BIO-BIBLIOGRAPHY University of California, Santa Barbara

June 30, 2018

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	*South African Journal of Science*	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	*Remote Sensing of Environment*	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	*Journal of Vegetation Science*	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	*Journal of Arid Environments*	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	*JGR - Atmospheres*	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	*JGR - Atmospheres*	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	*JGR - Atmospheres*	Refereed Article
8	2004	**Simulated productivity of heterogeneous patches in Southern African savanna landscapes using a canopy productivity model**, Caylor, KK, Shugart, HH	*Landscape Ecology*	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]	*Geophysical Research Letters*	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	*Global Change Biology*	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	*Global Change Biology*	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	*Remote Sensing of Environment*	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]	*Ecosystems*	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]	*Advances in Water Resources*	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]	*Advances in Water Resources*	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]	*Nature*	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]	*Water Resources Research*	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]	*Ecosystems*	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]	*Oecologia*	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]	*New Phytologist*	Refereed Article
21	2007	**On soil moisture-vegetation feedbacks in dryland plant ecosystems**, D'Odorico, P, Caylor, KK, Okin, GS, Scanlon, TM	*JGR - Biogeosciences*	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]	*Nature*	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]	*JGR - Biogeosciences*	Refereed Article
24	2009	**On the calibration of continuous, high-precision δ18O and δ2H measurements using an off-axis integrated cavity output spectrometer** , Wang, L, Caylor, KK, Dragoni, D. [https://doi.org/10.1002/rcm.3905]	*Rapid Communications in Mass Spectrometry*	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]	*Water Resources Research*	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]	*Agriculture & Forest Meteorology*	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]	*Agriculture & Forest Meteorology*	Refereed Article
28	2009	**Spatial heterogeneity and sources of soil carbon in Southern African savannas**, Wang, L, Okin, G., Caylor, KK, Macko, S	*Geoderma*	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]	*Plant & Soil*	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]	*Journal of Arid Environments*	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., Norbotton, J [https://doi.org/10.1016/j.advwatres.2009.12.003]	*Advances in Water Resources*	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]	*Ecohydrology*	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]	*Geophysical Research Letters*	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]	*New Phytologist*	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]	*Water Resources Research*	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]	*Vadose Zone Journal*	Refereed Article

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37	2011	**Climatological determinants of woody cover in Africa**, Good, S.P., Caylor, KK [https://doi.org/10.1073/pnas.1013100108]	*Proceedings of the National Academy of Sciences*	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]	*Water Resources Research*	Refereed Article
39	2011	**Metabolic principles of river basin organization**, Rodriguez-Itrube, I, Caylor, KK, Rinaldo, A. [https://doi.org/10.1073/pnas.1107561108]	*Proceedings of the National Academy of Sciences*	Refereed Article
40	2011	**Ecohydrology in Practice: Strengths, Conveniences, and Opportunities**, King, E.G., Caylor, KK [https://doi.org/10.1002/eco.248]	*Ecohydrology*	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]	*Remote Sensing of Environment*	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]	*Ecohydrology*	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]	*Ecohydrology*	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]	*Agriculture & Forest Meteorology*	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]	*JGR - Biogeosciences*	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]	*Ecohydrology*	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]	*PLoS One*	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]	*JGR - Atmospheres*	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]	*Hydrology and Earth System Science*	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]	*Vadose Zone Journal*	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]	*Hydrology and Earth System Science*	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]	*Ecosphere*	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]	*Ecosphere*	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]	*Landscape Ecology*	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]	*Geochemica et Cosmochimica Acta*	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]	*Proceedings of the Royal Society, Series A*	Refereed Article
57	2013	**Virtual water trade and development in Africa**, Konar, M, Caylor, KK [https://doi.org/10.5194/hess-17-3969-2013]	*Hydrology and Earth System Science*	Refereed Article
58	2013	**On The Vulnerability of Water Limited Ecosystems to Climate Change**, Manfreda, S., Caylor, KK [https://doi.org/10.3390/w5020819]	*Water*	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]	*Journal of African Ecology*	Refereed Article

#	Year	Title and Authors	Publisher	Category
60	2014	**δ2H 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]	*Water Resources Research*	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]	*IEEE Transactions on Geoscience and Remote Sensing*	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]	*Biogeosciences*	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]	*Environmental Research Letters*	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]	*Geophysical Research Letters*	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]	*JGR - Biogeosciences*	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]	*Nature Geoscience*	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]	*Science*	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]	*Ecosphere*	Refereed Article

#	Year	Title and Authors	Publisher	Category
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]	*Ecosphere*	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]	*Ecosphere*	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]	*PLoS One*	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]	*Plant & Soil*	Refereed Article
73	2016	**Global Patterns of the Contributions of Storm Frequency, Intensity, and Seasonality to Interannual Variability of Precipitation**, Good, S.P., Guan, K., Caylor, K.K. [https://doi.org/10.1175/JCLI-D-14-00653.1]	*Journal of Climate*	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]	*Rapid Communications in Mass Spectrometry*	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]	*Mountain Research & Development*	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]	*Environmental Modelling & Software*	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]	*Remote Sensing of Environment*	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]	*Agricultural & Forest Meteorology*	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]	*Philosophical Transactions of the Royal Society B - Biological Sciences*	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]	*Environmental Research Letters*	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]	*Ecohydrology*	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]	*Scientific Reports*	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]	*Agricultural Water Management*	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]	*Ecology & Society*	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]	*Agricultural Water Management*	Refereed Article

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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]	*Earth & Planetary Science Letters*	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]	*Remote Sensing of Environment*	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]	*Plant, Cell, & Environment*	Refereed Article
89	2017	**Calibration of a parsimonious distributed ecohydrological 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]	*Hydrology and Earth System Science*	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]	*Environmental Research Letters*	Refereed Article
91	2018	**Measurements and Observations in the XXI century (MOXXI): innovation and multidisciplinarity 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]	*Hydrological Sciences Journal*	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]	*Global Change Biology*	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]	*Nature Ecology & Evolution*	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., Ciraolo, G., 13 others including Caylor, K. [https://doi.org/10.3390/rs10040641]	*Remote Sensing*	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]	*Agriculture & Forest Meteorology*	Refereed Article
96	2018	**Dew-induced transpiration suppression impacts the water and isotope balances of Colocasialeave**, Gerlain-Safdi, C., Gauthier, P.G., Caylor, KK	*Oecologia*	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.	*Agricultural & Forest Meteorology*	Refereed Article
P-2	2019	**Biophysical effects on soil crack morphology in a faunally active dryland vertisol**, DeCarlo, K., Caylor, KK	*Geoderma*	Refereed Article

Work Submitted:

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#	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	*Science of the Total Environment*	Refereed Article
R-2	2018	**Labor Sharing and Community-Level Vulnerability to Drought**, Schmitt-Harsh, M, Sweeney, S., Estes, L., Caylor, KK, Evans, T.	*World Development*	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.	*Remote Sensing of Environment*	Refereed Article
R-4	2018	**The Relative Influences of Climate and Crop Subsidies in Shaping Agricultural Land Use and Productivity**, Mastrorillo, M, Vink, N., Caylor. K., Oppenheimer, M., Estes, L.	*Environmental Research Letters*	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	*Climatic Change*	Refereed Article
R-6	2018	**Perceptions and biases about climate variability in smallholder farming systems**, Waldman, K, Vergopolan, N., Attari, S.Z., Sheffiled, J., Estes, L.D., Caylor, KK, Evans, T.P	*Weather & Society*	Refereed Article

#	Year	Title and Authors	Publisher	Category
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.	*Environmental Modelling & Software*	Refereed Article
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	*Scientific Data*	Refereed Article

PART II. TEACHING (50% Geography Dept. workload; 50%Bren School workload. Teaching release throughout the review period.)[1]

Workload Descriptions

1. *Geography Department*: Geography department teaching workload for full-time ladder faculty is 3 Instructional Workload Courses (IWC) per year. 50% workload is 1.5 IWC per year.

2. *Bren School*: The official teaching workload in the Bren School for full-time ladder faculty members is 3.5 Instructional Workload Courses (IWC) per academic year. Full-time faculty are expected to be in residence during the academic year and teach at least two out of three quarters unless they are on sabbatical or approved leave. Each quarter on sabbatical counts as 1.17 IWC for full-time faculty. The teaching workload for faculty with partial appointments is the equivalent fraction of 3.5 and the teaching workload is negotiated with the dean.

   Every full-time faculty member will advise or co-advise a Master's Group Project (ESM 401 series) or Eco-E Project (ESM 402 series) equivalent to 1 IWC. Faculty advisors are expected to meet with master's groups weekly during the academic year.

   Course Equivalencies:

   - ESM 401A/ESM 402A: 4 units = 0.29 IWC
   - ESM 401B/ESM 402B: 4 units = 0.29 IWC
   - ESM 401C/ESM 402C: 4 units = 0.29 IWC
   - ESM 401D/ESM 402D: 2 units = 0.13 IWC

   Every full-time faculty member will teach and/or co-teach core courses, elective courses and seminars in the MESM and PhD programs equivalent to at least (a) 2.5 IWC in addition to advising a project or (b) 3.5 IWC if not advising a project.

   Course Equivalencies:

   - MESM core and elective courses: 4 units = 1 IWC; 2 units = 0.5 IWC.
   - Co-taught 4-unit MESM core course = 0.6 IWC per instructor.
   - Co-taught 4-unit MESM elective course = 0.5 IWC per instructor.
   - MESM lab course: 4 or 5 units = 1 IWC.
   - Teaching an additional section (e.g., ESM 263) = 0.67 IWC.
   - PhD core courses: ESM 510 (1 unit) = 0.25 IWC; ESM 512 (2 units) = 0.5 IWC; ESM 514 (4 units) = co-taught at 1 IWC per instructor.
   - PhD seminar course: 2 units = 0.5 IWC; 4 units = 1 IWC.

[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 (an average of 0.75 IWC per year), and in Bren it is advising one group project per year, and co-teaching the MESM core course ESM 203 starting in Fall 2018 (a total of 1.6 IWC per year.

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, Biogoegraphy	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

MESM Projects Advised

Year	Project Title	Students	Q3	Q4	Q5	Q7
2017 - 2018	MNHeadwaters	Sravan Chalasani , Karina Herrera, John Sisser, Zach Voss	67% Strongly Agree, 33% Somewhat Agree	67% Excellent, 33% Very Good	67% Always, 33% Usually	66% Excellent, 33% Satisfactory

Undergraduate Projects Directed:

Student	Project	Chair/ Member	Yr Deg Compl.

Graduate Degree Committees, MA/MS Committees:

Student	Year	Instituion	Chair/Member	Current Employment

Graduate Degree Committees, Ph.D. Committees:

Student	Year	Instituion	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

[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 (an average of 0.75 IWC per year), and in Bren it is advising one group project per year, and co-teaching the MESM core course ESM 203 starting in Fall 2018 (a total of 1.6 IWC per year.

Student	Year	Instituion	Chair/Member	Current Employment
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
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

Month/Year	Topic	Place/Conference
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
12/2017	Effects of dew deposition on transpiration and carbon uptake in leaves. Gerlein-Safdi, C and Koohafkan, 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

Month/Year	Topic	Place/Conference
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., Ciraolo, 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
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

Year	Activity	Journal/Agency
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	Chair, Environmental Data Science & Informatics Faculty Search Committee, Earth Research Institute, UC Santa Barbara
2017 - 2018	Ex-Officio Member, Earth Research Institute Advisory Committee, UCSB
2017 - 2018	Member, North Campus Open Space Administrative Advisory Group
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
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	Co-Convenor, International Association of Hydrological Sciences Conference, Session on "Innovative ICT Tools for Water Management and Science"

Year	Service
2017	Member, Academic Program Review Committee, School of Natural Resources and Environment, University of Arizona