Travis M. Williams

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Research-oriented geographer with a focus geospatial data management. Focused and detailed-oriented with an enthusiasm for graphics, presentation, and the development of interactive user interfaces. Experienced in a variety of GIS- and programming-oriented applications, adept at spatial and tabular data manipulation.

Education

Master of the Arts in Geography - University of Colorado Boulder
Thesis: "Drought index-based insurance for the US cattle ranching industry"
Focus: Climate risk management, drought, weather-based index insurance, geospatial analysis
Cumulative GPA: 3.90

Aug 2018

Bachelor of Science in Geography - Florida State University
Focus: GIS, Ecology, French
Minors: French, Biology
Cumulative GPA: 3.39

Dec 2009

Skills

GIS Interfaces:	ArcGIS, QGIS, GRASS, & DIVA GIS
Coding Languages:	Python, R, Geospatial Data Abstraction Library (GDAL), STATA, HTML, & SQL
Applications:	Spatial and tabular data manipulation, online application development, econometrics, cloud-based data transfer and storage & imagery analysis

Research and Technical Experience

Research Assistant – *Earth Lab of the University of Colorado Boulder*

Jan 2017 - Present

- Use Python and R to perform and automate spatial analysis of earth systems data sets.
- Use GDAL and bash scripts to transform large raster datasets for analysis and storage.
- Optimize memory utilization to automate dataset building, manipulation and statistical analysis.
- Build automated web-scraping routines or corresponded with various organizations to acquire large climate, market, and policy data.
- Redesign existing weather index-based insurance system to accommodate drought indices for research into the efficacy of such a design in drought hazard mitigation.
- Develop and deploy interactive, online risk management and decision-making models through various web server applications and cloud-based virtual machines.
- Apply spatial and panel econometric methods to discover climate signals in agricultural market data sets.
- Performed extensive literature review on the history of the Federal Crop Insurance

program, cattle ranching in the US, and drought index development.
- Generate descriptive charts, maps, and other graphical representations of research results for publications.
- Update and maintain website content.

Research Assistant - *Agriculture Dept. of Southern Illinois University Carbondale* Apr 2014 - May 2016
- Used ArcGIS and SAS to perform spatial analysis into the performance of no-till and cover crop treatment on yield improvements concurrent with extensive research into the practices.
- Used soil survey data, soil content interpolations, and digital elevation model development along with topographical positioning algorithms to test for the effects of the interaction between soil and topography effects on grain yields.
- Collected, geocoded, and/or interpolated climate, yield, and research site information for a large meta-analysis of high-yield fertilizer studies using various GIS programs.
- Collected plant tissue and soil samples with truck mounted soil probes, SPAD and other devices.
- Performed KCL extractions and other laboratory tests for agricultural chemicals content.

Teaching Experience

Graduate Teaching Assistant – *Geography Dept. of the University of Colorado Boulder* Fall 2016, 2017
GEOG 1972 - Geography of the Environment and Society
- Taught three recitations per term, 25-30 students per recitation
- Content involved human-Earth system interactions, theories of resource management, and natural hazard mitigation.
- Combination of content review, group activity, one on one counseling, and grading.
- Focused on connecting course content with current events and engaging students in discussion.

GEOG 1982 - World Regional Geography Summer 2017
- Taught one recitation, 21 students
- Content involved features of five major world regions with a particular focus on culture and social injustice.

Publications

Shrum, T., W.R. Travis, **T. Williams**, E. Lih. "Managing climate risks on the ranch with limited drought information". *Climate Risk Management*, vol. 20, pp. 11-26, 2018. https://doi.org/10.1016/j.crm.2018.01.002

Williams, T.M. "Drought Index-Based Insurance for the US Cattle Ranching Industry". Geography Graduate Theses & Dissertations. 123, 2018.

(in review) **Williams, T.** and W. Travis: "Evaluating alternative drought indicators in a weather index insurance instrument." *Weather, Climate and Society*.