/11/115005]	<i>Environmental Research Letters</i>	Refereed Article
81	2017	An Ecohydrological Framework to Explain Shifts in Vegetation Organization Across Climatological Gradients , Manfreda, S., Caylor, KK, Good, S.P. [https://doi.org/10.1002/eco.1809]	<i>Ecohydrology</i>	Refereed Article
82	2017	Dominant role of plant physiology in trend and variability of gross primary productivity in North America , Zhou, S, Zhang, Y., Ciais, P, Xiao, X.M., Luo, Y.Q., Caylor, KK [https://doi.org/10.1038/srep41366]	<i>Scientific Reports</i>	Refereed Article
83	2017	Comparison of multi-level water use efficiency between plastic film partially mulched and non-mulched croplands at eastern Loess Plateau of China , Gong, D., Mei, X., Hao, W., Caylor, KK [https://doi.org/10.1016/j.agwat.2016.06.006]	<i>Agricultural Water Management</i>	Refereed Article
84	2017	Household-level heterogeneity of water resources within common-pool resource systems , McCord, P., Dell'Angelo, J., Gower, D., Caylor, KK, Evans, T. [https://doi.org/10.5751/ES-09156-220148]	<i>Ecology & Society</i>	Refereed Article
85	2017	Comparison of ET partitioning and crop coefficients between partial plastic mulched and non-mulched maize fields , Gong, D., Mei, X., Hao, W., Caylor, KK [https://doi.org/10.1016/j.agwat.2016.11.016]	<i>Agricultural Water Management</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
86	2017	Triple oxygen isotope composition of leaf waters in Mpala, central Kenya , Li, S., Dennis, K., Levin, N., Soderberg, K., Caylor, KK [https://doi.org/10.1016/j.epsl.2017.02.015]	<i>Earth & Planetary Science Letters</i>	Refereed Article
87	2017	Validation of SMAP surface soil moisture products with core validation sites , Colliander, A., Jackson, TJ, Bindish, R., others, including, Caylor, KK [https://doi.org/10.1016/j.rse.2017.01.021]	<i>Remote Sensing of Environment</i>	Refereed Article
88	2017	Leaf water 18O and 2H maps show directional enrichment discrepancy in Colocasia esculenta , Gerlain-Safdi, C., Gauthier, P., Sinkler, C., Caylor, KK [https://doi.org/10.1111/pce.13002]	<i>Plant, Cell, & Environment</i>	Refereed Article
89	2017	Calibration of a parsimonious distributed eco-hydrological daily model in a data-scarce basin using exclusively the spatio-temporal variation of NDVI , Ruiz-Perez, G., Kock, J., Manfreda, Salvatore, Caylor, KK, Frances, F. [https://doi.org/10.5194/hess-21-6235-2017]	<i>Hydrology and Earth System Science Discussions</i>	Refereed Article
90	2018	Simulated sensitivity of African terrestrial ecosystem photosynthesis to rainfall frequency, intensity, and rainy season length , Guan, K., Good, S.P., Caylor, K.K., Medvigy, D., Pan, Ming, Wood, E.F., Sato, H., Biasutti, M., Chen, M., Ahlstrom, A., Xiangtao, X. [https://doi.org/10.1088/1748-9326/aa9f30]	<i>Environmental Research Letters</i>	Refereed Article
91	2018	Measurements and Observations in the XXI century (MOXXI): innovation and multidisciplinary to sense the hydrological cycle , Flavia, T., Selker, J., van de Giesen, N., Abrate, T., Uijlenhoet, R., Porfiri, M., Manfreda, S., Caylor, KK, 22 others [https://doi.org/10.1080/02626667.2017.1420191]	<i>Hydrological Sciences Journal</i>	Refereed Article
92	2018	A large-area, spatially continuous assessment of land cover map error and its impact on downstream analyses , Estes, L, Chen, P., Debats, S., Evans, T., Ferreira, S., Ragazzo, G., Sheffield, J, Wolf, A., Wood, EF, Caylor, KK [https://doi.org/10.1111/gcb.13904]	<i>Global Change Biology</i>	Refereed Article
93	2018	The Spatial and Temporal Domains of Modern Ecology , Estes, L, Elsen, P., Truer, T., Ahmed, L., Caylor, KK., Chang, J., Choi, J., Ellis, E [https://doi.org/10.1038/s41559-018-0524-4]	<i>Nature Ecology & Evolution</i>	Refereed Article
94	2018	On the Use of Unmanned Aerial Systems for Environmental Monitoring , Manfreda, S., McCabe, M, Miller, P., Lucas, R., Madrigal, V.P., Mallinis, G., Ben Dor, E., Helman, D., Estes, L., Ciruolo, G., 13 others including Caylor, K. [https://doi.org/10.3390/rs10040641]	<i>Remote Sensing</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
95	2018	Dew deposition suppresses transpiration and carbon uptake in leaves , Gerlain-Safdi, C., Koohafkan, MC, Chung, M., Thompson, S, Rockwell, FE, Caylor, KK [https://doi.org/10.1016/j.agrformet.2018.05.015]	<i>Agriculture & Forest Meteorology</i>	Refereed Article

Works In Press:

#	Year	Title and Authors	Publisher	Category
P-1	2018	Comparing empirical and survey-based yield forecasts in a dryland agro-ecosystem , Zhao, Y., Vergopolan, N., Baylis, K, Blekkin, J. , Caylor, KK, Evans, T.P., Giroux, S., Sheffield, J, Estes, L.	<i>Agricultural & Forest Meteorology</i>	Refereed Article
P-2	2018	Dew-induced transpiration suppression impacts the water and isotope balances of Colocasialeave , Gerlain-Safdi, C., Gauthier, P.G., Caylor, KK	<i>Oecologia</i>	Refereed Article

Work Submitted:

#	Year	Title and Authors	Publisher	Category
R-1	2018	Changes of daily evapotranspiration partitioning and water use efficiency with a soil wetting-drying cycle in a sprinkle-irrigated cropland , Xurong, M., Gong, D., Heng, L., Hsiao, T., Hao, W., Guo, Z., Li, Y, Caylor, KK	<i>Science of the Total Environment</i>	Refereed Article
R-2	2018	Labor Sharing and Community-Level Vulnerability to Drought , Schmitt-Harsh, M, Sweeney, S., Estes, L., Caylor, KK, Evans, T.	<i>World Development</i>	Refereed Article
R-3	2018	Mapping cropland in an smallholder-dominated African savannas biome using spectral mixture analysis and binary logistic regression , Sweeney, S, Ruseva, T., Estes, L, Caylor, KK, Evans, T.	<i>Remote Sensing of Environment</i>	Refereed Article
R-4	2018	The Relative Influences of Climate and Crop Subsidies in Shaping Agricultural Land Use and Productivity , Mastorillo, M, Vink, N., Caylor. K., Oppenheimer, M., Estes, L.	<i>Environmental Research Letters</i>	Refereed Article
R-5	2018	The salience of climate change in farmer decision making within smallholder semi-arid agroecosystems , Waldman, K, Attari, S, Gower, D, Giroux, S, Evans, T, Caylor, KK	<i>Climatic Change</i>	Refereed Article
R-6	2018	Perceptions and biases about climate variability in smallholder farming systems , Waldman, K, Vergopolan, N., Attari, S.Z., Sheffield, J., Estes, L.D., Caylor, KK, Evans, T.P	<i>Weather & Society</i>	Refereed Article
R-7	2018	A high-frequency mobile phone data collection approach for research in social-environmental systems: Applications in climate variability and food security in sub-Saharan Africa. , Giroux, S., Caylor, KK, Kouper, I., Estes, L., Schumacher, J., Waldman, K., Evans, T.	<i>Environmental Modelling & Software</i>	Refereed Article

#	Year	Title and Authors	Publisher	Category
R-8	2018	A global database of water vapor isotopes measured with high temporal resolution infrared laser spectroscopy , Wei, Zhongwang, Lee, Xuhui, Aemisegger, Franziska, Benetti, Marion, Berkelhammer, Max, Casado, Mathieu, Caylor, KK, Chrsiner, Emanuel, Dryoff, Christoph, Garcia, O.E., 17 others	<i>Scientific Data</i>	Refereed Article
R-9	2018	Biophysical effects on soil crack morphology in a faunally active dryland vertisol , DeCarlo, K., Caylor, KK	<i>Geoderma</i>	Refereed Article

PART II. TEACHING (50% Geography Dept. workload: 1.5 courses; 50%Bren School workload: 1.75 courses. Teaching release throughout the review period.)¹

Catalog Courses:

Qtr	Course	Class Type	Units	Hrs/Wk	Enrollment	Evals	Available
S18	ESM 401A, Group Project - A	Tut	4.0	2	5		No
S18	ESM 401D, Group Project - D	Tut	4.0	2	4		No
S18	GEOG 200C, Intro to Geographical Research	Tut	2.0	0	1		No
S18	GEOG 597, Individual Study - PhD Exam	Tut		2	1		No
S18	GEOG 599, PhD Dissertation	Tut		2	1		No
W18	ESM 401C , Group Project - C	Tut	4.0	2	4		No
W18	GEOG 597, Individual Study - PhD Exam	Tut		2	1		No
W18	GEOG 599, PhD Dissertation	Tut		2	1		No
F17	GEOG 597, Individual Study - PhD Exam	Tut		2	2		No
F17	ESM 401B, Group Project - B	Tut	4.0	2	4		No
S17	ENV S 167, Biogeography	Lec	4.0	3	17		Yes
S17	ESM 401A, Group Project - A	Tut	4.0	2	4		No
S17	GEOG 167, Biogeography	Lec	4.0	3	11		Yes
S17	GEOG 200C, Intro to Geographical Research	Tut	2.0	0	1		No
S17	GEOG 597, Individual Study - PhD Exam	Tut		2	2		No
W17	GEOG 597, Individual Study - PhD Exam	Tut		2	1		No
F16	GEOG 597, Individual Study - PhD Exam	Tut		2	2		No

Undergraduate Projects Directed:

Student	Project	Chair/ Member	Yr Deg Compl.
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Graduate Degree Committees, MA/MS Committees:

Student	Year	Institution	Chair/Member	Current Employment
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Graduate Degree Committees, Ph.D. Committees:

¹ The ERI directorship is for a 5-year term with annual reappointment. The appointment comes with a 50% teaching load reduction. Therefore, my four-year annual teaching load in Geography is 1-0-1-1, and in Bren it is advising one group project per year, and 0.5/yr teaching ESM 203 starting in Fall 2018.

Student	Year	Institution	Chair/Member	Current Employment
Cynthia Gerlein-Safdi	2017	Princeton University, Civil & Environmental Engineering	Chair	Postdoctoral Researcher - University of Michigan
Stephanie Debats	2017	Princeton University, Civil & Environmental Engineering	Chair	Autonomy Engineer - Uber
Cascade Tuholske	In Progress	UCSB, Geography	Chair	-
Drew Gower	In Progress	Princeton University, Civil & Environmental Engineering	Chair	-
Keita DeCarlo	In Progress	Princeton University, Civil & Environmental Engineering	Chair	-
Natasha Krell	In Progress	UCSB, Geography	Chair	-
Ryan Avery	In Progress	UCSB, Geography	Chair	-
Chris Heckman	In Progress	UCSB, Bren	Committee Member	-
Elizabeth Forbes	In Progress	UCSB, Ecology, Evolution, and Marine Ecology	Committee Member	-
Fernanda Riberio	In Progress	UCSB, Geography	Committee Member	-
Mike Johnson	In Progress	UCSB, Geography	Committee Member	-
Sara Lafia	In Progress	UCSB, Geography	Committee Member	-
Susan Meerdink	In Progress	UCSB, Geography	Committee Member	-

Postdoctoral Scholars Supervised:

Postdoctoral Researcher	Years	Affiliation	Current Employment
Marc Mayes	2016 -	UCSB, Geography	-

Other Teaching Contributions:

None

PART III. PROFESSIONAL ACTIVITIES**Lectures Presented:**

Month/Year	Topic	Place/Conference
12/2016	Using Small Drone (UAS) Imagery to Bridge the Gap Between Field-and Satellite-Based Measurements of Vegetation Structure and Change. Mayes, MT and Estes, LD and Gago, X and Debats, SR and Caylor, KK and Manfreda, S and Oudemans, P and Ciraolo, G and Maltese, A and Nadal, M and others	AGU Fall Meeting Abstracts

Month/Year	Topic	Place/Conference
12/2016	Linking Carbon Flux Dynamics and Soil Structure in Dryland Soils. DeCarlo, Keita F and Caylor, Kelly K	AGU Fall Meeting Abstracts
12/2016	Characterization of canopy dew formation in tropical forests using active microwave remote sensing. Gerlein-Safdi, C and Frolking, SE and Caylor, KK	AGU Fall Meeting Abstracts
12/2016	An ecohydrologic framework for simulating catchment constraints on smallholder irrigation systems in drylands. Gower, D and McCord, PF and Caylor, KK and Dell'Angelo, J and Evans, TP	AGU Fall Meeting Abstracts
12/2016	Harmonizing Social and Environmental Dynamics in Earth Systems Modeling. Evans, Tom P and Estes, Lyndon D and Caylor, Kelly K and McCord, Paul Frederick and Gower, Drew and Konar, M and Baylis, K and Waldman, K and Blekking, J and Schlachter, T	AGU Fall Meeting Abstracts
12/2016	Combining Human and Machine Learning to Map Cropland in the 21st Century's Major Agricultural Frontier. Estes, Lyndon D and Debats, SR and Caylor, Kelly K and Evans, Tom P and Gower, Drew and McRitchie, Dennis and Searchinger, Timothy and Thompson, David R and Wood, Eric F and Zeng, Lindy	AGU Fall Meeting Abstracts
12/2016	Rapid Monitoring of Drought Impacts on Small-Scale Farms in Africa through Integration of Farmer SMS data and Environmental Sensors. Evans, Tom P and Caylor, Kelly K and Estes, Lyndon D and Plale, Beth A and Attari, Shahzeen and Waldman, Kurt	AGU Fall Meeting Abstracts
12/2016	Can we forecast farmers' yields? The relationships between rainfall variability, farmers' expectations, and actual yields in a tropical dryland. Zeng, Z and Tian, D and Estes, LD and Evans, TP and Wood, EF and Caylor, KK	AGU Fall Meeting Abstracts
12/2016	Assessment of SMAP L2/L3 Soil Moisture Products using In Situ Based Core Validation Sites. Colliander, A and Jackson, TJ and Bindlish, R and Chan, S and Das, NN and Kim, S and Cosh, MH and Dunbar, RS and Asanuma, J and Aida, K and others	AGU Fall Meeting Abstracts
2/2017	Invited Speaker, Session on "Hydrologic connectivity: linking land use changes and management to movement and transformations of resources within catchments"	ALSO Annual Aquatic Sciences Meeting
10/2017	Seminar Speaker, Department of Plant Sciences Seminar	University of California, Riverside
12/2017	Is deciduousness a key to climate resilience among iconic California savanna oak species? Relating phenological habits to seasonal indicators of tree physiological and water stress across field, hyperspectral, drone (UAS)-based multispectral and thermal image data. Mayes, MT and Caylor, KK and Ehlmann, BL and Greenberger, RN and Estes, LD	AGU Fall Meeting Abstracts
12/2017	High spatial resolution mapping of land cover types in a priority area for conservation in the Brazilian savanna. Ribeiro, F and Roberts, DA and Hess, LL and Davis, FW and Caylor, KK and Nackoney, J and Antunes Daldegan, G	AGU Fall Meeting Abstracts
12/2017	Simulating the impact of water storage on agricultural intensification and deforestation in Northern Thailand. Gower, D and Zeng, Z and Caylor, KK and Wood, EF	AGU Fall Meeting Abstracts

Month/Year	Topic	Place/Conference
12/2017	Effects of dew deposition on transpiration and carbon uptake in leaves. Gerlein-Safdi, C and Koochafkan, M and Chung, M and Rockwell, FE and Thompson, SE and Caylor, KK	AGU Fall Meeting Abstracts
12/2017	Real-time monitoring of smallholder farmer responses to intra-seasonal climate variability in central Kenya. Krell, N and Evans, TP and Estes, LD and Caylor, KK	AGU Fall Meeting Abstracts
4/2018	Invited Speaker, Workshop on Spatial Pattern Formation in Ecosystems	Princeton University, Center for Theoretical Science
4/2018	On the use of unmanned aerial systems for environmental monitoring. Manfreda, S., Ben Dor, E., Caylor, K.K., Ciruolo, G., De Lima, I., De Lima, J.L.M., Estes, L., Frances, F., Helman, D., Kohv, M., Lucas, R., Madrigal, V.P., Mallinis, G., Maltese, A., McCabe, M., Miller, P., Perks, M., Ruiz-Perez, G., Tauro, F., Toth, B.	European Geosciences Union, General Assembly
4/2018	Integrating humans and machines to map smallholder-dominated agricultural frontiers. Estes, L., Caylor, K.K., Debats, S., Eastman, R., Thompson, D.R.	Association of American Geographers Annual Meeting
4/2018	Towards assessing urban food security and nutrition in West Africa. Tuholske, C., Andam, K., Blekking, J., Caylor, K., Evans, T.	American Association of Geographers Annual Meeting

Grants and Contracts:

Year	Source	Title	Amount	Role
2017	National Science Foundation	CC*Networking Infrastructure: UCSB Network Upgrade to 100 Gigabit.	\$481,730.00	PI
2017	National Science Foundation	Collaborative Research: Impacts of Dynamic Climate-Driven Water Availability on Tree Water Use and Health in Mediterranean Riparian Forests	\$396,566.00	Co-PI
2018	Omidyar Foundation	Developing and Scaling up the Mapping Africa Active Learning Platform	\$80,267.00	PI
2018	National Science Foundation	WSC-Category 2 Collaborative: Impacts of Agricultural Decision Making and Adaptive Management on Food Security	\$628,779.00	PI
2018	Department of Defense, SERDP	Strategic Environmental Research & Development: Understanding and Assessing Riparian Habitat Vulnerability to Drought-Prone Climate Regimes on Department of Defense Bases in the Southwestern US	\$1,704,236.00	Co-PI

Reviewing and Refereeing Activity:

Year	Activity	Journal/Agency
2016	Referee	Environmental Research Letters
2016	Referee	Geophysical Research Letters (2)
2016	Referee	NSF Hydrological Sciences
2017	Program Director	Earth Research Institute Graduate Fellowship Program
2017	Referee	Earth and Space Science

Year	Activity	Journal/Agency
2017	Referee	Environmental Research Letters (4)
2017	Referee	Geophysical Research Letters
2017	Referee	Nature Communications
2017	Referee	Water Resources Research
2017	Tenure case reviewer	Indiana University
2017	Tenure case reviewer	University of Alabama
2017	Tenure case reviewer	University of Cape Town
2018	Program Director	Earth Research Institute Graduate Fellowship Program
2018	Promotion case reviewer	University of Texas, Austin
2018	Referee	Agricultural and Forest Meteorology
2018	Referee	Environmental Research Letters (2)
2018	Referee	Global and Planetary Change
2018	Referee	JGR Biogeosciences
2018	Referee	Journal of Water Resources Planning & Management
2018	Referee	Mountain Research and Development
2018	Referee	NSF Hydrological Sciences
2018	Referee	Nature Climate Change
2018	Referee	PLOS One (2)

Special Appointments:

2016-present, Editorial Board, *Environmental Research Letters, Reviews*

Other Professional Contributions:**PART IV. SERVICE****University Service:**

Year	Service
2016 - 2017	Chair, Earth Research Institute, Personnel Committee
2016 - 2017	Ex-Officio Member, Earth Research Institute Advisory Committee, UCSB
2016 - 2017	Director, Earth Research Institute, University of California, Santa Barbara
2017 - 2018	Chair, Earth Research Institute, Personnel Committee
2017 - 2018	Ex-Officio Member, Earth Research Institute Advisory Committee, UCSB
2017 - 2018	Member, North Campus Open Space Administrative Advisory Group
2017 - 2018	Chair, Environmental Data Science & Informatics Faculty Search Committee, Earth Research Institute, UC Santa Barbara
2017 - 2018	Director, Earth Research Institute, University of California, Santa Barbara
2018	Member, Data Science Working Group, UCSB
2018 - 2019	Participating Faculty, Interdepartmental PhD Emphasis in Environment and Society

Department Service:

Year	Service
2016 - 2017	Member, Land Surface Processes Faculty Search Committee, Dept. of Geography, UCSB
2017 - 2018	Member, Chair's Advisory Committee, Department of Geography, UCSB
2017 - 2018	Member, Graduate Admission Committee, Department of Geography, University of California, Santa Barbara
2018 - 2019	Member, Spatial Data Science Faculty Search Committee, Department of Geography, UCSB

Public Service:

Year	Service
2014 - 2017	Member, Hydrology Early Career Award Committee, American Geophysical Union
2015 -	Member, Editorial Board, Environmental Research Reviews, Environmental Research Letters

Year	Service
2017	Co-Convenor, AGU Fall Meeting, Session on “Plant-Soil Interactions Rhizosphere: Experimental and Computational Advances”
2017	Co-Convenor, AGU Fall Meeting, Session on “Advances in Ecohydrology of Water-Stressed Environments”
2017	Member, Academic Program Review Committee, School of Natural Resources and Environment, University of Arizona
2017	Co-Convenor, International Association of Hydrological Sciences Conference, Session on “Innovative ICT Tools for Water Management and Science”