

Alexandra C. Kahl
Bredesen Center for Interdisciplinary
Research and Graduate Education
The University of Tennessee
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Specializations

PhD candidate with research interests in disaster resilience, energy infrastructure resiliency and socio-economic resiliency specifically:

Natural hazards: winter storms and flooding

Energy Infrastructure: U.S. electric grid, substations, and transmission infrastructure

Socio-economic: influence of income, race, and social currency on community resilience

Education

PhD, Energy Science and Engineering

University of Tennessee, Knoxville, TN 37920
GPA: 3.9

Master of Urban and Regional Planning, May 2020

Virginia Tech, Blacksburg, VA, USA
GPA: 3.7
Certificate: Disaster Resilience and Risk Management
Thesis: Flood Modeling and Community Engagement in Giles County, VA

Bachelor of Science, Environmental Policy and Planning, May 2019

Virginia Tech, Blacksburg, VA, USA
GPA: 3.6
Major: Environmental Policy and Planning

Technical Skills

Programming Languages: Python, R, VBA, Ruby, Parametric Analysis Simulations

GIS: ArcMap, ArcPro, ERDAS Imagine

Statistical Analysis: SPSS, Microsoft Excel

Qualitative Analysis: QDA Miner Lite

Building Energy Modeling: OpenStudio, EnergyPlus

Academic and Related Employment

- Oak Ridge National Lab Graduate Research Assistant August 2020-present
- Conduct research in coordination with the Geospatial Science and Human Security group at Oak Ridge National Laboratory.
 - Develop algorithms and processes to characterize winter storms and outages.
 - Model synthetic populations to evaluate the impact of income and race on community resilience.
- National Renewable Energy Laboratory Building Energy Resilience Intern June 2022-August 2022
- Design methods to transition commercial buildings toward energy efficiency measures.
 - Model effects and costs of long-term outages on commercial buildings.
 - Work with a team of scientists to complete Dept. of Energy deliverables.
- East Tennessee STEM Hub Community Engagement August 2021-present
- Organize and execute educational STEM events for underprivileged students.
 - Manage social media accounts for the UTK Center for Enhancing Education in Math and Science.
- Friends of the North Fork of the Shenandoah River June-August 2020
- Created new digital mapping and community engagement tools.
 - Conducted public engagement sessions.
 - Produced marketing materials.
- Virginia Tech Climate Action Commitment Graduate Assistant December 2019-May 2020
- Played a key role in rewriting Virginia Tech's Climate Action Commitment.
 - Assisted with GHG inventories and updating the college's energy portfolio.
 - Developed programs to advance community engagement and climate justice.
- Virginia Tech Office of Economic Development Graduate Assistant August-December 2019
- Analyzed data for the Rural Virginia Initiative, which allowed us to identify groups and connect related projects to each other.
 - Created maps and presentation materials for conferences.
 - Co-wrote a feasibility study, which saved the locality \$800,000 in funding.
- Oak Ridge National Laboratory Research Intern June-August 2019
- Used numerical weather prediction modeling and GIS techniques to identify how urban heat islands change based on development schemes.
 - Produced technical reports and presentations for the Department of Energy.
 - Taught a class of high schoolers participating in the Appalachian Regional Commission camp at Oak Ridge about climate science.

Virginia Tech Department of Alternative Transportation GIS Intern February 2019-June2019

Developed, maintained, and updated all GIS products for the department.
Designed promotional materials and managed events.
Fielded customer questions and service needs.

Virginia Tech Office of Sustainability Intern August 2018-May 2019

Developed and implemented programs to move Virginia Tech’s campus towards renewable energy and reduce current energy usage.
Co-wrote a proposal to increase electric vehicle charging stations on campus, which motivated private companies to fund charging stations across Virginia Tech.

Oak Ridge National Laboratory Research Intern June 2018-August 2018

Worked to reconcile the effects of climate change on energy and water infrastructure.
Developed a methodology for renewable energy siting, using GIS techniques, solar radiation data and energy policy.
Produced technical reports and presentations for the Department of Energy.

Renewable Energy and Sustainability study abroad March 2018

Developed a capstone project centering on making renewable energy and other sustainable systems appealing and accessible to urban areas.

Publications and Conference Presentations

Kahl, A.C., Tuccillo, J.V., Luke, K. N., Tran, L.T., Bhaduri, B. L., Dumas, M.R. (2022, July 13-14). *Coupling Vulnerability Metrics to Assess the Impacts of Large-Scale Winter Storms* [Conference presentation]. Natural Hazards Conference 2022, Boulder, CO, United States.

Allen, Melissa & Rose, Amy & New, Joshua & Omitaomu, Olufemi & Yuan, Jiangye & Branstetter, Marcia & Sylvester, Linda & Seals, Matthew & Carvalhaes, Thomaz & Adams, Mark & Bhandari, Mahabir & Shrestha, Som & Sanyal, Jibonananda & Berres, Anne & Kolosna, Carl & Fu, Katherine & Kahl, Alexandra. (2020). Impacts of the morphology of new neighborhoods on microclimate and building energy. *Renewable and Sustainable Energy Reviews*. 133. 10.1016/j.rser.2020.110030.

Honors/Awards

Department of Energy Jump Into STEM Competition Winner January 2022
National Planning Conference Speaker April 2020
Virginia Chapter of the American Planning Association Student Representative Aug.2019- May 2020
Urban and Regional Planning Department Student for Professional Promise May 2019
Virginia Tech Dean’s List Fall 2017- May 2020