EMILY BURCHFIELD

Assistant Professor ◇ Department of Environment and Society
Utah State University ◇ 5215 Old Main Hill ◇ Logan, UT 84322-5215
(435) 797 - 4089 ◇ emily.burchfield@usu.edu ◇ ekburchfield.wordpress.com

RESEARCH AND TEACHING INTERESTS

Sustainable agriculture, food and water security, geospatial analysis

PUBLICATIONS

Nay, J., **Burchfield, E.**, Gilligan, J. (2018). A machine-learning approach to forecasting remotely sensed vegetation health, *International Journal of Remote Sensing*, *39*(6), 1800-1816. https://doi.org/10.1080/01431161.2017.1410296

Nelson, K., **Burchfield, E.** (2017). Effects of the structure of water rights on agricultural production during drought: A spatiotemporal analysis of California's Central Valley. *Water Resources Research*, *53*(10), 8923 - 8309. https://doi.org/10.1002/2017WR020666

Burchfield, E., Gilligan, J. (2016). Agricultural adaptation to drought in the Sri Lankan dry zone. *Applied Geography*, *77*, 92-100. https://doi.org/10.1016/j.apgeog.2016.10.003

Burchfield, E., Nay, J., Gilligan, J. (2016). Application of machine learning to prediction of vegetation health. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences.* XLI-B2, 465-469, doi:10.5194/isprs-archives-XLI-B2-465-2016, 2016

Burchfield, E., Gilligan, J. (2016). Dynamics of individual and collective agricultural adaptation to water scarcity. *Winter Simulation Conference 2016 Proceedings.* Available at SSRN: https://ssrn.com/abstract=2807452

Gunda, T., Benneyworth, L., **Burchfield, E.** (2015). Exploring water indices and associated parameters: A case study approach, *Water Policy*, *17*(1), 98 - 111. https://doi.org/10.2166/wp.2014.022

Nwosu, O., Hennessey, E., **Burchfield, E.**, Barnes, S., Brinkley-Rubenstein, L., and Shields, S. (2013). Faculty and Student Experiences as a Model for the Academy in Action. In Barnes, S. L., Brinkley-Rubinstein, L., Doykos, B., and Martin, N. (Eds). *Academics in Action! A Model for Community-Engaged Research, Teaching, and Service.*

PAPERS UNDER REVIEW

Tozier-de-la-Poterie, A., **Burchfield, E.**, Carrico, A. (2017). *Individual adaptation in collectively managed agricultural systems: evidence from Sri Lankan paddy farmers.* Revised and resubmitted at *Ecology and Society.*

Burchfield, E., Williams, N., Carrico, A. (2017). *Assessing the expansion of a traditional drought adaptation strategy among rice farmers in Sri Lanka's Dry Zone.* Revised and resubmitted at *Regional Environmental Change.*

Burchfield, E., Tozier-de-la-Poterie, A. (2017). *Determinants of crop diversification in rice-dominated Sri Lankan agricultural systems.* Revised and resubmitted at *Journal of Rural Studies.*

Burchfield, E., Touma, D., Stiefel, M., Zhu, R., Krapu, C. Nay, J. (2018). *Crop yield response to water availability in the U.S. over the past thirty years.* Under review at *Environmental Research Letters.*

EDUCATION

Vanderbilt University *May 2017*
Ph.D. in Environmental Engineering
Graduate Fellow at the Vanderbilt Institute for Energy and Environment

University of Louvain, Belgium *July 2012*
Master of Arts in Economics
Grande Distinction

Clemson University *May 2010*
Bachelor of Arts in Economics
Magna Cum Laude, Calhoun Honors College, Phi Beta Kappa

University of Louvain, Belgium (dual-degree with Clemson) *May 2010*
Bachelor of Science in Economics and Management
Transatlantic Exchange in Economics Scholar

TEACHING EXPERIENCE

Center for the Integration of Research Teaching and Learning *January 2016*
Training focused on challenge-based learning, course design, assessment, classroom management, and classroom technology.

Vanderbilt Programs for Talented Youth *June 2015 - present*
Developed and taught the following courses to gifted middle and high school students: *Geospatial Ecology, Remote Sensing and Spatial Analysis, The Changing Earth,* and *Ecological Anthropology*

Certificate in College Teaching *May 2014*
Vanderbilt University Center for Teaching
Program designed to enhance effectiveness of teaching and assessment practices.

SPECIAL TRAINING

AAAS Catalyzing Advocacy in Science and Engineering workshop *April 2016*
Washington DC, USA
Workshop on science for policy and policy for science hosted by AAAS.

Interdisciplinary Ph.D. Workshop in Sustainable Development *April 2016*
Columbia University, New York, USA
Attendee and presenter

Borlaug Summer Institute on Global Food Security *June 2014*
Purdue University, USA
Attendee and presenter at intensive two-week workshop on global food and water security

NSF Summer Seminar on STS, Environmental Sociology and Policy *May 2014*
Vanderbilt University, USA

Belgian Technical Cooperation Training Program and Certification *June 2011*
Brussels, Belgium
Two-week workshop on international development policy with focus on global climate change.

Global Climate Change: Risk and Management, Summer Course *July 2008*
University of Oxford, UK
Summer study at Oxford on climate science and policy at St. Peter's College, Oxford.

PAPER PRESENTATIONS

Agricultural response to changes in water availability and temperature in the coterminous U.S., presented at the American Geophysical Union Annual Meeting in New Orleans, LA, December 2017.

Application of machine learning to the prediction of vegetation health, presented at the International Society for Photogrammetry and Remote Sensing in Prague, Czech Republic, July 2016.

Agricultural adaptation in the Sri Lankan Dry Zone, presented at the IPWSD Workshop at Columbia University, NY, April 2016.

Application of machine learning to big environmental datasets to predict vegetation health, presented at the Association for American Geographers Annual Meeting in San Francisco, CA, April 2016. Session organizer, "Human-Environment Interactions: Linking Remote Sensing and the Social Sciences"

The application of PCA for the identification of adaptive agricultural systems in the tropics, presented at the Workshop on the Use of Remote Sensing for Decision-Making in Agricultural and Water Management in Colombo, Sri Lanka, August 2015.

Institutions and imagery: Mapping water management in rural Sri Lanka, presented at the Association of American Geographers Conference in Chicago, IL, April 2015.

ADAPT-SL: Agricultural Decision Making and Adaptation to Precipitation Trends in Sri Lanka, presented at the National Science Foundation Water, Sustainability and Climate PI meeting in Washington, D.C., February 2015.

Patterns of meteorological and agricultural drought in Sri Lankan agricultural areas, presented at the Gordon Research Seminar on Science, Technology and Policy, in Waterville Valley, NH, August 2014.

Resettlement and coloniality in the Mahaweli Ganga Watershed, presented at the Annual Dimensions of Political Ecology Conference on Nature/Society in Lexington, KY, February 2013.

POSTER PRESENTATIONS

Using `R-INLA` *to understand institutional moderators of drought*, presented at the `useR!` Conference in Brussels, Belgium, July 2017.

Dynamics of collective and individual agricultural adaptation to water scarcity, presented at the American Geophysical Union Conference in San Francisco, CA, December 2016.

Agricultural adaptation to water scarcity in the Sri Lankan dry zone: A comparison of two water management regimes, presented at the National Science Foundation Water, Sustainability and Climate PI meeting in Washington, D.C., February 2015.

Mapping water management: A case study from Sri Lanka, presented at the American Geophysical Union Annual Conference in San Francisco, CA, December 2014.

Patterns of meteorological and agricultural drought in the Sri Lankan Dry Zone, presented at the Gordon Research Conference on Science, Technology and Policy in Waterville Valley, NH, August 2014.

Patterns of agricultural drought in Sri Lankan paddy fields: Spatiotemporal image analysis, presented at the Borlaug Summer Institute on Global Food Security, Lafayette, IN, June 2014.

GRANTS

National Socio-environmental Synthesis Center (SESYNC) Graduate Pursuit *2016*
Team lead and co-PI, *"Data-driven drought effect estimation"*
Funding to cover round-trip airfare for team of seven graduate students to three meetings at SESYNC headquarters in Annapolis. Additional funding to cover stipend of $2000 per team member upon project completion.

American Institute for Sri Lankan Studies Dissertation Planning Grant ($4500) *2015*

HONORS AND AWARDS

University Graduate Fellowship, Vanderbilt University *2012 - 2016*

Martin Luther King Award for Service Excellence, Clemson University *2009*

Duckenfield Scholarship, University of Oxford *2008*

PROFESSIONAL MEMBERSHIPS

American Association of Geographers

American Geophysical Union

TECHNICAL STRENGTHS

Statistical Software	R, MATLAB
Computer Languages	Python
Other Software	ArcGIS, QGIS/GRASS, NetLogo

LANGUAGE PROFICIENCIES

English	Native Speaker
French	Fluent Written and Spoken