

## KELLY K. CAYLOR

Professor of Ecohydrology

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### EDUCATION

2003, Ph.D., Environmental Sciences, University of Virginia  
1996, B.A. *with High Distinction*, Environmental Sciences, University of Virginia

### PROFESSIONAL RECORD

2016 - Director, Earth Research Institute, University of California, Santa Barbara  
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  
2004 - 2005 Postdoctoral Research Associate, National Center for Earth Dynamics, Department of Civil and Environmental Engineering, Princeton University  
2003 - 2004 Postdoctoral Research Associate, Princeton Environmental Institute, Department of Civil and Environmental Engineering, Princeton University

### RESEARCH INTERESTS

Ecohydrological dynamics, Isotope ecohydrology, Coupled natural-human systems

### AWARDS & HONORS

2015 Princeton Engineering Commendation List for Outstanding Teaching  
2012 Princeton Engineering Commendation List for Outstanding Teaching  
2011 Editors' Citation for Excellence in Refereeing for Reviews of Geophysics  
2009 Early Career Hydrologic Sciences Award, American Geophysical Union  
2009 E. Lawrence Keyes, Jr./Emerson Electric Co. Faculty Advancement Award, Princeton University  
2009 CAREER Award, National Science Foundation  
2004 Postdoctoral Synthesis Fellowship, National Center for Earth Dynamics  
2003 Clayton Postdoctoral Fellowship, Princeton Environmental Institute  
2002 DuPont Fellowship, University of Virginia  
2001 Earth System Science Fellowship, NASA  
1998 Governor's Fellowship, University of Virginia  
1996 Distinguished Major in Environmental Sciences, University of Virginia

### TEACHING & COURSE INSTRUCTION

2017 Bren MESM Project: *"Exploring the Return on Investment Case for Natural Infrastructure Investment in the Upper Mississippi River Basin"*, University of California, Santa Barbara  
2017 G167/ES167: *"Biogeography"*, University of California, Santa Barbara

#### TEACHING & COURSE INSTRUCTION – continued

|              |  |
|--------------|--|
| 2016         | Freshman Seminar: “ <i>Science, Society, and Dinner</i> ”, with Chef Craig Shelton, Princeton University               |
| 2015         | Summer Course on “ <i>Isotope Hydrology Training</i> ”, China Agricultural University                                  |
| 2015         | Summer Course on “ <i>Using UAVs for Environmental Monitoring</i> ”, U. of Basilicata                                  |
| 2014         | Summer Course on “ <i>Modeling Spatial/Temporal Heterogeneity in Ecohydrological Systems</i> ”, U. of Basilicata       |
| 2015 - 2016  | EEB307/CEE307/ENV307, “ <i>Water, Energy, and Ecosystems</i> ”, Mpala Research Center, Princeton University            |
| 2013         | CEE474/ENV474, “ <i>Design and Implementation of Environmental Sensor Networks</i> ”                                   |
| 2011         | CEE474/ENV474, “ <i>Design and Construction of Environmental Sensors</i> ”, Princeton University                       |
| 2009 - 2014  | CEE 307, “ <i>Field Ecohydrology</i> ”, Mpala Research Center, Princeton University                                    |
| 2010 - 2016  | ENV 201, “ <i>Introduction to Environmental Studies</i> ”, with Prof. David Wilcove, ENV Program, Princeton University |
| 2008-2009    | CEE 599, “ <i>Environmental Biophysics</i> ”, Princeton University   |
| 2008         | CEE 599, “ <i>Research Topics in Ecohydrology</i> ”, Princeton University  |
| 2007         | G307, “ <i>Biogeography</i> ”, Indiana University  |
| 2006         | G440, “ <i>Topics in Env. Geography: Ecological Systems and Simulation</i> ”, Indiana University                       |
| 2006         | G440, “ <i>Topics in Env. Geography: Ecohydrology</i> ”, Indiana University  |
| 2006         | G405/505, “ <i>Hydroclimatology</i> ”, Indiana University  |
| 2005 to 2007 | G107, “ <i>Physical Systems of the Environment</i> ”, Indiana University   |

#### INVITED SEMINARS & PRESENTATIONS

|      |                      |  |
|------|----------------------|--|
| 2018 | Invited Speaker,     | Session on “Vegetation dynamics and ecosystem resilience under global climate change”, Ecological Society of America Annual Meeting, August 2018   |
| 2018 | Invited Participant, | Workshop on “The Social-Ecological Future of the American West”, Boise St. University, May 2018  |
| 2018 | Invited Speaker,     | Workshop on Spatial Pattern Formation in Ecosystems, Princeton University, April 2017  |
| 2017 | Invited Seminar,     | Department of Plant Sciences, University of California, Riverside, October 2017  |
| 2017 | Invited Speaker,     | Session on “Hydrologic connectivity: linking land use changes and management to movement and transformations of resources within catchments”, ALSO Aquatic Sciences Meeting, Honolulu, HI, February 2017 |
| 2016 | Invited Speaker,     | Water for Food Global Conference, “Catalytic Collaborations: Building Public-Private Partnerships for Water and Food Security,” Water for Food Institute, University of Nebraska, April 2016             |
| 2015 | Invited Speaker,     | Session on “Estimation of Spatial and Temporal Variability of Land Surface Hydrological and Thermal Processes”, AGU Fall Meeting, San Francisco, CA, December 2015                                       |
| 2015 | Invited Speaker,     | Session on “African Environments Across Space and Through Time: Integration Modern and Ancient Data for Insights into Terrestrial Ecosystem Dynamics”, GSA Annual Meeting, Baltimore, MD, November 2015. |
| 2015 | Invited Speaker,     | Class of 68 “Princeton and the Environment Symposium”, Princeton, NJ, October 2015   |
| 2015 | Invited Seminar,     | National Socio-Environmental Synthesis Center (SESYNC), Annapolis, MD, October 2015  |
| 2015 | Invited Seminar,     | Program in Ecology, Evolutionary Biology, and Behavior, Michigan State University, October, 2015   |

INVITED SEMINARS & PRESENTATIONS – continued

|      |                      |   |
|------|----------------------|---|
| 2015 | Invited Lecturer,    | Summer Course on “ <i>Using UAVs for Environmental Monitoring</i> ”, U. of Basilicata., Matera, Italy, July 2015  |
| 2015 | Invited Seminar,     | Chinese Academy of Agricultural Sciences, Beijing, China, June 2015.  |
| 2015 | Lead Instructor,     | Isotope Hydrology Training Course, Center for Agricultural and Water Research in China, China Agricultural University, June 2015.   |
| 2015 | Invited Participant, | Conference on Water & Food Security Under Changing Environments, China Agricultural University  |
| 2015 | Invited Seminar,     | Earth Research Institute, University of California, Santa Barbara, CA, May 2015.  |
| 2015 | Invited Seminar,     | Department of Civil and Environmental Engineering, University of Michigan, Ann Arbor, MI, March 2015.   |
| 2015 | Invited Speaker,     | Symposium on “Advances in Earth Observation: Enabling New Insights into Global Environmental Change”, AAAS Annual Meeting, San Jose, CA, January 2015   |
| 2014 | Invited Speaker,     | Session on “Coupled Natural Human System Research Across Scales: From Emulators of Global Climate Model Output to Local-Scale Processes and Feedbacks”, AGU Fall Meeting, San Francisco, CA, December, 2014 |
| 2014 | Invited Lecturer,    | Summer Course on “ <i>Modeling Spatial/Temporal Heterogeneity in Ecohydrological Systems</i> ”, U. of Basilicata, Matera, Italy, July 2014  |
| 2014 | Keynote Speaker,     | WISENet IGERT Annual Meeting, Duke University, June 2014  |
| 2014 | Invited Speaker,     | Workshop on “Improving Water Use Efficiency in Agriculture”, China Agricultural University, Beijing, China, May 2014  |
| 2014 | Invited Speaker,     | Arid Zone Hydrology Symposium, Texas A&M University, February 2014  |
| 2013 | Invited Participant, | 2nd International Workshop on “ <i>Methods and Technologies for Environmental Monitoring and Modelling of Hydrologic and Hydraulic Risk</i> ”, Matera, Italy, July 2013                                     |
| 2013 | Invited Speaker,     | Symposium on Hydropedology, Soil Science Society of America Meeting, Tampa, FL, November, 2013  |
| 2012 | Invited Presenter,   | Session on “ <i>Catchment Similarity and Organisation</i> ”, EGU Annual Meeting, Vienna, Austria April, 2012  |
| 2012 | Invited Speaker,     | Session on “Dryland Ecohydrology: Critical Issues and Technical Advances”, AGU Fall Meeting, San Francisco, CA, December, 2012  |
| 2012 | Invited Seminar,     | Department of Environmental Science, Policy, and Management, University of California - Berkeley, August, 2012  |
| 2012 | Invited Seminar,     | STEP Seminar, Woodrow Wilson School, Princeton University, Princeton, NJ, February, 2012  |
| 2012 | Invited Lecture,     | Stuart Country Day School, Princeton NJ, February, 2012   |
| 2011 | Invited Seminar,     | Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, October, 2011  |
| 2011 | Invited Speaker,     | Earthwatch Annual Board Meeting, Princeton, NJ, October, 2011   |
| 2011 | Invited Speaker,     | EcoHCC’11 International Conference on Ecohydrology and Climate Change, Tomar, Portugal, September, 2011   |
| 2011 | Invited Lecturer,    | 1 <sup>st</sup> Summer School on Monitoring and Modeling Surface Hydrology, Marsico Nuovo, Italy, June, 2011  |
| 2011 | Invited Panelist,    | New Jersey Symphony Orchestra Winter Concert, “Water: Global Challenge and Local Solutions in Developing Countries”, Princeton, NJ, January 2011  |
| 2010 | Invited Speaker,     | Department of Geological, Environmental, and Marine Sciences, Rider University, March, 2010   |
| 2009 | Invited Presenter,   | Session on “ <i>Landscapes in Semi-Arid and Arid Environments: A Hydrological and Ecological Perspective</i> ”, AGU Fall Meeting, San Francisco, CA, December 2009  |
| 2009 | Invited Speaker,     | Environmental Fluid Mechanics/Hydrology Seminar Series, MIT, November, 2009   |
| 2009 | Invited Presenter,   | IV CNR-Princeton Workshop “New frontiers in Hydrology”, Rome, July, 2009  |

INVITED SEMINARS & PRESENTATIONS – continued

|      |                      |   |
|------|----------------------|---|
| 2009 | Invited Speaker,     | Department of Plant Sciences, Kenyatta University of Agriculture and Technology, Nairobi, April, 2009   |
| 2008 | Invited Presenter,   | Session on “ <i>Ecosystem resilience to changing climate patterns: the role of hydrology</i> ”, AGU Fall Meeting, San Francisco, CA December, 2008  |
| 2008 | Invited Presenter,   | Symposium, “ <i>Seeing into the soil: Noninvasive characterization of biophysical processes in the soil critical zone</i> ”, ASA-CSSA-SSSA 2008 Joint Annual Meeting, Houston, TX, October 2008 |
| 2008 | Invited Participant, | International Ecohydrology/Ecophysiology Workshop, University of Western Australia, Perth, September 2008   |
| 2008 | Invited Presenter,   | Organized Oral Session, “ <i>Towards a synthetic theory of tree-grass coexistence in savannas</i> ”, 93 <sup>rd</sup> Annual Ecological Society of America Meeting, Milwaukee, WI, August 2008  |
| 2007 | Invited Seminar,     | Department of Civil and Environmental Engineering, Princeton University, March 2007   |
| 2007 | Invited Speaker,     | Monroe County Drainage Board, Bloomington, IN, February, 2007   |
| 2006 | Invited Presenter,   | Session on “ <i>Bridging Hydrology, Soil Science and Ecology</i> ”, AGU Fall Meeting, San Francisco, CA, December 2006  |
| 2006 | Invited Presenter,   | Session on “ <i>Climate-soil-vegetation dynamics and their impacts on water balance and hydrological extremes</i> ”, European Geophysical Union Meeting, Vienna, Austria, April 2006            |
| 2006 | Invited Seminar,     | School of Public and Environmental Affairs, Indiana University, February 2006   |
| 2005 | Invited Presenter,   | Session on “ <i>Integrated Approaches in Hydrological Process Studies</i> ”, AGU Spring Meeting, New Orleans, Louisiana, May 2005   |
| 2005 | Invited Seminar,     | Department of Environmental Sciences, Rutgers University, April 2005  |
| 2005 | Invited Seminar,     | Colloquia Series, Department of Geography, Indiana University, January 2005   |
| 2004 | Invited Seminar,     | Woods Hole Research Center, October 2004  |
| 2004 | Invited Seminar,     | Forest Watershed Seminar Series, Department of Environmental Science, Policy, and Management, University of California - Berkeley, February 2004  |
| 2003 | Invited Participant, | Savanna Complexity: Different perceptions, Common Ground, Luiperdskloof Game Lodge, South Africa, January 2003  |
| 2002 | Invited Presenter,   | Session on Ecohydrology, AGU Spring Meeting, Washington, D.C., April 2002   |

PROFESSIONAL SERVICE & MEMBERSHIP

|             |              |   |
|-------------|--------------|---|
| 2017        | Co-Convenor, | AGU Fall Meeting, Session on “ <i>Plant-Soil Interactions in the Rhizosphere: Experimental and Computational Advances</i> ”                     |
| 2017        | Co-Convenor, | AGU Fall Meeting, Session on “ <i>Advances in Ecohydrology of Water-Stressed Environments</i> ”   |
| 2017        | Member,      | Academic Program Review Committee, School of Natural Resources and Environment, University of Arizona   |
| 2017        | Co-Convenor  | 2017 International Association of Hydrological Sciences Conference, Session on “ <i>Innovative ICT Tools for Water Management and Science</i> ” |
| 2017 - 2018 | Chair,       | Environmental Data Science & Informatics Search Committee, Earth Research Institute, UC Santa Barbara   |
| 2017 -      | Member,      | Graduate Admission Committee, Department of Geography, University of California, Santa Barbara  |
| 2016 -      | Director,    | Earth Research Institute, University of California, Santa Barbara   |
| 2015 - 2016 | Member,      | Sustainability Steering Council, Princeton University   |

PROFESSIONAL SERVICE & MEMBERSHIP – continued

|             |                      |   |
|-------------|----------------------|---|
| 2015        | Chair,               | Graduate and Postdoctoral Experiences Strategic Planning Subcommittee, Princeton University   |
| 2015 -      | Member,              | Editorial Board, Environmental Research Reviews, Environmental Research Letters   |
| 2015 - 2016 | Member,              | Task Force on Hydrology Section Technical Committees, American Geophysical Union  |
| 2014 - 2017 | Member,              | Hydrology Early Career Award Committee, American Geophysical Union  |
| 2014        | Co-convenor,         | AGU Fall Meeting, Session on <i>“The Influence of Changes in Farming Practices, Vegetation, and Land Use on Climate Adaptation, Mitigation, and Ecosystem and Socioeconomic Services”</i> |
| 2014 - 2016 | Director,            | Environmental Studies Program, Princeton University   |
| 2014 - 2016 | Director,            | Graduate Studies, Department of Civil and Environmental Engineering, Princeton University   |
| 2014 - 2016 | Board Member,        | Princeton in Africa, Princeton NJ   |
| 2013 - 2016 | Member,              | Executive Committee, Program in Africa Studies, Princeton University  |
| 2010 - 2016 | Member,              | Executive Committee, Princeton Environmental Institute, Princeton University  |
| 2010 - 2016 | Advisor,             | Freshman Engineering, Princeton University  |
| 2009 - 2016 | Member,              | Executive Committee, Program in Environmental Studies, Princeton University   |
| 2013 - 2014 | Member,              | Fellows Task Force, American Geophysical Union  |
| 2010 - 2016 | Associate Editor,    | Water Resources Research  |
| 2013 - 2014 | Member,              | Horton Medal Award Committee, American Geophysical Union  |
| 2013        | Invited Participant, | 2nd Annual Neureiter Science Diplomacy Roundtable, Center for Science Diplomacy, AAAS   |
| 2013        | Co-convenor,         | AGU Fall Meeting, Session on <i>“Beyond changes in mean climate: the impacts of climate variabilities on terrestrial ecosystems”</i>  |
| 2013        | Co-convenor,         | AGU Fall Meeting, Session on <i>“Postmortem: 2012 Drought: Terrestrial Ecosystems”</i>  |
| 2012        | Co-convenor,         | AGU Fall Meeting, Session on <i>“Landscape System Response Under Change”</i>  |
| 2012        | Member,              | AGU Hydrology Section Nominating Committee  |
| 2012        | Member,              | External Review Board, Science Department, Stuart Country Day School, Princeton, NJ, April 2012   |
| 2012        | Organizer,           | Workshop on <i>“Predictions Under Change: Vision for understanding and managing water, earth, and biota in the Anthropocene”</i> , Boulder, CO, July 2012                                 |
| 2012 - 2013 | Director,            | Graduate Studies, Civil and Environmental Engineering, Princeton University   |
| 2012        | Member,              | AAAS Science Diplomacy Delegation to Uzbekistan, Tashkent, Uzbekistan, September, 2012  |
| 2012        | Member,              | AAAS Science Diplomacy Delegation to Myanmar, Nay Pi Taw, Myanmar, January 2012   |
| 2011        | Co-convenor,         | AGU Fall Meeting, Session on <i>“Predictive Understanding of Coupled Interactions Among Water, Life, and Landforms”</i>   |
| 2011        | Co-convenor,         | AGU Fall Meeting, Session on <i>“Water and Energy Footprints in the Anthropocene”</i>   |

### PROFESSIONAL SERVICE & MEMBERSHIP – continued

|             |                   |   |
|-------------|-------------------|---|
| 2011        | Co-convenor,      | AGU Fall Meeting, Session on “ <i>Landscape System Response Under Change</i> ”  |
| 2011        | Co-convenor,      | AGU Fall Meeting, Session on “ <i>Laser-Based Isotope Techniques in Biogeosciences</i> ”  |
| 2011        | Co-convenor,      | AGU Fall Meeting, Session on “ <i>Stable Isotope Fluxes in the Carbon and Water Cycles of Terrestrial Ecosystems</i> ”  |
| 2011 - 2013 | Associate Editor, | Vadose Zone Journal   |
| 2011 - 2013 | Advisor,          | Undergraduate Environmental Engineering Track, CEE, Princeton University  |
| 2010 - 2012 | Advisor,          | Freshman, School of Engineering and Applied Science, Princeton University   |
| 2010 - 2012 | Chair,            | Ecohydrological Technical Subcommittee, Hydrology Section, AGU  |
| 2009 - 2012 | Associate Editor, | Journal of Geophysical Research - Biogeosciences  |
| 2009        | Member,           | Program Committee, AGU Chapman Conference on “ <i>Examining Ecohydrological Feedbacks of Landscape Change along Elevation Gradients in Semiarid Regions</i> ” |
| 2009        | Panelist,         | National Science Foundation   |
| 2008-2010   | Member,           | Ecohydrology Technical Subcommittee, American Geophysical Union   |
| 2008-2009   | Interim Chair,    | EEWR Graduate Program, CEE Department, Princeton University   |
| 2008-2009   | Member,           | SEAS Policy Committee, Princeton University   |
| 2008        | Co-convenor,      | AGU Fall Meeting, Session on “ <i>Hydrological Controls on Ecosystem Function</i> ”   |
| 2008        | Moderator,        | Princeton Colloquium on Public and International Affairs, “Eco-Friendly Development”  |
| 2007        | Co-convenor,      | AGU Spring Meeting, Session on “ <i>Dynamics and interaction of below-ground carbon pools in dryland ecosystems</i> ”   |
| 2007        | Member,           | Environmental Sciences Steering Committee, Office of Vice Provost for Research, Indiana University  |
| 2006        | Panelist,         | NASA Carbon Cycle Program   |
| 2005        | Co-convenor,      | AGU Fall Meeting, Session on “ <i>Temporal and spatial variability in coupled ecological-hydrological processes</i> ”   |
| 2005        | Co-convenor,      | AGU Fall Meeting, Session on “ <i>Soil-water-nutrient interactions within savanna vegetation</i> ”  |
| 2005-2006   | Member,           | NASA Earth System Scholars Network (ESSN)   |
| 2004        | Member,           | NASA Earth System Scholars Network (ESSN) Technical Committee   |
| 2004        | Co-chair,         | NASA ESSN Symposium, Water and Energy Session   |
| 2004 -      | Member,           | American Geophysical Union (AGU)  |

### ENTREPRENEURSHIP

|           |               |  |
|-----------|---------------|--|
| 2015      | Participant,  | NSF I-Corps Entrepreneurship Program, NYC Cohort                         |
| 2015      | Award,        | Princeton Keller Center, Innovation Forum                                |
| 2015      | Co-Founder,   | Arable Labs, Inc. ( <a href="http://www.arable.com">www.arable.com</a> ) |
| 2015-2017 | Board Member, | Arable Labs, Inc. ( <a href="http://www.arable.com">www.arable.com</a> ) |

### FUNDED RESEARCH

(Total federal funding as PI/Co-I: \$13.2 million)

|           |                    |  |
|-----------|--------------------|--|
| 2018-2019 | Omidyar Foundation | “Developing and Scaling up the Mapping Africa Active Learning Platform”, Co-I, \$80,267  |
| 2018-2022 | Dept. of Defense   | “Strategic Environmental Research & Development: Understanding and Assessing Riparian Habitat Vulnerability to Drought-Prone Climate Regimes on Department of Defense Bases in the Southwestern US”, Co-I, \$1,704,236 |
| 2017-2020 | NSF                | “Collaborative Research: Impacts of Dynamic Climate-Driven Water Availability on Tree Water Use and Health in Mediterranean Riparian Forests”, Co-I, \$396,566   |
| 2017-2018 | NSF                | “CC*Networking Infrastructure: UCSB Network Upgrade to 100 Gigabit.”, PI, \$481,730  |
| 2015-2019 | NSF                | “Hazards SEES: Understanding Cross-Scale Interactions of Trade and Food Policy to Improve Resilience to Drought Risk”, Co-PI, \$1,341,113  |
| 2015      | NSF                | “FEWS Supplemental Proposal Planning Award, PI, \$200,000  |
| 2015      | NSF                | “I-Corps: Pulsepod: Bringing the Cloud Down to Earth”, PI, \$50,000  |
| 2014-2019 | NSF                | “WSC-Category 2 Collaborative: Impacts of Agricultural Decision Making and Adaptive Management on Food Security”, PI, \$1,929,565  |
| 2013-2014 | JPL                | Strategic University Research Partnerships, “Adding precision to agricultural practice through simultaneous chlorophyll fluorescence and infrared observations”, Co-PI \$100,000                                       |
| 2013-2014 | JPL                | Strategic University Research Partnerships, “Rapid forest triage by sub-canopy micro air vehicle”, Co-PI, \$100,000  |
| 2013-2015 | Princeton U.       | Grand Challenges Initiative, “Drought and the global carbon cycle”, Co-PI, \$200,000   |
| 2012-2015 | NSF                | Division of Ecological Biology, “Collaborative Research: Quantifying the ecosystem-wide impacts of a strong interactor in African watersheds”, PI, \$123,336.  |
| 2011-2014 | NASA               | IDS, “Multiscale effects of fire on long-term climate and precipitation”, Co-I, \$1,149,128.   |
| 2011-2014 | NSF                | BCS/ESE, “CNH: Institutional Dynamics of Adaptation to Climate Change: Longitudinal Analysis of Snowmelt-Dependent Agricultural Systems”, Co-PI, \$1,200,000.  |
| 2011-2014 | Princeton U.       | Council for International Teaching and Research, “Aglobal collaborative network for coupling hydrological forecasts and food security in Sub-Saharan Africa and China”, PI, \$225,000.                                 |
| 2010-2013 | NSF                | BCS/ESE, “ESE: Collaborative Research: Spatial Resilience of Agriculturalists to Coupled Ecological and Hydrological Variability in Rural Zambia”, PI, \$350,000.  |
| 2010-2011 | Princeton U.       | Grand Challenges Initiative, “The Importance of Green Feedbacks on Biodiversity Conservation and Management of Savanna Ecosystems”, PI, \$100,000.   |
| 2009-2014 | NSF                | Division of Earth Sciences, “CAREER: An ecohydrological framework for understanding land degradation in dryland regions”, PI, \$1,500,000.   |
| 2009-2010 | NSF                | OISE IRES/DDEP, “International: The impact of macropores on the spatial and temporal patterns of soil moisture in dryland ecosystems of central Kenya”, PI, \$15,000.  |
| 2009      | LI-COR             | LI-COR Environmental Education Fund (LEEF), “Using the LI-6400XT in the Princeton Semester in Kenya Program: From Undergraduate Education to International Impact”, PI, \$45,000.                                      |
| 2008-2013 | NSF                | Division of Ecological Biology, “LTREB: KLEE - Scaling up and out at the Kenya Long-term Exclosure Experiment”, Co-I, \$449,940.   |
| 2008-2010 | NSF                | Division of Ecological Biology, “Collaborative Research: Distribution and dynamics of belowground carbon in savannas”, PI, \$250,000.  |
| 2007-2009 | NSF                | Social, Behavioral, and Economic Sciences, “Human and Social Dynamics – Dynamics of Reforestation in Coupled Social-Ecological Systems: Modeling Land-Use Decision Making and Policy Impacts”, Co-I, \$749,150.        |

FUNDED RESEARCH – continued

- 2007-2008 Indiana U. Office of the Vice Provost for Research, “*Quantifying organic and pharmaceutical contaminants within urbanizing streams in a central Indiana urbanizing watershed*”, PI, \$51,323.
- 2007-2008 Monroe Drainage Board/Transportation Dept., “*Quantifying the impacts of development on physical and chemical hydrology of central Indiana streams*”, PI, \$96,000.
- 2006-2008 NSF Office of International Science and Engineering, “*International Research Experience for Students – Impacts of Disturbance on Above- and Below-ground Structure of Southern African Savannas*”, Co-PI, \$150,000 (administered by University of Virginia).
- 2005-2007 NASA Interdisciplinary Science in the NASA Earth Science Enterprise, “*Hydrologic & Nutrient Controls on the Structure and Function of Southern African Savannas: A Multi-Scale Approach*”, Co-I, \$900,000.
- 2005-2007 NASA Earth System Science Research Using Data & Products from TERRA, AQUA, & ACRIM Satellites, “*Sources, Transports, and Impacts of Southern African Aerosols: Synthetic Case Studies Using Terra & Aqua Satellite Products*”, Co-I, \$650,000.

RESEARCH MANUSCRIPTS

(Google Scholar h-index: 34, Citations: 4,516)

\* indicates current or former graduate/postdoctoral group member

† indicates current or former visiting scholar

+ indicates current or former undergraduate group member

PP indicates pre-print publication

**2018**

94. Estes, L. Chen, P., \*Debats, S., Evans, T., Ferreira, S., +Ragazzo, G., Sheffield, J., \*Wolf, A., Wood, E.F., **Caylor KK** (2017) “A large-area, spatially continuous assessment of land cover map error and its impact on downstream analyses.” *Global Change Biology*, 24(1), 322-337, doi: 10.1111/gcb.13904
93. Estes, L., Elsen, P., Truer, T., Ahmed, L., **Caylor, KK**, Chang, J., + Choi, J., Ellis, E. (2018) “The spatial and temporal domains of modern Ecology”,
- PP \*Gerlain-Safdi, C., Gauthier, P., **Caylor, K.K.** (2018) “Dew-induced transpiration suppression impacts the water and isotope balances of *Colocasia* leaves”, *bioRxiv*, doi: 10.1101/178293
92. Tauro, F., Selker, J., van de Giesen, N., Abrate, T., Uijlenhoet, R., Porfiri, M., Manfreda, S., **Caylor, K.**, Moramarco, T., Benveniste, J., Ciraolo, G., Estes, L., Domeneghetti, A., Perks, M.T., Corbari, C., Rabiei, E., Ravazzani, G., Boga, H., Harfouche, A., Brocca, L., Maltese, A., Wickert, A., Tarpanelli, A., \*Good, S., Alcapa, J.M.L., Petroselli, A., Cudennec, C., Blume, T., Hut, R., Grimaldi, S., (2018) “Measurements and Observations in the XXI century (MOXXI): innovation and multi-disciplinarity to sense the hydrological cycle.” *Hydrological Sciences Journal*, doi: 10.1080/02626667. 2017.1420191.

**2017**

91. \*Guan, K., \*Good, S.P., **Caylor KK**, Medvigy, D., Ming, P., Wood, E.F., Sato, H., Biasutti, M., Chen, M., Ahlström, A., Xiangtao, X. (2017) “Simulated sensitivity of African terrestrial ecosystem photosynthesis to rainfall frequency, intensity, and rainy season length.” *Environmental Research Letters*, doi: 10.1088/1748-9326/aa9f30
90. \*Gerlain-Safdi, C., Gauthier, P., +Sinkler, C., **Caylor, K.K.** (2017) “Leaf water <sup>18</sup>O and <sup>2</sup>H maps show directional enrichment discrepancy in *Colocasia esculenta*.” *Plant, Cell and Environment*, doi: 10.1111/pce.13002



89. †Ruiz-Pérez, G., Kock, J., Manfreda, S., **Caylor K**, Francés, F. (2017) “Calibration of a parsimonious distributed ecohydrological daily model in a data-scarce basin by exclusively using the spatio-temporal variation of NDVI.” *Hydrology and Earth System Sciences*, doi:10.5194/hess-21-6235-2017
88. Manfreda S, **Caylor KK**, \*Good SP. (2017) “An ecohydrological framework to explain shifts in vegetation organization across climatological gradients.” *Ecohydrology*, 10: e1809. <https://doi.org/10.1002/eco.1809>
87. McCord, P., Dell’Angelo, J., \*Gower, D., **Caylor, K.K.**, and Evans, T. (2017) “Household-level heterogeneity of water resources within common-pool resource systems.” *Ecology and Society*, doi:10.5751/ES-09156-220148
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1. Dowty, P.R., **K. Caylor**, H.H. Shugart, W.R. Emanuel (2000) "Approaches for the estimation of primary productivity and vegetation structure in the Kalahari region." In: Ringrose, S. and R. Chanda (eds.) *Towards Sustainable Natural Resource Management in the Kalahari Region*. University of Botswana Press, Gaborone, Botswana.

CONFERENCE & WORKSHOP PRESENTATIONS

\* indicates current or former lab member + indicates current or former undergraduate lab member

150. \*Mayes, M.T., **Caylor, K.K.**, Ehlmann, B.L., Greenberger, R.N., Estes, L.D. (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”, *EOS Trans AGU*, 98(52), Fall Meet. Suppl., Abstract H23B-1639.
149. \*Krell, N., Evans, T.P. Estes, L.D., **Caylor, K.K.** (2017) “Real-time monitoring of smallholder farmer responses to intra-seasonal climate variability in central Kenya”, *EOS Trans AGU*, 98(52), Fall Meet. Suppl. Abstract GC42B-05.
148. \*Gerlein-Safdi, C., Koochafkan, M., Chung, M., Thompson, S.E., **Caylor, K.K.** (2017) “Effects of dew deposition on transpiration and carbon uptake in leaves”, *EOS Trans AGU*, Fall Meet. Suppl., Abstract B21K-08.
147. Ribeiro, F., Roberts, D.A., Hess, L.L., Davis, F.W., **Caylor, K.K.**, Nackoney, J., Daldegan, G.A. (2017) ‘High spatial resolution mapping of land cover types in a priority area for conservation in the Brazilian savanna’, *EOS Trans AGU*, 98(52), Fall Meet. Suppl., Abstract GC43D-1091.
146. Evans, T.P., Estes, L.D., **Caylor, K.K.**, McCord, F.P., \*Gower, D., Konar, M., Baylis, K., Waldman, K., Blekking, J., Schlachter, T. (2016) “Harmonizing Social and Environmental Dynamics in Earth Systems Modeling (Invited)”, *EOS Trans AGU*, 97(52), Fall Meet. Suppl., Abstract OS14A-05.
145. Estes, L.D., \*Debats, S.R., **Caylor, K.K.**, Evans, T.P., \*Gower, D.B., McRitchie, D., Searchinger, T., Thompson, D.R., Wood, E.F., +Zeng, L. (2016) “Combining Human and Machine Learning to Map Cropland in the 21st Century?s Major Agricultural Frontier”, *EOS Trans AGU*, 97(52), Fall Meet. Suppl., Abstract IN54A-07.
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141. Evans, T.P., **Caylor, K.K.**, Estes, L.D., Plale, B.A. , Attair, S., Waldman, K. (2016) “Rapid Monitoring of Drought Impacts on Small-Scale Farms in Africa through Integration of Farmer SMS data and Environmental Sensors (Invited)”, *EOS Trans AGU*, 97(52), Fall Meet. Suppl., Abstract GC52C-01.
140. \*Mayes, M. T., Estes, L.D., Gago, S., \*Debats, S.R., **Caylor, K.K.**, Manfreda, S., Oudemans, P., Ciraolo, G., Maltese, A., Nadal, M. (2016) “Using Small Drone (UAS) Imagery to Bridge the Gap Between Field- and Satellite-Based Measurements of Vegetation Structure and Change”, *EOS Trans AGU*, 97(52), Fall Meet. Suppl., Abstract B53J-05.
139. Colliander, A., Jackson, T. J., and 44 others, including **Caylor, K.K.** (2016) “Assessment of SMAP L2/L3 Soil Moisture Products using In Situ Based Core Validation Sites”, *EOS Trans AGU*, 97(52), Fall Meet. Suppl., Abstract B33J-04.



138. \*Gerlein-Safdi, C., Frolking, S. E., **Caylor, K.K.** (2016) “Characterization of canopy dew formation in tropical forests using active microwave remote sensing” *EOS Trans AGU*, 97(52), Fall Meet. Suppl., Abstract B33F-0681.
137. \*DeCarlo, K., **Caylor, K.K.** (2016) “Faunal Drivers of Soil Flux Dynamics via Alterations in Crack Structure.” *EGU General Assembly Conference Abstracts*, Vol. 18.
136. †Ruiz-Pérez, G., Manfreda, S., **Caylor, K.K.**, Francés, F. (2016). “Automatic calibration of a parsimonious ecohydrological model in a sparse basin using the spatio-temporal variation of the NDVI”. *EGU General Assembly Conference Abstracts*, Vol. 18.
135. **Caylor, K.K.**, \*Wayland, H., Scanlon, T. (2015) “A dynamic, non-steady state approach for partitioning of soil evaporation and plant water use at landscape scales” *EOS Trans AGU*, 96(52), Fall Meet. Suppl., Abstract H54B-03.
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129. Estes, L., Tian, D., Evans, T., **Caylor, K.**, Sheffield, J. (2015) “Impacts of intra-seasonal agricultural decision-making and forecast information on maize production in Zambia”, *EOS Trans AGU*, 96(52), Fall Meet. Suppl., Abstract GC51J-08.
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127. Evans, T., **Caylor, K.**, Estes, L. (2015) “Modeling Local vs. Global Dimensions of Food Security in Sub-Saharan Africa”, *EOS Trans AGU*, 96(52), Fall Meet. Suppl., Abstract GC12A-07.
126. \*Gower, D., **Caylor, K.** (2015) “Modeling the impacts of regulatory frameworks on self-organization in dryland agricultural systems”, *EOS Trans AGU*, 96(52), Fall Meet. Suppl., Abstract H13G-1615.
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119. **Caylor, K.K.**, <sup>\*</sup>Wolf, A. <sup>+</sup>Siegfried, B. (2014) “Addressing critical environmental data gaps via low-cost, real-time, cellular-based environmental monitoring” *EOS Trans AGU*, 95(52), Fall Meet. Suppl., Abstract B11I-06.
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99. \*O’Donnell, F.C., **Caylor, K.K.**, \*Bhattachan, A., Dintwe, Kebonye, D’Odorico, P., Okin, G. (2013) “Root structure and water-use diversity of Kalahari savanna woody plant communities”, *98th ESA Annual Meeting*, Minneapolis, MN.
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66. Guan, K., Wood, E.F., and **Caylor, K.K.** (2010) “Multi-sensor synthesis of vegetation pattern over a large climatic gradient transect in Africa”, *EOS Trans AGU*, 91(52), Fall Meet. Suppl., Abstract B22E-07.
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63. \*O’Donnell, F.C., **Caylor, K.K.**, D’Odorico, P., Okin, G.S., \*Bhattachan, A., and Dintwe, K. (2010) “Coarse root structure in water-limited ecosystems: Results of large-scale tree and shrub excavations across a rainfall gradient in Southern Africa”, *EOS Trans AGU*, 91(52), Fall Meet. Suppl., Abstract B41A-0291.

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51. \*Good, S., **Caylor, K.K.** (2009) "Modeling the ecohydrology of vegetation succession patterns with plant functional groups in heterogeneous landscapes", *AGU Chapman Conference, "Examining Ecohydrological Feedbacks of Landscape Change along Elevation Gradients in Semiarid Regions"*.
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49. \*Wang, L., **Caylor, K.K.**, Villegas, J.C., Breshears, D.D. "Refining the partitioning of evapotranspiration as a function of woody plant cover: Continuous stable isotope monitoring provides bridge from glasshouse to field conditions" (2009), *AGU Chapman Conference, "Examining Ecohydrological Feedbacks of Landscape Change along Elevation Gradients in Semiarid Regions"*
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42. **Caylor, K.K.** and \*Franz, T. (2008) "Using geophysical measurements to infer subsurface vegetation patterns and processes", 2008 Joint Annual Meeting SSSA-ASA-CSSA, Houston, Texas, INVITED.
41. **Caylor, K.K.** and Scanlon, T.M. (2008) "Transitions between facilitative/competitive effects of tree canopies on herbaceous productivity via impacts on energy/water balance", ESA Annual Meeting, Milwaukee, Wisconsin, OOS 13-6, INVITED.
40. \*Franz, T., \*King, E., \*Lester, A., **Caylor, K.K.**, Celia, M., Rodriguez-Iturbe, I., Rubenstein, D.I. (2008) "Differences in small-scale water balance by representative hydrologic units of central Kenya", ESA Annual Meeting, Milwaukee, Wisconsin, OOS 2-1.
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37. **Caylor, K.K.**, Dragoni, D. (2007) "Decoupling structural and environmental determinants of sap velocity", *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract B23E-03.
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18. **Caylor, K.K.**, S. Manfreda, and I. Rodriguez-Iturbe (2003), “On the coupled geomorphological and ecohydrological organization of river basins”, EOS Trans. AGU 84(46), Fall Meet. Suppl., Abstract NG12A-03.
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15. **Caylor, K.K.**, H.H. Shugart, and I. Rodriguez-Iturbe. “Tree canopy effects on simulated water stress in southern African savannas”. Oral Presentation, Ecological Society of America meeting, Savannah, GA, August 2003.



14. Shugart, H.H., **K.K. Caylor**, C. Hèly, R.J. Swap, and P.R. Dowty “Dynamic change in the woodland and savanna ecosystem of sub-tropical Africa” Oral Presentation, Association for Tropical Biology and Conservation Annual Meeting, University of Aberdeen, July 2003.
13. Hèly, C. **K.K. Caylor**, S. Alleaume, R.J. Swap, and H.H. Shugart (2003), “Estimating emissions of carbonaceous compounds from souther African fires: a re-analysis of modeling techniques” Oral Presentation, EGS-AGU-EGU Joint Assembly, Nice, France, Abstract published in EOS, April 2003.
12. **Caylor, K.K.**, and H.H. Shugart (2002), “Simulated water-use of heterogeneous vegetation patches along the Kalahari transect”, EOS Trans. AGU 83(19), Spring Meet. Suppl., Abstract B31B-03 INVITED.
11. **Caylor, K.K.**, P.R. Dowty, and H.H. Shugart (2001), “Relationship between small-scale structural heterogeneity and simulated vegetation productivity across a regional moisture gradient”, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract A51A-0032.
10. Hèly, C. P.R. Dowty, S. Alleaume, **K.K. Caylor**, and H.H. Shugart (2001), “Regional fuel load modeled for two contrasting years in central and southern Africa”, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract A51A-0038.
9. Porporato, A., **K.K. Caylor**, F. Laio, L. Ridolfi, and I. Rodriguez-Iturbe (2001), “Soil moisture and plant stress dynamics along the Kalahari precipitation gradient”, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract A51A-0049.
8. Scanlon, T.M., J.D. Albertson, **K.K. Caylor**, and C.A. Williams (2001), “Assessing fractional tree, grass, and bare soil cover from NDVI and rainfall time series along the Kalahari Transect”, Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract A51A-0016.
7. Shugart, H.H., **K.K. Caylor**, and P.R. Dowty (2001), “Ecological scale issues in land/atmosphere coupling - Examples from SAFARI 2000.” Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract A41C-04.
6. **Caylor, K.K.** and H.H. Shugart (2001), “Vegetation patterns along the Kalahari transect”, Oral Presentation, Ecological Society of America meeting, Madison, WI.
5. **Caylor, K.K.** and H.H. Shugart (2001), “Vegetation structure and productivity along the Kalahari transect”. Poster Presentation, GCTE/LUCC Open Science Meeting, Amsterdam, Netherlands.
4. **Caylor, K.K.** and H.H. Shugart (2001), “Variation in vegetation structure along a large moisture gradient”, Oral Presentation, American Geophysical Union meeting, Boston, MA, May, 2001. Published in EOS, April 2001. Abstract B52B-04.
3. **Caylor, K.K.** and H.H. Shugart, “Structural dynamics of southern African savannas assessing change through declassified satellite photos”, Poster presentation, Ecological Society of America meeting, Spokane, WA, August 1999.
2. **Caylor, K.K.**, H.H. Shugart, and T.M. Smith, “The role of functional diversity in community dynamics”, Poster Presentation, Ecological Society of America meeting, Baltimore, MD, August 1998.
1. **Caylor, K.K.**, H.H. Shugart, and T.M. Smith. “The use of plant functional types to assess the role of diversity in community dynamics”. Poster Presentation, GCTE/LUCC Open Science Meeting, Barcelona, Spain, May 1998.

GRADUATE COMMITTEES

| Year | Institution | Role    | Student          | Degree | Current Position |
|------|-------------|---------|------------------|--------|------------------|
| -    | UCSB (Geog) | Advisor | Natasha Krell    | PhD    | -                |
| -    | UCSB (Geog) | Advisor | Cascade Tuholske | PhD    | -                |
| -    | UCSB (Geog) | Advisor | Ryan Avery       | PhD    | -                |

GRADUATE COMMITTEES – continued

|      |              |                  |                       |     |   |
|------|--------------|------------------|-----------------------|-----|---|
| -    | Princeton U. | Advisor          | Drew Gower            | PhD | -   |
| -    | Princeton U. | Advisor          | Keita DeCarlo         | PhD | -   |
| -    | UCSB (EEMB)  | Committee Member | Elizabeth Forbes      | PhD | -   |
| -    | UCSB (Geog)  | Committee Member | Fernanda Ribeiro      | PhD | -   |
| -    | UCSB (Bren)  | Committee Member | Christopher Heckman   | PhD | -   |
| -    | UCSB (Geog)  | Committee Member | Mike Johnson          | PhD | -   |
| -    | UCSB (Geog)  | Committee Member | Susan Meerdink        | PhD | -   |
| -    | UCSB (Geog)  | Committee Member | Sara Lafia            | PhD | -   |
| 2017 | Princeton U. | Advisor          | Stephanie Debats      | PhD | Descartes Labs, Inc.                          |
| 2017 | Princeton U. | Advisor          | Cynthia Gerlein-Safdi | PhD | Postdoc, U. of Michigan                       |
| 2015 | Princeton U. | Advisor          | Hilary Wayland        | MSE | Ramboll-Environ, Inc.                         |
| 2013 | Princeton U. | Advisor          | Stephen Good          | PhD | Asst. Prof., Oregon St. U.                    |
| 2013 | Princeton U. | Advisor          | Frances O'Donnell     | PhD | Asst. Prof., Auburn U.                        |
| 2013 | Princeton U. | Committee Member | Kaiyu Guan            | PhD | Asst.Prof., U. of Illinois, Urbana-Champaign  |
| 2012 | Princeton U. | Committee Member | Megan Konar           | PhD | Asst. Prof., U. of Illinois, Urbana-Champaign |
| 2011 | Princeton U. | Advisor          | Trenton Franz         | PhD | Assoc. Prof., U. of Nebraska                  |