

# TESS DOEFFINGER

University of Alabama  
Department of Geography and the Environment  
[tmdoeffinger@ua.edu](mailto:tmdoeffinger@ua.edu) | [@tess.doeffinger](https://www.tessdoeffinger.com/) | <https://www.tessdoeffinger.com/>

## APPOINTMENTS

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- 2023 **Assistant Professor** of Climate Change Decision Making, University of Alabama, Department of Geography and the Environment
- 2021 – 23 **Visiting Scholar** & National Science Foundation Social, Behavioral, and Economics Postdoctoral Fellow, University of Delaware, Disaster Research Center

## EDUCATION AND QUALIFICATIONS

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### Degrees

- 2020 **Ph.D. (DPhil.)**, University of Oxford, Geography & the Environment
- 2012 **M.S.**, Carnegie Mellon University, Architecture, Engr. & Construction Management
- 2011 **B.S.**, Embry-Riddle Aeronautical University, Aerospace Engineering

### Certificates and Licenses

- 2021 Coastal Engineering Certificate, Old Dominion University
- 2013 West Virginia Engineer in Training Certificate (EIT)
- 2012 LEED AP, BD+C

## PUBLICATIONS

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### Peer-Reviewed Journal Articles

- Doeffinger, T., “Is water security a useful concept? Strengths, weaknesses, and paths forward,” *WIRES Water*. [under review]
- 2023 Doeffinger, T., and Rubinyi, S., “Secondary benefits of urban flood protection,” *Journal of Environmental Management*, 326 (Part A). doi.org/10.1016/j.jenvman.2022.116617.
- 2021 Doeffinger, T. and Hall, J.W., “Assessing water security across scales: A case study of the United States,” *Applied Geography*, 134. doi.org/10.2166/wp.2020.235.
- 2020 Doeffinger, T., Borgomeo, E., Young, W.J., Sadoff, C., & Hall, J. W. , “A diagnostic dashboard to evaluate country water security,” *Water Policy*, 22 (5). doi.org/10.2166/wp.2020.235.
- 2020 Doeffinger, T. & Hall, J.W., “Water stress and productivity: An empirical analysis of trends and drivers,” *Water Resources Research*, 56. doi.org/10.1029/2019WR025925.

### Reports

- 2023 Ferguson, S., Van Ledden, M., Rubinyi, S., Campos, A., and Doeffinger, T., “Urban Flood Risk Handbook : Assessing Risk and Identifying Interventions. Washington, DC: World Bank. <http://hdl.handle.net/10986/40141>.

## In Progress

Yu, W., Glodblatt, R., Eisenberg, R., Doeffinger, T., and Rubinyi, S. “Assessing Secondary Benefits of Urban Flood Protection Projects: Wroclaw, Poland.” [World Bank working paper].

Doeffinger, T. and Siders, A.R. “Identifying Historic Coastal Adaptation Pathways,” *Journal of Environmental Science and Policy*. [planned submission May, 2023]

Doeffinger, T. “How did we get here? A historical pathways analysis of coastal adaptation in Folly Beach, South Carolina,” *Mitigation and Adaptation Strategies for Global Change*.” [planned submission July, 2023]

Doeffinger, T., Oremus, K., and Siders, A.R. “Is the real estate market adapting to coastal risk? A case study of Folly Beach, South Carolina,” *Ocean and Coastal Management*. [planned submission August, 2023]

Dahl, T., et al., “Chapter 31 – Adaptation,” in the Fifth National Climate Assessment. [technical contributor]

## Other Publications: Public-Facing Tools

2014 Doeffinger, T. “Edgewood Elementary School: An Illustration of Sustainability.” ZMM Architects & Engineers. [teacher’s guide]

## Datasets

2019 Doeffinger, T. and Hall, J.W. “Water stress, water productivity, and related drivers by country.” University of Oxford. [dataset]

## Selected Public Writings

2023 Rubinyi, S. and Doeffinger, T. “Beyond avoided losses: capitalizing on the secondary benefits of investments in urban flood protection.” *World Bank Blogs*.

## SELECT PRESENTATIONS & CONFERENCES

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2023 “Improving Decision Making for Water-Related Risk,” University of South Florida [presentation], February 28

2023 “Improving Decision Making for Water-Related Risk,” University of Alabama [presentation], February 17

2023 “Providing Usable Information to Decision Makers,” Appalachian State [presentation], February 9

2022 “A Historical Pathways Approach for Coastal Adaptation: The Case of Folly Beach, South Carolina,” AGU Conference [presentation], December 13

2022 “Improving Information for Decision Makers: Secondary Benefits & Coastal Adaptation Pathways,” OPSIS Seminar, University of Oxford Programme for Sustainable Infrastructure Systems, September 7

2022 “Coastal Adaptation in the Sea Islands: A Historical Pathways Analysis for Folly Beach, SC,” Seminar Series, University of Delaware Department of Geography and Spatial Sciences, April 15

2022 “Creating a Database on Coastal Risk Management for South Carolina,” AAG Conference [presentation], February 26.

- 2021 “Improving Decision Making for Water-related Risks,” Impact Talk Series, University of Delaware Biden School, November 12
- 2021 “Water,” Climate Scholars Session, University of Delaware, November 17
- 2021 At What Point Managed Retreat [attendee], virtual, June 22-25
- 2020 World Water Week [attendee], virtual, August 23-28.
- 2019 “Water Security Diagnostics,” DPhil Seminar, University of Oxford, February 13
- 2017 DMDU Society Annual Meeting [attendee], Oxford, UK, November 13-15
- 2017 “Water Security: A framework for people, economies, and the environment,” REACH Seminar, University of Oxford, October 25
- 2017 “A Dynamic System: Decision Making in Bangladesh’s Coastal Zone,” Transfer of Status Presentation, University of Oxford, February 22
- 2017 “Modeling Human-Water,” DPhil Seminar, University of Oxford, January 21
- 2016 DMDU Society Annual Meeting [attendee], Washington, DC., November 16-17
- 2016 1.5 Degrees: Meeting The Challenges of the Paris Climate Agreement [volunteer], Oxford, UK, September 21-22

## GRANTS, FELLOWSHIPS, AND AWARDS

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- 2021 NSF SBE Postdoctoral Research Fellowship (SPRF)  
 Proposal: *Approaches to Coastal Adaptation in the United States*  
 Role: Principal Investigator  
 Amount: \$138,000

## TEACHING EXPERIENCE

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### Guest Lectures

- 2021 **University of Delaware**, Climate Adaptation
- 2018 – 19 **University of Oxford**, Statistics

### Teaching Assistant

- 2017 – 19 **University of Oxford**, MSc Water Science, Policy, and Management (graduate)
- 2011 – 12 **Carnegie Mellon University**
- Ethics and Decision Making in Architecture (undergraduate)
  - Environment II: Mechanical Systems (undergraduate and graduate)
- 2009 – 11 **Embry-Riddle Aeronautical University**
- Solids (undergraduate)
  - Statics (undergraduate)
  - Thermodynamics (undergraduate)

### Student Advising and Research Supervising

- 2022 – **University of Delaware**, Research Apprenticeship Work-Study (UDRAW)
- 2021 – **University of Delaware**, Adaptation Lab
- Mentor graduate and undergraduate students in research group focused on climate change adaptation. Directly supervise 3 undergraduate student researchers.

## SERVICE ACTIVITIES

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### University Leadership and Service

- 2023 **University of Alabama**, Department's DEI committee
- 2021 **University of Delaware**, Speaker for EmPower Panel, December 1
- 2016 – 20 **University of Oxford**, Joint Consultative Committee  
Graduate student representative for School of Geography & the Environment
- 2007 – 11 **Embry-Riddle Aeronautical University**, Student Government  
Student Representative for the College of Engineering

### Leadership Positions

- 2015 – 16 **Cornell University**, Alpha Xi Delta  
Chapter Advisor
- 2008 – 11 **Embry-Riddle Aeronautical University**, Alpha Xi Delta  
Chapter Vice President

### Journal Reviewer

*Sustainable Cities and Society, International Journal of Environmental Research and Public Health, Natural Hazards Research, Water Resources Research, Water Policy, Sustainability, Earth's Future, Global Environmental Change*

### Grant Reviewer

National Academies of Sciences, Engineering, and Medicine

### Professional Affiliations

- 2022 – American Geophysical Union
- 2022 – American Society of Adaptation Professionals
- 2021 – American Association of Geographers
- 2013 – US Green Building Council
- 2012 – Green Building Alliance

### Professional Development

- 2021 NCAR BRIGHT Workshop, Exploring Coastal Flood Risk through Geospatial Storytelling

## SELECT PROFESSIONAL EXPERIENCES

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- 2021 – **The World Bank Group**, Consultant  
Consultant on resilience and urban flooding. Project support for Vietnam.
- 2021 **Sayers and Partners**, Research Fellow  
Applying machine learning techniques to improve publicly available topography data, with a geographic focus on India and Bangladesh.
- 2017 – 19 **The World Bank Group**, Consultant  
Consultant on water security. Contributed key insights to the refinement of the conceptualization of a water security diagnostic framework through multiple iterations of a water security framing. Performed accurate and effective data analysis for rapid country-level assessments. Created a water security database in PostgreSQL with over 100 indicators that is now the basis for a new water security dashboard initiative.
- 2018 **The Architect of the Capitol**, Summer Intern

Planning and project management intern. Created heat maps for bike traffic around the capitol to determine need for additional bike lanes and aided in developing plans for the potential bike lanes.

2016 – 17 **ZMM Architects & Engineers**, Consultant

Consultant on construction management and sustainability. Reviewed documentation for LEED credits. Conducted Pre-Bid meetings and led final building walk-throughs.

2014 – 15 **ZMM Architects & Engineers**, Constr. Administration Assist. & Sustain. Coord.

LEED documentation and coordination. Generated a teaching tool for K-5 educators to help them and their students better understand the importance of sustainability and the sustainable design features throughout their school. Conducted Pre-Bid meetings and led final walk-throughs. Managed the construction phase for several projects: budgeting, site meetings, and closeout. Processed contract documents, RFIs, submittals, change orders, closeout documents, and payment applications.

2013 – 14 **ZMM Architects & Engineers**, Construction Administration Assistant

Processed contract documents, RFIs, submittals, change orders, closeout documents, and payment applications. Attended Pre-Bid meetings and final site walk-throughs

## SKILLS

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- Proficient in statistical analysis (Stata, R)
- Proficient in qualitative data analysis (NVivo)
- Proficient in geographic information systems (ArcGIS and QGIS)
- Proficient in database creation (SQL, Oracle, and Maximo)
- Proficient in construction management (MS Project, AIA Contract Documents, BIM, and CAFM)
- Proficient in impact analysis (IMPLAN)
- Intermediate knowledge of 3D design software (AutoCAD, Revit, and CATIA)
- Intermediate knowledge of coding and programming platforms (R, Python, and Matlab)
- Novice Italian (reading and writing) and Novice Spanish (reading and writing)