

Renee Obringer, PhD

National Socio-Environmental Synthesis Center | 1 Park Place, Annapolis, MD 21401
obringer@umd.edu | reneeobringer.com

EDUCATION

- 2020 PhD in Environmental and Ecological Engineering
Ecological Science and Engineering Interdisciplinary Graduate Program
Purdue University, West Lafayette, Indiana
- 2015 Bachelor of Science in Environmental Engineering
Ohio State University, Columbus, Ohio

RESEARCH EXPERIENCE

- 2020- **National Socio-Environmental Synthesis Center**, Annapolis, Maryland
Postdoctoral Research Fellow (Collaborator: Dr. Dave White)
- 2017-2020 **Purdue University**, West Lafayette, Indiana
Research Assistant (Advisor: Dr. Roshanak Nateghi)
Dissertation Title: Climate change effects on urban water resources: An interdisciplinary approach to modeling urban water supply and demand
- 2017 **Luxembourg Institute of Science and Technology**, Esch-sur-Alzette, Luxembourg
Visiting Scholar (Supervisor: Dr. Kaniska Mallick)
- 2015-2017 **Purdue University**, West Lafayette, Indiana
Research Assistant (Advisor: Dr. Dev Niyogi)
- 2013-2015 **Ohio State University**, Columbus, Ohio
Research Assistant (Advisor: Dr. Gil Bohrer)

RESEARCH INTERESTS & EXPERTISE

Methodological: data analytics, statistical learning techniques, predictive modeling, social science research methods (computational techniques and qualitative interviews)

Applications: urban water availability, water-energy nexus, climate change adaptation, urban sustainability and resilience, global water scarcity

JOURNAL PUBLICATIONS

Published

1. **Obringer, R.**, Kumar, R., and Nateghi, R. (2020) Managing the water-electricity demand nexus in a warming climate, *Climatic Change*.
2. **Obringer, R.**, Mukherjee, S., and Nateghi, R. (2020) Evaluating the climate sensitivity of coupled electricity-natural gas demand using a multivariate framework, *Applied Energy*.
3. Paulvannan Kanmani, A., **Obringer, R.**, Rachunok, B., and Nateghi, R. (2020) Assessing global environmental sustainability via an unsupervised clustering framework, *Sustainability*.
4. **Obringer, R.**, Kumar, R., and Nateghi, R. (2019) Analyzing the climate sensitivity of the coupled water-electricity demand nexus in the Midwestern United States, *Applied Energy*.
5. **Obringer, R.** and Nateghi, R. (2018). Predicting reservoir levels using statistical learning techniques, *Scientific Reports*.
6. Zhang, X., Wei, C., **Obringer, R.**, Li, D., Chen, N., and Niyogi, D. (2017) Gauging the severity of the 2012 Midwestern U.S. drought for agriculture, *Remote Sensing*.

7. Zhang, X., **Obringer, R.**, Wei, C., Chen, N., and Niyogi, D. (2017) Droughts in India from 1981 to 2013 and implications to wheat production, *Scientific Reports*.
8. Deppe, J., Ward, M., Bolus, R., Diehl, R., Celis-Murillo, A., Zenzal, T., Moore, F., Benson, T., Smolinsky, J., Schofield, L., Enstrom, D., Paxon, E., Bohrer, G., Beveroth, T., **Obringer, R.**, Delaney, D., and Cochran, W. (2015) Fat, weather, and date affect migratory songbirds' departure decisions, routes, and crossing times in the Gulf of Mexico, *Proceedings of the National Academy of Sciences*.

CONFERENCE PUBLICATIONS

1. **Obringer, R.** and Nateghi, R. (2019) Multivariate Modeling for Sustainable and Resilient Infrastructure Systems and Communities. *Proceedings of the 2019 IISE Annual Conference*. H.E. Romeijn, A. Schaefer, and R. Thomas (Eds.). [arXiv: 1905.05803]
2. **Obringer, R.**, Zhang, X., Mallick, K., Alemohammad, S. H., and Niyogi, D. (2016) Assessing urban droughts in a smart city framework, *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, XLI-B2, 747-751.

BOOK CHAPTERS

1. **Obringer, R.**, Bohrer, G., Weinzierl, R., Dodge, S., Deppe, J., Ward, M., Brandes, D., Kays, R., Flack, A., and Wikelski M. (2017) Track Annotation: Determining the Environmental Context of Movement Through the Air, In *Aeroecology* (Chilson P., Frick, F., Kelly, J., Liechti, F., eds).

PRESENTATIONS

Invited

2020 *Looking ahead: How will household air conditioning use be affected by climate change*, **INFORMS Annual Conference***

Characterizing the impact of climate change on household air conditioning use across the United States, **Society for Risk Analysis Annual Meeting***

2019 *Multivariate Modeling for Sustainable and Resilient Infrastructure Systems and Communities*, **Institute of Industrial and Systems Engineers Annual Conference and Expo**, Orlando, FL

Multifaceted modeling for smart urban systems, **INFORMS Annual Conference**, Seattle, WA

Modeling the impact of climate change on the New York state energy consumption, **INFORMS Annual Conference**, Seattle, WA

Projecting the interdependent water and electricity use into the future under different climate change scenarios, **Society for Risk Analysis Annual Meeting**, Arlington, VA

2018 *A Multivariate Analysis of the Residential Water-Electricity Demand Nexus in the Midwest*, **Society for Risk Analysis Annual Meeting**, New Orleans, LA

Contributed

2019 *A Resilient Water-Energy Demand Nexus Under Climate Change*, **Association of Environmental Engineering and Science Professors (AEESP) Distinguished Lecture Conference**, Urbana-Champaign, IL. (Oral Presentation)

* Virtual due to COVID-19 pandemic

- 2018 *Applying Machine Learning Techniques to Predict Urban Droughts*, **Association of Environmental Engineering and Science Professors (AEESP) Distinguished Lecture Conference**, West Lafayette, IN. (Poster Presentation)

The Influence of Norms on the Water-Electricity Demand Nexus: An Interdisciplinary Framework, **Behavior, Energy and Climate Change Conference**, Washington DC. (Poster Presentation)

Projecting Urban Water Supplies into the Future: A Case for the Complementary Nature Predictive and Explanatory Models, **Society for Risk Analysis Annual Meeting**, New Orleans, LA. (Poster Presentation)

- 2017 *Comparative Study on the Application of Statistical Downscaling in Urban Climate Research*, **American Meteorological Society Annual Meeting**, Seattle, WA. (Poster Presentation)

- 2016 *Assessing Urban Droughts in a Smart City Framework*, **International Society for Photogrammetry and Remote Sensing**, July 2016, Prague, Czech Republic. (Oral Presentation)

TEACHING & MENTORING

Purdue University

- 2019 **Guest Lecturer**, IE 330: Probability and Statistics in Engineering II (Fall)
Undergraduate Research Mentor (Spring, Fall)
Guest Lecturer, IE 590: Predictive Modeling (Spring)
- 2017 **Teaching Assistant**, EAPS 111: Physical Geology (Fall)

Ohio State University

- 2015 **Teaching Assistant**, CE 5310: Environmental and Ecological Engineering (Spring)
- 2013-2015 **Teaching Assistant**, ENGR 1221: Introduction to Computer Programming in MATLAB for Engineers and Scientists (Spring, Fall)

ACADEMIC FELLOWSHIPS, AWARDS & HONORS

Fellowships

- 2020 National Socio-Environmental Synthesis Center Postdoctoral Fellowship (Proposal-Based Award amount: \$204,724)
- 2019 Bilisland Dissertation Fellowship, Purdue University
- 2015 Andrews Fellowship, Purdue University

Awards

- 2020 Outstanding Graduate Student in Research, Ecological Science and Engineering Interdisciplinary Graduate Program, Purdue University
- 2020 Outstanding Service Award, College of Engineering, Purdue University
- 2019 Outstanding Research Award, College of Engineering, Purdue University
- 2019 Purdue University Office of Interdisciplinary Graduate Programs Travel Award
- 2019 Purdue Graduate Student Government Travel Grant
- 2019 Purdue Climate Change Research Center Travel Grant, Purdue University
- 2018 Engineering and Infrastructure Specialty Group Student Merit Award, Society for Risk Analysis
- 2018 Precourt Fellowship, Behavior, Energy and Climate Change
- 2017 Andrews Environmental Travel Grant, Purdue University

Honors

- 2020 Lecturer (US equivalent of assistant professor) position offer, Department of Civil and Natural Resources Engineering, University of Canterbury, New Zealand (declined)

- 2019 *Earth's Future* Editor's Choice for Excellence in Refereeing
 2019 NextProf Nexus Workshop Finalist

PROFESSIONAL SERVICE

Professional and University Service

- 2019-2020 Symposium Organizer on: Assessing the resilience of urban systems under climate change (SRA: 12/2019); Building Sustainable Energy Systems under Climate Change (SRA: 12/2020*)
 2018-2019 Outreach and Social Committee Chair, Environmental and Ecological Engineering Graduate Student Organization, Purdue University
 2017-2019 Graduate Assistant, Office of Interdisciplinary Graduate Programs, Purdue University
 2016 Logistics and Catering Chair, 10th Annual Ecological Science and Engineering Symposium, Purdue University

NSF Proposal Reviews

- 2020 Ad hoc reviewer, Ecosystem Science Cluster, Division of Environmental Biology

Journal Reviews

- 2020 *Sustainability, Remote Sensing, ASCE Journal of Management in Engineering*
 2019 *Earth's Future, Risk Analysis, Environmental Research Letters, ASCE Journal of Management in Engineering, Proceedings of the 2019 IISE Annual Conference*

EDUCATIONAL OUTREACH & ENGAGEMENT

- 2019 Presentation to the Purdue EEE External Advisory Committee, Purdue University
 2019 Program Recruitment, Environmental and Ecological Engineering, Purdue University
 2018 Science Fair Judge, Lafayette Regional Science and Engineering Fair
 2017-2019 Program Recruitment, Ecological Science and Engineering Interdisciplinary Graduate Program, Purdue University
 2016-2017 Peer Mentoring Program, Ecological Science and Engineering Interdisciplinary Graduate Program, Purdue University
 2016 Spring Fest, Indiana State Climate Office, Purdue University
 2015-2016 Educational Outreach with Noblesville Elementary, Indiana State Climate Office, Purdue University

PROFESSIONAL AFFILIATIONS

- Institute for Operations Research and the Management Sciences, Member
- Society for Risk Analysis, Member

* Virtual due to COVID-19 pandemic