ANTONIA GEERKE SEBASTIAN

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Department of Earth, Marine and Environmental Sciences · Environment, Ecology, and Energy Program (E3P)
University of North Carolina at Chapel Hill · 104 South Road · Chapel Hill, NC · 27599

EDUCATION

Ph.D. December 2016
Environmental Engineering, Rice University. Advisor: Dr. Philip B. Bedient
Dissertation: Quantifying Flood Hazard & Risk in Highly Urbanized Coastal Watersheds

B.S. May 2011
Civil Engineering, Rice University
Focus Areas: Urban Hydrology & Water Resources (II), Urban Infrastructure & Management (III)

PROFESSIONAL EXPERIENCE

Assistant Professor, The University of North Carolina at Chapel Hill 2020-present
Department of Earth, Marine and Environmental Sciences
Environment, Ecoloyg, and Energy Program (E3P)

Adjunct Assistant Professor, The University of North Carolina at Chapel Hill 2020-present
Department of Environmental Science and Engineering

Director, Sustainable Triangle Field Site 2023-present

Board of Directors, Deltares USA 2023-present

Parental Leave Fall 2023

Associate Research Scientist, Texas A&M University - Galveston Campus 2018-2019
Department of Marine Sciences, Institute for a Disaster Resilience Texas (est. 2019)

Postdoctoral Researcher, Rice University 2018-2018
Department of Civil & Environmental Engineering

Postdoctoral Researcher, Delft University of Technology 2016-2017
Department of Hydraulic Engineering, EU Horizon2020 - BRIGAID

Netherlands America Foundation (NAF)/Fulbright Flood Management Fellow 2014-2015
Department of Hydraulic Engineering, Delft University of Technology

Graduate Research & Teaching Assistant, Rice University 2012-2016
Department of Civil & Environmental Engineering

Project Manager/Scientific Staff, Rice University 2011-2012
Severe Storm Prediction, Education and Evacuation from Disasters (SSPEED) Center

HONORS & AWARDS

KLM Royal Dutch Airlines Innovation & Sustainability Award	2022
UNC Institute for the Environment, Faculty Fellow	2022-present
UNC Center for Resilient Communities and Environment Scholars Program, Inaugural Scholar	2022-present
NSF Next Generation of Hazards & Disasters Researchers Enabling Fellowship Program	2019-2021
Workshop for Early Career Geoscience Faculty (at Carleton College) Travel Award	2020
Civil & Environmental Engineering (CEE) Rising Stars (at MIT) Travel Award	2017
Workshop on Addressing the Challenges of Compound Events (at ETH Zurich) Travel Award	2017
Netherlands America Foundation (NAF)/Fulbright Fellowship in Flood Management	2014-2015
NSF Graduate Research Fellowship Program (GRFP), Honorable Mention	2013
San Antonio Water System (SAWS) Conservation Fellowship	2010
Congress Bundestag Youth Exchange (CBYX) Scholarship	2006

PUBLICATIONS

Notation: student or postdoc[P] advised or co-advised at the time of the research project

Refereed Papers in Academic Journals (h-index 24; i10-index 35 [Google Scholar])

1. Waters, L., Grimley, L.E., **Sebastian, A.**, Roshanak, N., Reilly, A. Building Back Greener: Quantifying Residential Building Decarbonization Opportunities Following Floods. *Energy and Buildings*, 347(Part A). doi: 10.1016/j.enbuild.2025.116244.
2. Garcia, H.M., **Sebastian, A.**, Fitzmaurice, K.P., Hino, M., Collins, E.L., Characklis, G.W. (2025). Reconstructing Repetitive Flood Exposure Across 78 Events From 1996 to 2020 in North Carolina, USA. *Earth's Future*, doi: 10.1029/2025EF006026
3. Grimley, L.E., **Sebastian, A.**, Leijnse, T., Ratcliff, J., Luettich, R. (2025). Determining the Relative Contributions of Runoff and Coastal Processes to Flood Exposure across the Carolinas during Hurricane Florence. *Water Resources Research*, 61(3). doi: 10.1029/2023WR036727
4. Grimley, L.E., Beatty, K.H., **Sebastian, A.**, Bunya, S., Lackmann, G. (2024). Climate Change Exacerbates Compound Flooding from Recent Tropical Cyclones, *npj Natural Hazards*, 1(45). doi: 10.1038/s44304-024-00046-3
5. Kazadi, A., Doss-Gollin, J., **Sebastian, A.**, Silva, A. (2024). FloodGNN-GRU: A Spatio-Temporal Graph Neural Network for Flood Prediction. *Environmental Data Science*, 3:e21. doi:10.1017/eds.2024.19
6. Thomson, H., Zeff, H.B., Kleiman, R., **Sebastian, A.**, Characklis, G.W. (2023). Systemic Financial Risk arising from Residential Flood Damages: A Case Study of Hurricane Florence, *Earth's Future*, 11, e2022EF003206. doi: 10.1029/2022EF003206.
7. Hino, M., BenDor, T.K., Branham, J., Kaza, N., **Sebastian, A.**, Sweeney, S. (2023). Growing safely or building risk? Floodplain management in North Carolina, *Journal of the American Planning Association*, doi: 10.1080/01944363.2022.2141821.
8. Wang, Y.V.[P], **Sebastian, A.** (2022). Equivalent Hazard Magnitude Scale. *Natural Hazards Earth Systems Sciences (NHESS)*, 22(12), 4103-4118, doi: 10.5194/nhess-22-4103-2022.
9. Wang, Y.V.[P], **Sebastian, A.** (2022). Murphy Scale: A Locational Equivalent Intensity Scale for Hazard Events. *Risk Analysis*, doi: 10.1111/risa.13933.
10. Collins, E., Sanchez, G.M., Terando, A., Stillwell, C.C., Mitasova, H., **Sebastian, A.**, Meentemeyer, R.K. (2022). Predicting flood damage probability across the conterminous United States, *Environmental Research Letters*, 17, 034006, doi: 10.1088/1748-9326/ac4f0f.
11. Wang, C., Pavelsky, T.M., Yao, F., Yang, X., Zhang, S., Chapman, B., Song, C., **Sebastian, A.**, Frizzelle, B., Frankenberg, E., Clinton, N. (2022). Flood Extent Mapping During Hurricane Florence With RepeatPass LBand UAVSAR Images, *Water Resources Research*, 58(3), e2021WR030606, doi: 10.1029/2021WR030606.
12. **Sebastian, A.**, Bader, D.J., Nederhoff, C.M., Leijnse, T.W., Bricker, J.D., Aarkinhof, S.G.J. (2021). Hindcast of pluvial, fluvial, and coastal flood damage in Houston, Texas during Hurricane Harvey (2017) using SFINCS. *Natural Hazards*, 109, 23432362, doi: 10.1007/s11069-021-04922-3.
13. Wang, Y.V.[P], **Sebastian, A.** (2021). Community flood vulnerability and risk assessment: An empirical predictive modeling approach. *Journal of Flood Risk Management*, 14, e12739, doi: 10.1111/jfr3.12739.
14. Mobley, W.[P], **Sebastian, A.**, Blessing, R., Highfield, W.E., Stearns, L., Brody, S.D. (2021). Quantification of Continuous Flood Hazard using Random Forest Classification and Flood Insurance Claims at Large Spatial Scales: A Pilot Study in Southeast Texas. *Natural Hazards and Earth System Sciences (NHESS)*, 21, 807-82, doi: 10.5194/nhess-2020-347.
15. Fagnant, C., Gori, A., **Sebastian, A.**, Bedient, P.B., Ensor, K.B. (2020). Characterizing spatiotemporal trends in extreme precipitation in Southeast Texas. *Natural Hazards*, 104, 15971621, doi: 10.1007/s11069-020-04235-x.
16. Juan, A., Gori, A., **Sebastian, A.** (2020). Comparing Floodplain Evolution in Channelized and Unchannelized Urban Watersheds in Houston, Texas. *Journal of Flood Risk Management*, 13(2), e12604. doi: 10.1111/jfr3.12604.

17. **Sebastian, A.**, Gori, A., Blessing, R., van der Wiel, K., Bass, B. (2019). Disentangling the relative impacts of human and environmental change on catchment response during Hurricane Harvey. *Environmental Research Letters*, 14, 124023. doi:10.1088/1748-9326/ab5234.

18. Mobley, W.[+], **Sebastian, A.**[+], Highfield, W.E., Brody, S.D. (2019). Estimating Flood Extent during Hurricane Harvey using Maximum Entropy in a Hazard Distribution Model. *Journal of Flood Risk Management*, 12 (Suppl. 1), e12549, doi: 10.1111/jfr3.12549. [+]*these authors contributed equally to this work*

19. Lendering, K.T.[+], **Sebastian, A.**[+], Jonkman, S.N., Kok, M. (2019). Guidelines for assessing the performance of flood adaptation innovations within a risk-based framework. *Journal of Flood Risk Management*, doi: 10.1111/jfr3.12485. [+]*these authors contributed equally to this work*

20. Couasnon, A.A., **Sebastian, A.**, Morales-Nápoles, O. (2018). A copula-based approach for modeling stochastic boundary conditions in a coastal catchment: An application to the Houston Ship Channel, Texas. *Water, Special Issue: Copulas in Hydrology*, 10(9), 1190-1209. doi: 10.3390/w10091190.

21. Paprotny, D., **Sebastian, A.**, Morales-Nápoles, O., Jonkman, S.N. (2018). Trends in European flood losses over the past 150 years. *Nature Communications*, 9, 1985. doi: 10.1038/s41467-018-04253-1.

22. Blessing, R., **Sebastian, A.**, Brody, S.D. (2018). Flood Risk Delineation in the U.S.: How much loss are we capturing? *ASCE Natural Hazards Review*, doi: 10.1061/(ASCE)NH.1527-6996.0000242.

23. Jonkman, S.N., Godfroy, M., **Sebastian, A.**, Kolen, B. (2018). Brief Communication: Post-event analysis of loss of life due to hurricane Harvey. *Natural Hazards and Earth System Sciences*, doi: 10.5194/nhess-18-1073-2018.

24. Bass, B., Torres, J.M., Irza, J.N., Proft, J., **Sebastian, A.**, Dawson, C.N., Bedient, P.B. (2018). Surge Dynamics across a Complex Bay Coastline, Galveston Bay, TX. *Coastal Engineering*, doi: 10.1016/j.coastaleng.2018.04.019.

25. Van Oldenborgh, G.J., Van der Wiel, K., **Sebastian, A.**, Singh, R., Arrighi, J., Otto, F., Haustein, K., Li, S., Vecchi, G., Cullen, H. (2017). Attribution of the extreme rainfall from Hurricane Harvey, August 2017. *Environmental Research Letters*, 12, 124009. doi: 10.1088/1748-9326/aa9ef2.

26. **Sebastian, A.**, Dupuits, E.J.C., Morales-Nápoles, O. (2017). Applying a Bayesian Network based on Gaussian Copulas to Model the Hydraulic Boundary Conditions for Hurricane Flood Risk Analysis in a Coastal Watershed, *Coastal Engineering*, 125, 42-50. doi: 10.1016/j.coastaleng.2017.03.008.

27. Anarde, K.A., Kameschwar, S., Irza, J.N., Nittrouer, J.A., Lorenzo-Trueba, J., Padgett, J.E., **Sebastian, A.** Bedient, P.B. (2017). Impacts of Hurricane Storm Surge on Infrastructure Vulnerability for an Evolving Coastal Landscape. *Natural Hazards Review*, doi: 10.1061/(ASCE)NH.1527-6996.0000265.

28. Torres, J.M., Bass, B., Irza, J.N., Proft, J., **Sebastian, A.**, Dawson, C.N., Bedient, P.B. (2017). Modeling the Hydrodynamic Performance of a Conceptual Storm Surge Barrier System for Galveston Bay. *ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering*, doi: 10.1061/(ASCE)WW .1943-5460.0000389.

29. Brody, S.D., **Sebastian, A.**, Blessing, R., Bedient, P.B. (2015). Case-study results from southeast Houston, Texas: Identifying the impacts of residential location on flood risk and loss. *Journal of Flood Risk Management*, 11(S1), S110-S120. doi: 10.1111/jfr3.12184.

30. **Sebastian, A.**, Proft, J., Dietrich, C.J., Du, W., Bedient, P.B., Dawson, C.N. (2014). Characterizing hurricane storm surge behavior in Galveston Bay using the SWAN+ADCIRC model. *Coastal Engineering*, 88, 171-181. doi: 10.1016/j.coastaleng.2014.03.002.

31. Brody, S.D., Blessing, R., **Sebastian, A.**, Bedient, P.B. (2014). Examining the impact of land use/land cover characteristics on flood losses. *Journal of Environmental Planning and Management*, 57(8), 1252-1265. doi: 10.1080/09640568.2013.802228.

32. Fang, N., Dolan G., **Sebastian, A.**, Bedient, P.B. (2014). Case Study of Flood Mitigation and Hazard Management at the Texas Medical Center in the Wake of Tropical Storm Allison in 2001. *ASCE Natural Hazards Review*, 15(3). doi: 10.1061/(ASCE)NH.1527-6996.0000139.

33. Doubleday, G., **Sebastian, A.**, Luttenschlager, T., Bedient, P.B. (2013). Modeling Hydrologic Benefits of Low Impact Development: A Distributed Hydrologic Model of The Woodlands, TX. *Journal of the American Water Resources Association*, 49(6), 1444-1455. doi: 10.1111/jawr.12095.

34. Brody, S.D., Blessing, R., **Sebastian, A.**, Bedient, P.B. (2013). Delineating the Reality of Flood Risk and Loss in Southeast, TX. *ASCE Natural Hazards Review*, 14(2), 89-97. doi: 10.1061/ (ASCE)NH.1527-6996.0000091.

35. Ray, T., Stepinski, E., **Sebastian, A.**, Bedient, P.B. (2011). Dynamic Modeling of Storm Surge and Inland Flooding in a Texas Coastal Floodplain. *ASCE Journal of Hydraulic Engineering*, 137(10), 1103-1110. doi: 10.1061/(ASCE) HY.1943-7900.0000398.

Refereed Papers in Academic Journals (In Preparation & Under Review)

1. Waters, L., Grimley, L.E., **Sebastian, A.**, Roshanak, N., Kumar, R., Reilly, A. Navigating the Nexus: Energy Efficiency, Flooding, and Climate Change in Residential Buildings. *Earth's Future*, planned submission 07/2025.

2. Plough, J.[P], Hino, M., **Sebastian, A.**, Garcia, H.M., Klass-Warch, H. Identifying Obstacles to Equitable Flood Mitigation Funding. *Science Advances*, planned submission 07/2025.

3. Baer, J.A., **Sebastian, A.**, Grimley, L.E., Doss-Gollin, J., Wright, D.B., Hussain, M.A. Design Storms Underestimate Flood Hazard and Risk Derived from Stochastic Storm Transposition. *npj Natural Hazards*, planned submission 07/2025.

4. Grimley, L.E., **Sebastian, A.**, Gori, A. Compound Processes Crucial to Future Tropical Cyclone Flood Hazard Assessment. *Earth's Future*, planned submission 07/2025.

5. Quintal, H.C., **Sebastian, A.**, Serre, M., Jäger, W., de Ruiter, M.C. Covariance-informed spatiotemporal clustering improves the detection of climate extremes. *Natural Hazards Earth Systems Science*, submitted 06/2025, *in review*. [preprint]

6. Karaffa, K., Larson, S., Dello, K., **Sebastian, A.** Increased Short-Term Drought Occurrence in the Carolinas at the Expense of Chronic and Flash Droughts. *Journal of Applied Meteorology and Climatology*, submitted 06/2025.

7. FitzGerald, B., Wright, D.B., Yan, L., Dietrich, A., **Sebastian, A.** An L-Moments-Based Hypothesis Test to Identify Homogeneous Storm Transposition Regions. *Journal of Hydrology*, submitted 06/2025.

8. Smiley, A., Grimley, L.E., Garcia, H.M., **Sebastian, A.**, Hino, M., Berke, P. Local application of an interdisciplinary framework to model supply of flood mitigating ecosystem services in the context of coastal squeeze. *Environmental Research Letters*, submitted 05/2025, *in review*.

9. Fitzmaurice, K.P., Garcia, H.M., **Sebastian, A.**, Thomson, H., Zeff, H.B., Characklis, G.W. Flood impacts on the financial stability of residential mortgage borrowers: An integrated modeling approach. *Natural Hazards Earth Systems Science (NHESS)*, submitted 05/2025, *in review*. [preprint]

10. Schlumberger, J., Solte, T., Garcia, H.M., **Sebastian, A.**, Jäger, W., Ward, P., de Ruiter, M.C., Šakić Trogrlić, R., Tijssen, A., de Brito, M.M. Stocktaking of methods for assessing dynamic vulnerability in the context of flood hazard research, *Natural Hazards Earth Systems Science (NHESS)*, submitted 02/2025, *in review*. [preprint]

11. Khanal, K., Kaza, N., Hino, M., **Sebastian, A.** Characterizing Mobile Home Parks in North Carolina: A Computer Vision-Based Approach. *Environment and Planning B: Urban Analytics and City Science*, submitted 01/2025, *in review.*

12. Bates, S.L., Eddy, M.C., **Sebastian, A.**, Salzberg, A. Representing Green Infrastructure Within a Semi-Distributed Hydrologic Model to Quantify Cumulative Benefits and Build Capacity for Long-Term Regional Planning, *Journal of Environmental Management*, submitted 09/2024, *in review*.

13. Wagenblast, T., Filatova, T., Grimley, L.E., **Sebastian, A.**, Goyal, N. From Opinion to Action: How Social Networks and Information Policy Influence Private Adaptation to Floods. *Environmental Science and Policy*, submitted 09/2024, *in review*.

Refereed Papers in Conference & Workshop Proceedings

1. Kazadi, A., Doss-Gollin, J., **Sebastian, A.**, Silva, A. (2022). Flood Prediction with Graph Neural Networks. Tackling Climate Change with Machine Learning: workshop at NeurIPS, 2022.

2. Wang, Y.V. , **Sebastian, A.** (2021). Empirical Numerical Simulation of Precipitation Events for Pluvial Flood Management. *Proceedings of ASCE Geo-Extreme 2021*, Savannah, GA, August 15-18, 2021.

3. Hino, M., BenDor, T., Branham, J., Kaza, N., **Sebastian, A.**, Sweeney, S. (2020). A Parcel-Scale Analysis of Municipal Floodplain Management in North Carolina. *2020 Association of Collegiate Schools of Planning (ACSP) Annual Conference*. *virtual due to COVID-19*

4. Lee, Y., Kothuis, B.L.M., **Sebastian, A.**, Brody, S.D. (2019). Design of Transformative Education and Authentic Learning Projects: Experiences and Lessons Learned from an International Multidisciplinary Research and Education Program on Flood Risk Reduction. *2019 ASEE Annual Conference & Exposition*. Tampa, FL. June 16-19, 2019.

5. Winsemius, H.C., Ward, P.J., Salamon, P., Weiland, F.S., Budimir, M., Duncan, M., Van den Hurk, B.J.J.M., **Sebastian, A.** (2016). The Domino Effect: the Future of Quantifying Compound Events in Deltas. In *Proceedings from the 2016 Understanding Risk (UR) Forum: Building Evidence for Action*. Himmelfab, A. (Ed.). Washington, D.C: The World Bank, pp. 127-130.

Short Communications & Interdisciplinary Products

1. **Sebastian, A.** (2021, Fall/Winter). Delta. *Journal of Delta Urbanism.* pp. 114-115. doi:10.48438/jdu.2.2021.6229

2. Van Oldenborgh, G.J., Van der Wiel, K., Sjoukje, P., Kew, S., **Sebastian, A.**, Otto, K., Haustein, K., Singh, R., Arrighi, J., Vecchi, G. (2019, September). Rapid attribution of the extreme rainfall in Texas from Tropical Storm Imelda. *World Weather Attribution*.

3. Blessing, R., **Sebastian, A.** (2018, September). Out of Bounds: Rethinking U.S. Flood Risk Delineation. *EARTH Magazine*.

4. Brand, N., **Sebastian, A.**, Kothuis, B. (2017, October). A Multidisciplinary Perspective on Texas' Flood Risk Challenge. *TU Delft DeltaLinks*.

5. Van Oldenborgh, G.J., Van der Wiel, K., **Sebastian, A.** (2017, September). Harvey: een meter neerslag in Houston, Klimaatverandering? *Meteorologica Magazine*.

6. Kothuis, B.L.M., Jonkman, S.N., **Sebastian, A.** (2016). Delta Planning and Design in the Houston Galveston Bay Region, Texas. In *Delta Interventions: Design and Engineering in Urban Water Landscapes*. Nillesen, A.L., Kothuis, B.L.M., Meyer, H., Palmboom, F. (Eds.). TU Delft Delta Infrastructures and Mobility Initiative. Delft, the Netherlands: Delft University Publishers, pp. 82-85.

7. **Sebastian, A.** (2015). Flood Mitigation in Multi-hazard Coastal Environments. In *Delft Delta Design: Houston Galveston Bay Region, TX*. Kothuis, B.L.M., Brand, A.D., **Sebastian, A.**, Nillesen, A.L., & Jonkman, S.N. (Eds.). Delft, the Netherlands: Delft University Publishers, pp. 69-71.

Books & Chapters

1. **Sebastian, A.** (2022). Compound Flooding. In *Coastal Flood Risk Reduction: the Netherlands and the U.S. Texas Gulf Coast*, S.D. Brody, Y. Lee, B.L.M. Kothuis (Eds.). Oxford: Elsevier, Inc. pp. 77-88.

2. **Sebastian, A.**, Juan, A., Bedient, P.B. (2022). Urban Flood Modeling: Perspectives, Challenges and Opportunities. In *Coastal Flood Risk Reduction: Comparisons from the Netherlands and the U.S. Upper Texas Gulf Coast*, S.D. Brody, Y. Lee, B.L.M. Kothuis (Eds.). Oxford: Elsevier, Inc. pp. 47-60.

3. Brody, S.D., Highfield, W.E., **Sebastian, A.**, Blessing, R., Mobley, W., Atoba, K., Stearns, L. (2021). A Comprehensive Framework for Coastal Flood Risk Reduction: Charting a Course Towards Resiliency. In *A Blueprint for Coastal Adaptation*, C. Kousky, B. Fleming, A.M. Berger (Eds.). Washington, D.C.: Island Press, pp. 2-28.

4. **Sebastian, A.**, Gori, A. (2018). Flood Control Policy and Risk Management in the United States. In Chapter 12, *Hydrology and Floodplain Analysis*, 6th ed. by Philip B. Bedient, Wayne Huber, & Baxter Vieux. Upper Saddle River, NJ: Prentice Hall, pp. 675-716.

5. Highfield, W.E., **Sebastian, A.**, Vieux, B. (2018). GIS Applications in Hydrology. In Chapter 10, *Hydrology and Floodplain Analysis*, 6th ed. by Philip B. Bedient, Wayne Huber, & Baxter Vieux. Upper Saddle River, NJ: Prentice Hall, pp. 617-644.

6. **Sebastian, A.** (2012). Case Studies in Hydrologic Engineering: Water Resources Projects. In Chapter 13, *Hydrology and Floodplain Analysis*, 5th ed. by Philip B. Bedient, Wayne Huber, & Baxter Vieux. Upper Saddle River, NJ: Prentice Hall, pp. 720-750.

7. Fang, Z., **Sebastian A.**, Bedient, P.B. (2012). Modern Flood Prediction and Warning Systems. In Chapter 21, *Handbook of Engineering Hydrology Vol. 1: Fundamentals and Applications*. Eslamian, S. (Ed.), Boca Raton, FL: CRC Press Taylor & Francis Group, pp. 455-470.
8. Bedient, P.B. & **Sebastian, A.** (2012). An Introduction to Gulf Coast Severe Storms and Hurricanes. In Chapter 1, *Hurricane Ike: Lessons Learned and Steps to the Future*, P.B. Bedient (Ed.). College Station, TX: Texas A&M University Press, pp. 1-15.
9. Bedient, P.B. & **Sebastian, A.** (2012). Hurricane Ike. In Chapter 2, *Hurricane Ike: Lessons Learned and Steps to the Future*, P.B. Bedient (Ed.). College Station, TX: Texas A&M University Press, pp. 16-27.

Technical Reports & White Papers

1. North Carolina Policy Collaboratory (2021). Final Report to the North Carolina State Legislature: Flood Resilience Study. Chapel Hill, NC: University of North Carolina. **many authors*
2. Sharp et al. (2018). Eye of the Storm: Report of the Governor's Commission to Rebuild Texas. College Station, TX: Texas A&M University. **many authors*
3. **Sebastian, A.**, Lendering, K.T., Kothuis, B.L.M., Brand, A.D., Jonkman, S.N., Van Gelder, P.H.A.J.M., Kolen, B., Comes, M., Lhermitte, S.L.M., Meesters, K.J.M.G., Van de Walle, B.A., Ebrahimi-Fard, A., Cunningham, S., Khakzad-Rostami, N., Nespeca, V. (2017). Hurricane Harvey Report: A fact-finding effort in the direct aftermath of Hurricane Harvey in the Greater Houston Region. Delft, the Netherlands: Delft University Publishers.
4. **Sebastian, A.**, Lendering, K.T., van Loon-Steensma, J.M., Paprotny, D., Bellamy, R., Willems, P., van Loenhout, J., Colao, M.C., Dias, S., Nunes, L., Rego, F., Koundouri, P., Xepapadeas, P., Vassilopoulos, A., Wiktor, P., Wysocka-Golec, J. A Testing and Implementation Framework (TIF) for Climate Adaptation Innovations. BRIGAID Horizon2020 Programme, European Union.
5. Bedient, P.B., Dunbar, L., Blackburn, J.B., **Sebastian, A.**, Torres, J., Bass, B., Irza, J.N. (2015). Houston-Galveston Area Protection System (H-GAPS). SSPEED Center 2015 Annual Report. Rice University, Houston, Texas.
6. **Sebastian, A.**, Irza, J.N., Christian, J., Bedient, P.B. (2014). Galveston County Residential Surge Damage Model. Rice University, Houston, Texas.
7. Blackburn, J.B., Bedient, P.B., **Sebastian, A.** (2011). The Lone Star National Recreation Area: Economic Prosperity, Recreation and Flood Mitigation Based on Natural Assets: A Concept for the Upper Texas Coast. Rice University, Houston, Texas.
8. Bedient, P.B., Blackburn, J.B., **Sebastian, A.** (2011). Learning the Lessons of Hurricane Ike: Preparing for the Next Big One. SSPEED Center Phase I Report. Rice University, Houston, Texas.

Datasets

1. Garcia, H.M., **Sebastian, A.**, Fitzmaurice, K.P., Hino, M., Collins, E.L., Characklis, G.W. (2024). NC Flood Extent Archive (NC-FLDEX): Flood Extent Rasters (30m) for 78 NC-FLDEX Events 1996-2020 [V5], UNC Dataverse, https://doi.org/10.15139/S3/DOKK16.
2. Grimley, L.E., **Sebastian, A.**, Leijnse, T., Eilander, D., Ratcliffe, J., Luettich, R. (2025). Hydrodynamic modeling of runoff, coastal, and compound flood processes during Hurricane Florence across the Carolinas. DesignSafe-CI. https://doi.org/10.17603/ds2-m3ag-2d15
3. Grimley, L.E., **Sebastian, A.** (2025). Topobathymetric Digital Elevation Models (DEM) for Flood Modeling in the Carolinas. DesignSafe-CI. https://doi.org/10.17603/ds2-mzc8-s589
4. Grimley, L.E., Bunya, S., **Sebastian, A.**, Hollinger-Beatty, K., Lackmann, G. (2024). SFINCS and ADCIRC Modeled Present and Future Flood Extents for Hurricanes Florence, Matthew, and Floyd [Version 2]. DesignSafe-CI. https://doi.org/10.17603/ds2-sf10-w836

PRESENTATIONS & POSTERS

*Oral Conference Presentations *denotes presenter*

1. **Sebastian, A.***, Grimley, L.E., Hollinger Beatty, K., Lackmann, G. Bunya, S. Toward an improved understanding of tropical cyclone flood impacts: Simulating flood exposure from three recent hurricanes under 4C of warming using a

PGW approach and high-fidelity physics-based models (Invited). *Symposium on Tropical Cyclone Risk in a Changing Climate*. Clearwater, FL. May 31-June 4, 2025.

2. Garcia, H.M.*, Fitzmaurice, K., **Sebastian, A.**, Hino, M., Collins, E., Characklis, G.W. Risks from repetitivie flood exposure: Insights from the North Carolina Flood Extent Archive (1996-2020). *2025 AEESP Research and Education Conference*. Durham, NC. May 20-22, 2025.
3. Wright, D.B.*, FitzGerald, B., Yan, L., Abbasian, M., **Sebastian, A.**, Baer, J., Karlovits, G., Rosa, D. Advancing the Science of Extreme Storms to Support FEMA's Future of Flood Risk Data Initiative. *2025 EWRI Congress*. Anchorage, AK. May 18-21, 2025.
4. Quintal, H.*, **Sebastian, A.**, Jger, W., Serre, M., de Ruiter, M. Quantification of consecutive humid heat extreme precipitation hazards across the Southeast since 1940. *North Carolina Water Resources Research Institute Annual Conference*. Raleigh, NC. March 19-20, 2025
5. Baer, J.*, Grimley, L.E., **Sebastian, A.**, Wright, D.B., Hussain, A. Moving Beyond the Design Storm: Probabilistic Flood Hazard Mapping Using Modified Stochastic Storm Transposition. *North Carolina Water Resources Research Institute Annual Conference*. Raleigh, NC. March 19-20, 2025
6. Karaffa, K.*, Dello, K., Larson, S., **Sebastian, A.** Examining the Impacts of Hurricanes on Short-Term and Flash Drought Development and Termination in the Carolinas. *North Carolina Water Resources Research Institute Annual Conference*. Raleigh, NC. March 19-20, 2025
7. Fitzmaurice, K.,* Garcia, H.*, **Sebastian, A.**, Thomson, H., Zeff, H.B., Characklis, G.W. Role of Insurance, Equity, and Liquidity in the Post-Flood Financial Resilience of Residential Mortgage Borrowers. *New Orleans Forum on Climate Linked Economics at the 105th AMS Meeting*. New Orleans, LA. January 12-16, 2025.
8. Karaffa, K., Dello, K., Larson, S., **Sebastian, A.** Understanding the Connection between Flash Drought and Harmful Algal Blooms to Assist a Rural Health Department in North Carolina. *105th AMS Meeting*. New Orleans, LA. January 12-16, 2025.
9. Baer, J.A.*, Grimley, L.E., **Sebastian, A.**, Wright, D.B., Hussain, M.A. Moving Beyond the Design Storm: Probabilistic Flood Hazard Mapping Using Modified Stochastic Storm Transposition. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
10. Grimley, L.E.*, Webber, M., **Sebastian, A.**, Hollinger Beatty, K.E. Infrastructure Exposure to Hurricane Florence Flooding in Present and Future Climates. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
11. Quintal, H.*, **Sebastian, A.**, Jäger, W., Serre, M., de Ruiter, M. A Methodology for Quantifying Consecutive Multi-Hazards with Temporal Dependence: an Application to Hot and Wet Hazards. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
12. Collins, J.*, McCune, R., Anarde, K., Hino, M., **Sebastian, A.** Tolerating the tide: chronic coastal flooding in rural North Carolina and implications for sea level rise driven migration. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
13. Garcia, H.M.*, **Sebastian, A.**, Fitzmaurice, K.P., Hino, M., Characklis, G.W., Collins, E. L. Mapping repetitive damage hotspots in North Carolina: Insights from 78 flood events (1996-2020). *2024 North Carolina Coastal Conference*. New Bern, NC. November 13-14, 2024.
14. Plough, J.^{P}*, Hino, M., **Sebastian, A.**, Garcia, H.M., Klass-Warch, H. Identifying Obstacles to Equitable Flood Mitigation Funding. *Preparing for a Changing Climate Conference*, Palo Alto, CA. October 10-11, 2024.
15. Fitzmaurice, K.,* Garcia, H.*, **Sebastian, A.**, Thomson, H., Zeff, H.B., Characklis, G.W. Role of insurance, equity, and liquidity in post-flood financial resilience of residential mortgage borrowers. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
16. Doss-Gollin, J.*, Silva, A., **Sebastian, A.**, Vergopolan, N. Advancing Urban Flood Hazard Characterization through Machine Learning: Challenges and Opportunities. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
17. Doss-Gollin, J.*, **Sebastian, A.**, Silva, A., Vergopolan, N. How Can Machine Learning Advance Urban Flood Modeling and Resilience? A Review of Challenges and Opportunities. CMWR 2024. Tuscon, AZ. September 30-October 3, 2024.

18. Waters*, L., Reilly, A., Nateghi, R., **Sebastian, A.**, Kumar, R. Building Back Greener: Residential Building Decarbonization Opportunities Following Floods and Other Disasters. *Gulf of Mexico Conference 2024*. February 19-22, 2024.

19. Quintal, H.*, **Sebastian, A.**, Serre, M. Wet Hot American Summer: Defining Temporally Compounding Hazards using Covariance Modeling and Event Coincidence Analysis. *Natural Hazards and Risks in a Changing World 3rd International Conference*. Amsterdam, NL. June 12-13, 2024.

20. **Sebastian, A.***, Garcia, H., Zeff, H.B., Thomson, H., Fitzmaurice, K.P., Characklis, G.W. Developing a Database of Repetitive Flood Exposure to Improve Estimates of Flood Outcomes (and Other Applications) (Invited). *Symposium on Hurricane Risk in a Changing Climate (SHRCC 2024)*. Honolulu, HI. June 7-12, 2024.

21. Grimley, L.E.*, Smiley, A., Garcia, H., **Sebastian, A.** Shifting climates and landscapes: investigating present and future flood exposure in eastern NC. *2024 NC WRRI Conference*. Raleigh, NC. March 20-21. 2024. (Lighting Talk)

22. Quintal, H.*, **Sebastian, A.**, Serre, M. Assessing Spatiotemporal Covariance in Precipitation and WBGT across the Carolinas. *2024 NC WRRI Annual Conference*. Raleigh, NC. March 20-21, 2024 (Lightning Talk)

23. Fitzmaurice, K.*, Garcia, H., **Sebastian, A.**, Characklis, G.W. Repetitive flooding, uninsured damage, and household financial stability: a model-based evaluation of strategies for increasing insurance uptake in flood-prone, lower-income areas. *2024 NC WRRI Annual Conference*. Raleigh, NC. March 20-21, 2024.

24. Garcia, H.*, Fitzmaurice, K., **Sebastian, A.**, Characklis, G.W. Validation of machine learning methods for reconstructing repetitive flood damage exposure in North Carolina, 1996-2020. *2024 NC WRRI Annual Conference*. Raleigh, NC. March 20-21, 2024.

25. **Sebastian, A.*** and Characklis, G.W.* Assessing, Pricing, and Mitigating the Risk of Floods and Other Natural Hazards (Invited). *2024 TTI/Vanguard: Resilience*. Chapel Hill, NC. March 5-7, 2024.

26. Garcia, H.*, Fitzmaurice, K., Characklis, G.W., Zeff, H.B., Thomson, H., **Sebastian, A.** Validation of Machine Learning Methods for Reconstructing Repetitive Flood Damage Exposure in North Carolina, 1996-2020. *2023 AGU Fall Meeting*. San Francisco, CA. December 11-15, 2023.

27. Quintal, H.C.*, Garcia, H., Cawley, M., **Sebastian, A.**, Mapping Spatially Compounding Hazards across a North Carolina County using Random Forest. *2023 AGU Fall Meeting*. San Francisco, CA. December 11-15, 2023.

28. Grimley, L.E.*, **Sebastian, A.**, Hollinger, K., Bunya, S., Lackmann, G. Present and Future Exposure to Compound Flooding from Tropical Cyclones in the Carolinas. *2023 AGU Fall Meeting*. San Francisco, CA. December 11-15, 2023. (E-lighting Presentation)

29. Dello, K.*, Davis, C., Fisher, E., **Sebastian, A.**, Thomson, H., M. Hino, M., Brannum, S. Climate change and flooding risk in North Carolina. *Pew Trusts Western NC Resilience Symposium.* Asheville, NC. April 11-12, 2023.

30. Grimley, L.E.*, Hollinger, K., **Sebastian, A.**, Lackmann, G. Linking Tropical Cyclone Precipitation in Future Climates to Shifts in Flood Exposure. UNC EMES Perkin Elmer Student Research Symposium. Chapel Hill, NC. April 5, 2023. **Graduate Student Presentation Award (Honorable Mention)**

31. Grimley, L.E.*, Hollinger, K.E., Lackmann, G. **Sebastian, A.** Linking Tropical Cyclone Precipitation in Future Climates to Shifts in Flood Exposure. *2023 NC WRRI Meeting.* Raleigh, NC. March 22-23, 2023.

32. Hollinger, K.*, **Sebastian, A.**, Lackmann, G. Combining Atmospheric and Hydrodynamic Modeling to Quantify the Impact of Human Activity on Future Tropical Cyclone Flooding in Eastern North Carolina. *2023 AMS Annual Meeting*. Denver, CO. January 8-12, 2023.

33. **Sebastian, A.***, Hino, M., Kothegal, N., Luettich, R., Dollar, N., Gardner, A., Stoutamire, B., Frankenberg, E. Muddy Waters Integrating Engineering and Social Science to Measure Household Impacts from Hurricane Exposure on Ocracoke, North Carolina. *2022 AGU Fall Meeting*. Chicago, IL. December 9-13, 2022.

34. Quintal, H.C.*, Dello, K. **Sebastian, A.**. Flood Evolution under Anthropogenic Change: Non-uniform Flood Hazard Increases across Three Tributaries within an Eastern North Carolina City by End of Century. *2022 AGU Fall Meeting*. Chicago, IL. December 9-13, 2022.

35. Grimley, L.E.*, Leijnse, T., Ratcliffe, J., Luettich, R., **Sebastian, A.** Flooding at the Fringe: A Reduced-physics Model for Assessing Compound Flooding from Pluvial, Fluvial, and Coastal Hazards. *2022 AGU Fall Meeting*. Chicago, IL. December 9-13, 2022. **2022 Outstanding Student Presentation Award (OSPA)**

36. Garcia, H.*, **Sebastian, A.**, Thomson, H., Zeff, H.B, Characklis, G.W.. Dynamic Vulnerability: Reconstructing Historical Flood Footprints and Exposure in Eastern North Carolina. *2022 AGU Fall Meeting*. Chicago, IL. December 9-13, 2022.

37. Zeff, H.B.*, **Sebastian A.**, Garcia, H., Thomson, H., Kleinman R., Characklis, G. Cascading financial risks in the residential property market as a result of consecutive flood events. *2022 AGU Fall Meeting*. Chicago, IL. December 9-13, 2022.

38. Kazadi, A.*, Doss-Gollin, J., **Sebastian, A.**, Silva, A. Flood Prediction with Graph Neural Networks. *Tackling Climate Change with Machine Learning: NeurIPS 2022*. November 28-December 9.

39. Garcia, H.M.*, Smiley A.M.*, Grimley, L.E., **Sebastian, A.**, Hino, M., Berke, P. An interdisciplinary approach to quantifying flood mitigating ecosystems services and identifying beneficiaries in New Bern, North Carolina. *2022 North Carolina Coastal Conference*. Raleigh, NC. November 7-8, 2022.

40. Grimley, L.E.*, Leijnse, T., Ratcliffe, J., Luettich, R., **Sebastian, A.** Hindcast of compound flooding from Hurricane Florence in eastern North Carolina using SFINCS. NSF International Flood Conference on Management (NSF-ICFM8) Flood Workshop. Iowa City, IA. August 8-10, 2022.

41. Garcia, H.G.*, Grimley, L.E., Smiley, A.M., Ruiz, J., Berke, P., Hino, M., **Sebastian, A.** Integrating Ecosystem Services into Flood Resilience Planning in New Bern, NC. NSF International Flood Conference on Management (NSF-ICFM8). Iowa City, IA. August 8-10, 2022.

42. Thomson, H.*, Characklis, G.W., Zeff, H.B., **Sebastian, A.**, Kleiman, R. Financial Risks and Equitable Resilience Implications arising from Residential Flood Damages in Eastern North Carolina Communities. *2022 EWRI Congress*. Atlanta, GA. June 5-8, 2022.

43. **Sebastian, A.***, Dello, K. Mapping community exposure to extreme heat and flood hazards in the Carolinas. *2022 European Geophysical Union General Assembly*. Austria, Vienna. May 23-27, 2022.

44. Smiley, A.M.*, Grimley, L.E., Garcia, H., Ruiz, J., Berke, P., Hino, M., Piehler, M., **Sebastian, A.** Integrating Ecosystem Services into Flood Resilience Planning in New Bern, NC. *Joint Aquatic Sciences Meeting*. Grand Rapids, MI. May 14-20, 2022.

45. Dello, K.*, **Sebastian, A.** *Catawba-Wateree Water Management Group (CWWMG) Annual Summit*. Richburg, SC. March 30, 2022.

46. Quintal, H.*, Dello, K., **Sebastian, A.** Staggered Hazards: Outdated Floodplain Maps Underestimate Extreme Flooding Under Future Climate and Land Use Land Cover Change. *2022 NC WRRI Conference*. Raleigh, NC. March 23-24, 2022.

47. Zeff, H.B.*, **Sebastian, A.**, Thomson, H., Kleiman, R., Characklis, G.W. Staying afloat: How do mortgage incentives for uninsured homeowners affect systemic financial risk in a future with more extreme flooding? *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.

48. Wang, Y.V.*, **Sebastian, A.**, Kim, S.H., Piechota, T., Kafatos, M. Deep Learning for Spatial Interpolation of Rainfall Events. *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.

49. Hino, M.*, BenDor, T., Kaza, N., **Sebastian, A.**, Branham, J., Sweeney, S. One Step Forward, Two Steps Back: Managing Floodplain Development in North Carolina (Invited). *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.

50. **Sebastian, A.*** (2021). Shortfalls of Houston Flood and Insurance Coverage During Hurricane Harvey (Invited). *Propeller Club of Northern California Storms, Flooding & Sea Level Defense Conference*, San Francisco, CA. November 3, 2021. **virtual due to COVID-19*

51. Zeff, H.B.*, Thomson, H., Kleiman, R., **Sebastian, A.**, Characklis, G.W. (2021). Distribution of Real Estate-related Flood Risk. *2021 Commercial Real Estate Data Alliance (CREDA) Conference*. September 30-October 1, 2021.

52. Hino, M.*, Branham, J., BenDor, T., Kaza, N., **Sebastian, A.**, Sweeney, S. Development patterns and the production of flood risk in North Carolina. *2021 Association of Collegiate Schools of Planning (ACSP) 61st Annual Conference*. October 7-9, 2021. **virtual due to COVID-19*

53. Wang, Y.*, **Sebastian, A.** Empirical Numerical Simulation of Precipitation Events for Pluvial Flood Management. *Proceedings of ASCE Geo-Extreme 2021*, Savannah, GA, November 7-10, 2021.

54. Wang, Y.*, **Sebastian, A.** Leveraging Social Indicators to Model Community Vulnerability to Flooding for Risk Prediction. *46th Annual Natural Hazards Research and Applications Workshop: 2021 Researchers Meeting.* Boulder, CO, July 14-15, 2021. **virtual due to COVID-19*

55. Wang, Y.*, **Sebastian, A.** Typology of Hazard Event Severity Metrics for Multi-Hazard Research. *2021 European Geophysical Meeting (EGU) Annual Meeting.* April 19-30, 2021 **virtual due to COVID-19*

56. Wang, Y.*, **Sebastian, A.** Equivalent Magnitude Scale for Natural Hazard. *2020 AGU Fall Meeting*. December 1-17, 2021. **virtual due to COVID-19*

57. Hino, M.*, BenDor, T., Branham, J., Kaza, N., **Sebastian, A.**, Sweeney, S. A Parcel-Scale Analysis of Municipal Floodplain Management in North Carolina. *2020 Association of Collegiate Schools of Planning (ACSP) Annual Conference*. **virtual due to COVID-19*

58. Hino, M.*, BenDor, T., Branham, J., Kaza, N., Schwaller, N., **Sebastian, A.**, Sweeney, S. Measuring Floodplain Management Parcel-by-Parcel in North Carolina. *45th Annual Natural Hazards Research and Applications Workshop*, Broomsfield, CO. **virtual due to COVID-19*

59. BenDor, T.*, Hino, M., Branham, J., Kaza, N., Sweeney, S., **Sebastian, A.**, Salvesen, D. A parcel-scale analysis of floodplain buyouts and municipal flood risk reduction strategies in North Carolina (USA). *Association of European Schools of Planning (AESOP)*, Bristol, UK. **canceled due to COVID-19*

60. Brody, S.D.*, Highfield, W.E. **Sebastian, A**, Blessing R., Mobley, W., Atoba, K., Stearns, L. Measuring, Mapping, & Managing Flood Risk: A Pilot Program in Southeast Texas. *Resilience Rising: Research and Practice on Harvey and Hazards of the Future*, College Station, TX.

61. Maulsby, F.*, **Sebastian, A.**, Bedient, P.B. Probabilistic flood risk: quantifying uncertainty in flood hazard estimates and flood risk profiles for an urban watershed in Houston, TX. *2018 AGU Fall Meeting*. Washington, DC.

62. **Sebastian, A.***, Gori, A., Bass, B. Understanding the impacts of human and environmental change on catchment response during Hurricane Harvey (Invited). *2018 AGU Fall Meeting*, Washington, DC.

63. Blessing, R.*, **Sebastian, A.**, Highfield, W.E., Brody, S.D. Measuring, Mapping and Managing Urban Flood Risk: A Pilot Program in Southeast Texas. *2018 AGU Fall Meeting*. Washington, DC.

64. Fagnant, C.*, Gori, A., Ensor, K.B., **Sebastian, A.**, Bedient, P.B. Characterizing spatio-temporal trends in extreme precipitation across the southern Texas coast. *2018 AGU Fall Meeting*. Washington, DC.

65. **Sebastian, A.*** Modeling the Influence of Urbanization on the 1% Floodplain (Invited). *2018 SSPEED Urban Flooding & Infrastructure Conference: Moving Forward from Harvey*, Houston, Texas.

66. Mobley, W.* & **Sebastian, A.** Leveraging Machine Learning and Twitter to identify rescue needs during Hurricane Harvey. *2018 ACSP 58th Annual Conference*, Buffalo, New York.

67. Lendering, K.T., **Sebastian, A.**, Jonkman, S.N.* Standard Framework for Evaluating the Performance of Temporary Flood Barriers. *7th International Conference on Flood Management (ICFM7)*, Leeds, United Kingdom.

68. Couasnon, A.A., Paprotny, D.*, Morales-Nápoles, O., **Sebastian, A.**, Hrachowitz, M., Jonkman, S.N. Application of a Bayesian Network-based hydrologic model to the United States. *7th International Conference on Flood Management (ICFM7)*, Leeds, United Kingdom.

69. de Ruiter, M.*, Engelhardt, J., de Ruig, L., **Sebastian, A.**, de Moel, H. Temporally-Dynamic Flood Vulnerability: The influence of watershed-scale adaptation and vulnerability reduction efforts on flood losses. *7th International Conference on Flood Management (ICFM7)*, Leeds, United Kingdom.

70. **Sebastian, A.*** Flood Hazard Delineation in the United States: Why are we ignoring compound floods? (Invited). *2016 Understanding Risk Forum: Building Evidence for Risk Action*, Venice, Italy.

71. Juan, A.*, **Sebastian, A.**, Gori, A. Comparing Floodplain Evolution in Channelized and Un-channelized Urban Watersheds in Houston, TX. *2016 EWRI World Environmental & Water Resources Congress*, Sacramento, CA.

72. **Sebastian, A.***, Blessing, R.*, Brody, S.D. Flood Risk Delineation in the U.S.: How much loss are we capturing? (Invited). *2016 SSPEED Avoiding Disasters Conference: How to Reduce Impacts from the Next Big Storm*, Houston, TX.

73. Irza, J.N.*, **Sebastian, A.**, Bedient, P.B. Quantifying Storm Surge Flood Damages for Coastal Community Structures: A Geospatial Approach for the Galveston Bay, Texas Region. *2015 World Environmental and Water Resources Congress*, Austin, TX.
74. **Sebastian, A.***, Brody, S.D., Blessing, R., Bedient, P.B. Evaluating the 100 year floodplain as an indicator of flood loss. *2014 World Environmental and Water Resources Congress*, Portland, OR.
75. **Sebastian, A.***, Proft, J., Dawson, C.N., Bedient, P.B. Examining the Behavior of Storm Surge from Hurricane Ike (2008) and Other Modeled Events. *National Hydrologic Warning Council 2013 Conference & Exposition*, Ponte Verde, FL.
76. Brody, S.D., Blessing, R., **Sebastian, A.*** Predicting Land Use/Land Cover Change in Coastal Texas: Assessing Hazard Resiliency in Freeport, TX. *2013 APA Texas Chapter State Planning Conference*, Galveston, TX.
77. **Sebastian, A.***, Bedient, P.B., Proft, J., Dawson, C.N. An evaluation of the magnitude and timing of storm surge in relation to storm path along the upper Texas coast. *2012 World Environmental and Water Resources Congress*, Albuquerque, NM.
78. Blessing, R.*, Brody, S.D., **Sebastian, A.**, Bedient, P.B. Examining the Influence of Development Patterns on Flood Damages along the Gulf of Mexico. *2012 World Environmental and Water Resources Congress*, Albuquerque, NM.
79. Brody, S.D.*, Blessing, R., **Sebastian, A.**, Bedient, P.B. Identifying Flood Risk and Vulnerability: Assessment of the Clear Creek Watershed. *2012 Severe Storm Prediction, Education, and Evacuation from Disasters Center Conference: Gulf Coast Hurricanes: Mitigation and Response*, Houston, TX.
80. **Sebastian, A.***, Bedient, P.B. Galveston Bay Coastal Protection Network: A SSPEED Center Proposal. *2011 Texas Floodplain Management Association Fall Conference*, San Antonio, TX.

Poster Conference Presentations

1. Grimley, L.E.*, Hollinger Beatty, K.E., **Sebastian, A.**, Bunya, S., Lackmann, G.M. Climate Change Exacerbates Compound Flooding in the Carolinas from Three Recent Tropical Cyclones. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
2. Garcia, H.*, **Sebastian, A.**, Fitzmaurice, K., Characklis, G.W., Collins, E. Event-based Flood Exposure Mapping in North Carolina, 1996-2020. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024. **2024 Outstanding Student Presentation Award (OSPA) (Natural Hazards Section)**
3. Wang, C.*, Pavelsky, T., Anarde, K., Hino, M., **Sebastian, A.** Can Capella's Commercial SAR Effectively Capture High-tide Flooding? *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
4. Lord, A.M.,* Fitzmaurice, K., Garcia, H.*, **Sebastian, A.**, Characklis, G.W. Quantifying Flood-Related Mortgage Credit Risk Through Regression and Machine Learning. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
5. Khanal, K.*, Kaza, N., Hino, M., **Sebastian, A.** Identifying Maunfactured Home Communities in North Carolina using Computer Vision and High-Resolution Aerial Imagery for Climate Resilience Planning. *2024 AGU Fall Meeting*. Washington, DC. December 9-13, 2024.
6. Grimley, L.E.*, Hollinger Beatty, K.E., **Sebastian, A.**, Shintaro, B., and Lackmann, G. Climate Change Exacerbates Flooding from Recent Tropical Cyclones. North Carolina Coastal Conference. New Bern, NC. November 13-14, 2024.
7. Garcia, H.M.*, Fitzmaurice, K., Characklis, G.W., **Sebastian, A.** Mapping repetitive damage hotspots in North Carolina: Insights from 78 flood events (1996-2020). Coastal Conference. New Bern, NC. November 13-14, 2024
8. Hino, M.*, Plough, J., Garcia, H., **Sebastian, A**. Identifying obstacles to equitable flood mitigation funding. *2024 ACSP 64th Annual Conference*. Seattle, WA. November 7-9, 2024.
9. Khanal, K.*, Kaza, N., Hino, M., **Sebastian, A**. Manufactured Home Communities in North Carolina and Access to Water Service. *2024 ACSP 64th Annual Conference*. Seattle, WA. November 7-9, 2024.
10. Grimley, L.E., **Sebastian, A.**, Hollinger, K., Bunya, S., Lackmann, G. Global to Local: Present and Future Exposure to Flooding from Tropical Cyclones in the Carolinas. *Symposium on Hurricane Risk in a Changing Climate (SHRCC 2024)*. Honolulu, HI. June 7-12, 2024.

11. Beatty, K.H., Lackmann, G., **Sebastian, A.**, Bowden, J. Anticipating Future Tropical Cyclone Rainfall and its Influence on Transportation Infrastructure and Flooding. *Symposium on Hurricane Risk in a Changing Climate (SHRCC 2024).* Honolulu, HI. June 7-12, 2024.

12. Quintal, H., **Sebastian, A.**, Serre, M. Wet Hot American Summer: Defining Temporally Compounding Hazards using Covariance Modeling and Event Coincidence Analysis. *Natural Hazards and Risks in a Changing World 3rd International Conference*. Amsterdam, Netherlands. June 12-13, 2024.

13. Baer, J.*, Grimley, L.E., **Sebastian, A.** (2024). Validating a Hydrodynamic Inundation Model for Five Storm Events in a Coastal Urban Area. UNC EMES Research Symposium. Chapel Hill, NC. April 5, 2024.

14. Grimley, L.E.*, Hollinger Beatty, K., Bunya, S., **Sebastian, A.**, Lackmann, G. (2024). Present and Future Exposure to Compound Flooding from Tropical Cyclones in the Carolinas. UNC EMES Research Symposium. Chapel Hill, NC. April 5, 2024.

15. Wang, C.*, Pavelsky, T., Anarde, K., Hino, M., **Sebastian, A.** Can Capella Space VHR SAR Constellation Effectively Monitor High-Tide Flooding? *Chapman Conference on Remote Sensing of the Water Cycle.* Honolulu, HI. February 14, 2024.

16. Fitzmaurice, K.*, Garcia, H., **Sebastian, A.**, Thomson, H., Zeff, H.B., Characklis, G.W. Repetitive Flooding, Insurance Coverage, and Household Financial Stability in North Carolina. *2023 AGU Fall Meeting*. San Francisco, CA. December 11-15, 2023.

17. Quintal, H.C.*, Serre, M., **Sebastian, A.** Evaluating spatial overlaps in heat and flood hazards using Bayesian Maximum Entropy: the case study of Durham, NC. *2023 NC WRRI Meeting.* Raleigh, NC. March 22-23, 2023.

18. Garcia, H.*, **Sebastian, A.**, Fitzmaurice, K., Thomson, H., Zeff, H.B., Characklis, G.W. Exploring the Drivers of Household Participation in Voluntary Buyouts with an Agent-Based Model. *2023 NC WRRI Meeting.* Raleigh, NC. March 22-23, 2023.

19. Grimley, L.E.*, Filatova, T., **Sebastian, A.** Exploring the Drivers of Household Participation in Voluntary Buyouts with an Agent-Based Model. *2023 NC WRRI Meeting.* Raleigh, NC. March 22-23, 2023.

20. Dello, K., Runkle, J., Rivers, L., **Sebastian, A.**, Hino, M., O'Connell, C., Habron, G., Harrison, J., Anoruo, F., Malmin, N., Cawley, M., Gerald-Goins, T., Ward, R., Cashwell, H., Cothron, C. A Community-based Resilience Model on Climate and Health Equity in the Carolinas: the Carolinas Collaborative on Climate, Health, and Equity. *2022 AGU Fall Meeting*. Chicago, IL. December 12-16, 2022.

21. Lopez de Silva, A., Kazadi, A.*, Doss-Gollin, J., **Sebastian, A.** Flood Prediction with Graph Neural Networks. Neural Information Processing Systems (NeurIPS) 2022 Workshop: Tackling Climate Change with Machine Learning. Virtual. December 9, 2022.

22. Ruiz, J.*, Garcia, H., Grimley, L.E., Smiley, A. Flood Resilience Planning, Exposure, and Outcomes in New Bern, NC. North Carolina Coastal Conference. Raleigh, NC. November 7-8, 2022.

23. Grimley, L.E.*, **Sebastian, A.**, Filatova, T. Exploring the Physical and Social Dimensions of Flooding: A Case Study of Household and Community Adaptation in Eastern North Carolina. 4TU DeSIRE Conference 2022: Facets of Resilience Engineering. Delft, Netherlands. November 3-4, 2022. **Student Poster Winner: Best Solution**

24. Wagenblast, T.*, Filatova, T., Noll, B., Grimley, L.E., **Sebastian, A.** Influence of Social Networks in Private Climate Adaptation. *2022 Social Simulation Conference*. Milan, Italy. September 12-16, 2022.

25. Grimley, L.E.*, **Sebastian, A.** Exploring the effects of climate change on compound flooding in NC estuarine communities. *2022 NC WRRI Conference*. Raleigh, NC. March 23-24, 2022. **Student Poster Competition: Honorable Mention**

26. Grimley, L.E.*, **Sebastian, A.** Quantifying the relative contribution of flood mechanisms that drive historical insured losses in eastern North Carolina. *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.

27. Quintal, H.*, **Sebastian, A.** Risky Business: How Humans Will Shape Floodplain Landscapes Over the 21st Century. *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.

28. Frankenberg, E., *et al*. The Dynamics of Extreme Events, People and Placesa Convergent Approach to Understanding Flooding Exposures and Impacts. *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.

29. Grimley, L.E.*, **Sebastian, A.** Flood hazards at the river-coastal interface of Carolina watersheds. *Carolinas Climate Resilience Conference*. Durham, NC. **Student Poster Competition: Runner Up**

30. Brannum, S.*, **Sebastian, A.** Characterizing Trends in Design Floods along Major Rivers in the Southeastern USA. *2020 AGU Fall Meeting*. *virtual due to COVID-19

31. Fagnant, C.*, Gori, A., Ensor, K.B., **Sebastian, A.**, Bedient, P.B. Characterizing spatio-temporal trends in extreme precipitation in Southeast Texas. *2020 Women in Statistics and Data Science*. Pittsburgh, PA.

32. **Sebastian, A.***, Mobley, W., Highfield, W.E., Brody, S.D. Leveraging Machine Learning and Twitter, to identify rescue needs during Hurricane Harvey. *2019 AGU Fall Meeting*. San Francisco, CA. doi: 10.1002/essoar.10501349.1.

33. Mobley, W., **Sebastian, A.***, Blessing, R., Juan, A., Highfield, W.E. Random Forest Classification for Flood Hazard Mapping at Large Spatial Scales. *2019 AGU Fall Meeting*. San Francisco, CA.

34. Garner, M.*, **Sebastian, A.**, Hakkenberg, C., Juan, A., Gori, A., Bedient, P.B. Integrating annual Landsat imagery in a hydrologic impact analysis of localized land use change for a rapidly developing watershed in Houston, TX. *2019 AGU Fall Meeting*. San Francisco, CA.

35. Zeff, H.B.*, Characklis, G.W., **Sebastian, A.** Real estate debt and flood risk: who is financially exposed? *2019 AGU Fall Meeting*. San Francisco, CA.

36. Juan, A.*, Pranavesh, P., **Sebastian, A.**, Padgett, J.E, Bedient, P.B. Coupling Probabilistic Flood Inundation and Road Network Accessibility Modeling to Assess Flood Risk and Cascading Impacts from Severe Storms in Houston, TX. *2019 AGU Fall Meeting*. San Francisco, CA.

37. Zeff, H.B.*, Characklis, G.W., **Sebastian, A.**, Chiu, W.A., Kaihatu, J.M. The joint impacts of flooding and contaminated sediment deposition on private property owners in the wake of a storm surge event. *National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) 2019 Annual Meeting*. Seattle, WA.

38. Fagnant, C.*, Gori, A., Ensor, K.B., **Sebastian, A.**, Bedient, P.B. Characterizing spatiotemporal trends in extreme precipitation across the southern Texas coast. *Rice Oil & Gas High Performance Computing Conference*. Houston, TX.

39. Do, C.*, Juan, A., **Sebastian, A.**, Bedient, P.B. Characterization of compound flooding in a highly urbanized coastal watershed during Hurricane Harvey. *2018 AGU Fall Meeting*. Washington, DC.

40. de Ruiter, M.*, **Sebastian, A.**, Gori, A., Englehardt, J., de Moel, H. Assessing temporally-dynamic flood vulnerability using empirical building-type depth-damage curves A case study of Houston. *2018 EGU Meeting*, Vienna, Austria.

41. **Sebastian, A.***, Juan, A., Gori, A., Maulsby, F., Bedient, P.B. Quantification of Interbasin Transfers into the Addicks Reservoir during Hurricane Harvey. *2017 AGU Fall Meeting*, New Orleans, LA.

42. Van Oldenborgh, G.J., Van der Wiel, K., **Sebastian, A.**, Singh, R., Arrighi, J., Otto, F., Haustein, K., Li, S., Vecchi, G., & Cullen, H. Attribution of the extreme rainfall from Hurricane Harvey, August 2017. *2017 AGU Fall Meeting*, New Orleans, LA.

43. Couasnon, A.A.*, **Sebastian, A**, Morales-Nápoles, O. Modeling Stochastic Boundary Conditions in a Coastal Catchment using a Bayesian Network: An Application to the Houston Ship Channel, Texas. *2017 EGU Meeting*, Vienna, Austria.

44. **Sebastian, A.***, Juan, A., Brody, S.D., Bedient, P.B. Quantifying the Influence of Urbanization on a Coastal Floodplain. *2016 AGU Fall Meeting*, San Francisco, CA.

45. Irza, J.N.*, **Sebastian, A.**, Bedient, P.B. Quantification of Uncertainty for Residential Flood Damage Estimates. *2016 SSPEED Avoiding Disasters Conference: How to Reduce Impacts from the Next Big Storm*, Houston, TX.

46. **Sebastian, A.***, Dupuits, E.J.C., Morales-Nápoles, O., Jonkman, S.N. Assessing Flood Risk from Hurricane-induced Precipitation and Storm Surge: A Bayesian Network Approach. *2015 AGU Fall Meeting*, San Francisco, CA.

47. Bass, B.*, Torres, J.M., Irza, J.N., Proft, J., **Sebastian, A.**, Dawson, C.N., Bedient, P.B. Guiding Surge Reduction Strategies via Characterization of Coastal Surge Propagation and Internal Surge Generation within a Complex Bay/Estuary System, Galveston Bay, TX. *2015 AGU Fall Meeting*, San Francisco, CA.

48. **Sebastian, A.***, Dupuits, E.J.C., Morales-Nápoles, O., Jonkman, S.N. Statistical Analysis and Characterization of Tropical Cyclones and Surge Levels for the Houston-Galveston Region. *ASCE Coastal Structures and Solutions to Coastal Disasters Joint Conference 2015*, Boston, MA.
49. **Sebastian, A.***, Brody, S.D., Bedient, P.B. Evaluating the 100 year floodplain as an indicator of flood risk in low-lying coastal watersheds. *2013 AGU Fall Meeting*, San Francisco, CA.
50. **Sebastian, A.***, Bedient, P.B. Using NEXRAD Radar Rainfall to Calibrate a Development Impact Model in a Coastal Watershed. *2012 AGU Fall Meeting*, San Francisco, CA.
51. **Sebastian, A.***, Doubleday, G., Bedient, P.B. Distributed Hydrologic Modeling of LID in The Woodlands, Texas. *2012 AGU Fall Meeting*, San Francisco, CA.

Keynotes or Expert Panels

1. U.S. Congressional Conference on Human Adaptation Strategies for Waterway Challenges in Eastern North Carolina (2021). *Recent trends in hydrological extremes across the Southeastern U.S.* Greenville, NC. October 13, 2021.
2. FEMA National Advisory Council (NACo) Meeting (2019). *Improving Risk Visualization and Communication: A Pilot Program in Southeast Texas*. College Station, Texas. May 7-9, 2019.
3. The National Academies of Sciences, Engineering and Medicine (NASEM) ResilientAmerica Roundtable (2019). *Measuring, Mapping, and Managing Urban Flood Risk in Southeast Texas*. Washington, D.C. February 12-13, 2019.
4. Rijkswaterstaat, Ministerie van Infrastructuur en Waterstaat (2018). *Place-Based Research & Design: Collaboration between Universities in Texas and The Netherlands*. Houston, Texas. January 26, 2018.

Other Invited Lectures or Research Presentations (not listed above)

1. Panel: Symposium on Compound Flooding: Resilient Strategies for Interconnected Risks (2025) .University of Massachusetts Amherst, Virtual. April 25, 2025.
2. Poster: North Carolina Sea Grant Federal Site Review (2025). Climate Change Exacerbates Flooding from Recent Tropical Cyclones. Raleigh, NC. January 28, 2025. **presented by L. Grimley*
3. Speaker: North Carolina Sea Grant Advisory Committee Meeting (2024). *Moving Beyond the Design Storm: Probabilistic Flood Hazard Mapping Using Modified Stochastic Storm Transposition*. Raleigh, NC. Virtual. December 5, 2024. **presented by J. Baer*
4. Speaker: City of Durham Environmental Affairs Board (EAB) (2024). *Climate Risk Assessment in the Carolinas*. Durham, NC. Virtual. September 4, 2024.
5. Panel: University Research Week Lunch & Learn (2023). *Flooding and Our Future*. University of North Carolina at Chapel Hill, Virtual. October 23, 2023.
6. Webinar: Center for Land-Surface Hazards (CLaSH) Land Surface Hazards Modeling Expo (2023). Modeling tropical cyclone induced flooding using ADCIRC+SFINCS. May 1-2, 2023. **presented by L. Grimley*
7. Seminar: Department of Marine, Earth, and Atmospheric Sciences (2023). *Delineating Flood Risk in the Coastal Zone: Leveraging Numerical Models and Administrative Data to Understand Evolving Hazards, Exposure and Vulnerability*. North Carolina State University, Raleigh, NC. February 6, 2023.
8. Webinar: NC Water Resources Research Institute (WRRI) Advisory Committee Meeting (2022). *Flooding in Estuarine Communities under Current and Future Climate Conditions*. December 14, 2022. **presented by L. Grimley*
9. Presentation: Deltares Software Days (2022). *Assessing Compound Flooding from Tropical Cyclones in Texas and the Carolinas*. Software Release. Delft, NL. November 16, 2022. **presented by L. Grimley*
10. Seminar: City of Raleigh Stormwater Employee Committee (2022). *Constraining Future Hydrologic Extremes, Flood Hazards, and Exposure under a High-Emissions Scenario in the Neuse River Watershed*. Science Seminar Series. June 3, 2022. **presented by H. Quintal*
11. Webinar: Knowledge Action Network on Emergent Risks and Extreme Events (Risk-KAN) (2022). *Attributing Flood Hazards to Human and Environmental Change: Insights from Hurricane Harvey and Southeast Texas*. Compound Events Webinar Series. April 5, 2022.

12. Seminar: North Carolina State University's Center for Geospatial Analysis (2022). *Attributing Flood Hazards to Anthropogenic Change: Insights from Hurricane Harvey and Southeast Texas*. North Carolina State University, Raleigh, NC. February 10, 2022. **virtual due to COVID-19*

13. Guest Lecture: Harvard Graduate School of Design (2022). *A history of flood risk management in the Houston-Galveston Region: Establishing Current and Future Risks.* Harvard University, Boston, MA. February 4, 2022. **virtual due to COVID-19*

14. Seminar: Department of Geography, Geology, and the Environment (2021). *Disentangling the Drivers of Decadal Trends in Flood Hazards in Southeast Texas*. Illinois State University, Normal, IL. October 29, 2021. **virtual due to COVID-19*

15. Panelist: Leadership in Professional Research HON 296 (2021). NC State University, Raleigh, NC. September 29, 2021.

16. Panelist: College of Arts and Sciences New Faculty Orientation (2021). University of North Carolina at Chapel Hill, Chapel Hill, NC. August 16, 2021.

17. Guest Lecture: UNC Institute for the Environment (2021). *Understanding changes in watershed hydrology and their influences on flood hazards*. University of North Carolina at Chapel Hill, Chapel Hill, NC. August 10, 2021.

18. Seminar: Department of Marine Sciences (2021). *Delineating Flood Risk in Complex Coastal Systems*. University of North Carolina at Chapel Hill, Chapel Hill, NC. April 14, 2021. **virtual due to COVID-19*

19. Disciplines-101 Collaboratory for Coastal Adaptation Over Space and Time (C-COAST) (2021). *Predicting Water Levels along the North Carolina Coast and Compound Flood Hazards*. University of North Carolina at Chapel Hill, Chapel Hill, NC. March 25, 2021.

20. Guest Lecture: Infrastructure and Environment Design AR 086 (2020). *A History of Flood Risk and Management of the U.S. Gulf Coast*. Delft University of Technology, Delft, the Netherlands. March 28, 2020. **virtual due to COVID-19*

21. Seminar: Department of Environmental Science and Engineering (2020). *Delineating Flood Risk under Evolving Coastal Hazards*. University of North Carolina at Chapel Hill, Chapel Hill, NC. March 27, 2020. **postponed due to COVID-19*

22. Guest Lecture: Coastal Resiliency & Sustainability (PLAN 641) (2019). *Accommodation: Resilience Strategies for Flood Mitigation*. Texas A&M University, College Station, Texas. April 15, 2019.

23. Seminar: Department of Marine Sciences/Marine Biology (2019). *Delineating Flood Risk under Evolving Coastal Hazards*. Texas A&M University at Galveston, Galveston, Texas. April 4, 2019.

24. Seminar: Environment, Ecology, and Energy Program (E3P) (2019). *Delineating Flood Risk under Evolving Coastal Hazards*. University of North Carolina at Chapel Hill, Chapel Hill, North Carolina. April 2, 2019.

25. Guest Lecture (2019). *The State of Texas: One Year after Hurricane Harvey*. Deltares, Delft, The Netherlands. January 30, 2019.

26. Seminar: Institute for Environmental Studies (2019). *Flood Mitigation Decision-making under Non-stationary Boundary Conditions*. Vrije Universiteit Amsterdam, The Netherlands. January 29, 2019.

27. Seminar: Department of Civil & Environmental Engineering (2018). *Delineating Flood Risk under Evolving Coastal Hazards.* Rice University, Houston, Texas. March 21, 2018.

28. Guest Lecture: Architecture Core Design Studio (ARCH 504) (2018). *Flood Risk Mitigation in the City of Houston.* Rice University, Houston, Texas. February 16, 2018.

29. Guest Lecture: Delft Infrastructure and Mobility Initiative (DIMI) - Integrated Design in Deltas Symposium: Houston after Hurricane Harvey (2017). *Flood Management in the Greater Houston Region*. Delft University of Technology, Delft, the Netherlands, October 20, 2017.

30. Research Presentation: CEE Rising Stars Workshop (2017). *Comparing Floodplain Evolution Under Varying Flood Risk Management Strategies*. Massachusetts Institute of Technology (MIT), Boston, Massachusetts, October 12-13, 2017.

31. Guest Lecture: Introduction to Water and Climate (CT3367) (2017). *Hydraulic Design in the Houston-Galveston Region, Texas.* Delft University of Technology, the Netherlands. September 12, 2017.
32. Research Presentation: 2nd Semi-Annual Meeting of Dutch Researchers Exploring Compound Events (Workshop) (2017). *Applying Bayesian Networks to Model Hurricane Boundary Conditions for the U.S. Gulf Coast.* Amsterdam, the Netherlands. September 1, 2017.
33. Guest Lecture: Probabilistic Design II (CIE 5310) (2017). *Using Continuous Bayesian Networks to Model Hurricane Boundary Conditions in the Houston-Galveston Region, Texas.* Delft University of Technology, the Netherlands. June 9, 2017.
34. Research Presentation: Addressing the Challenge of Compound Events (Workshop) (2017). *On the influence of Urbanization on Compound Flooding in Coastal Watersheds.* ETH Zurich, Switzerland. April 21, 2017.
35. Guest Lecture: ASCE/COPRI Louisiana State University Student Chapter (2016). *Flood Risk and Mitigation in the Houston-Galveston Region: Lessons Learned in the Netherlands.* Baton Rouge, LA. April 11, 2016.
36. Seminar: Department of Hydraulic Engineering (2015). *Assessing Flood Risk & Loss in Southeast Texas.* Delft University of Technology, Delft, The Netherlands. June 9, 2015.
37. Research Presentation: TU Delft and Texas A&M Colloquium (2014). *Low Impact Development: Applications in Heavy Rainfall Regions.* Delft University o f Technology, Delft, The Netherlands. February 16, 2014.
38. Research Presentation: TU Delft and Texas A&M Colloquium (2013). *Flooding and floodplain management in Houston, TX: A gradual paradigm shift.* Texas A&M University at Galveston, Galveston, Texas. July 22, 2013.

TEACHING & MENTORSHIP

Courses Taught as Instructor of Record at UNC

Natural Disasters: Hollywood versus Reality (EMES 105)	F25 (*TBD; enrollment cap 95*)
Sustainable Triangle Field Site Capstone (ENEC 698)	S23 (7), S24 (11), S25 (9)
Environmental Seminar (ENEC 204)	S23 (6), S24 (11), S25 (9)
Environmental Internship (ENEC 393)	S25 (4)
Special Topics "Rivers and Floods" (GEOL 590)	S21 (8)
Groundwater Hydrology (GEOL 435)	F20 (6), F21 (7), F22 (8), F24 (6)

Courses Taught as Instructor of Record at Previous Institutions

Water & Society, Freshman Writing Intensive Seminar (FWIS 188), Rice University	S14 (12)

Current Postdoctoral Researchers & Research Staff

Rose Houck (Research Technician, UNC)	2025-present
Lauren Grimley (Postdoctoral Researcher, UNC)	2025-present
Marissa Webber (Postdoctoral Researcher, UNC)	2024-present

Current Graduate Students (Primary Advisor and Committee Chair) (university, track)

Abigail Thomas (UNC, PhD Earth, Marine and Enviromental Science)	*matriculates Fall 2025*
Hunter Quintal (UNC, PhD Earth, Marine and Environmental Science)	2022-present

Current Graduate Students (Co-Advised) (university, track)

Helena M. Garcia (UNC, PhD Ecology) **co-advised w/ M. Hino*	2021-present

Current Undergraduate Student Researchers (university, track) **denotes honors thesis supervisor*

Hannah Weas (UNC, Independent Research)	Spring 2025-present

Previous Postdoctoral Researchers Mentored (current position, affiliation)

Julian Plough (TBD) **co-advised w/ M. Hino*	2024-2025
Yi Victor Wang (Assistant Professor, Massachusetts Maritime Academy)	2020-2021

Previous Graduate Students (Primary Advisor and Committee Chair) (university, track)

John Baer (UNC, MS in Earth, Marine and Environmental Sciences) 2023-2025
Thesis: Design Storms Underestimate Flood Hazard and Risk Derived from Stochastic Storm Transposition

Lauren E. Grimley (UNC, PhD in Geological Sciences) 2020-2025
Dissertation: Characterizing the Role of Compound Processes on Tropical Cyclone Flood Hazards; *Awards:* 2025 UNC Impact Award, 2025 Charles Morrow Marine Sciences Award (EMES)

Hunter Quintal (UNC, MS in Geological Sciences) 2020-2022
Thesis: Modeling Future Hydrologic Extremes, Flood Hazards, and Exposure under a High-Emissions Scenario in the Neuse River Watershed

Previous Undergraduate Honors Students (university, track)

Valeria Orozco Saldarriaga (UNC, BS Geological Sciences, Honors) Fall 2024-Spring 2025
Thesis: Floods of Asheville: Comparative Analysis of Hurricane Helene, the Great Flood of 1916 and Others; *Awards:* Outstanding Oral Poster Presentation at the EMES Student Research Symposium (Honorable Mention)

Sara Boburka (UNC, BS Environmental Sciences, Honors) Fall 2024-Spring 2025
Thesis: Bias Correction of Modeled Water Surface Elevations and Improvements in Predicted Building Exposure in the Eastern Carolinas

Connor Bassett (UNC, BS Earth, Marine and Environmental Sciences, Honors) Fall 2023-Spring 2024
Thesis: Modeling the Impact of Green Infrastructure in the Carolina North Satellite Campus on Flooding in Chapel Hill's Little Creek Watershed; *Awards:* Outstanding Oral Presentation at the EMES Student Research Symposium

Sarah Brannum (UNC, BS Geological Sciences, Honors) Fall 2020-Spring 2021
Thesis: Characterizing Multi-Decadal Trends in Streamflow and Design Floods in the Southeastern United States

Previous Undergraduate Students Advised (since 2020) (university, track) **denotes honors students*

Rose Houck (UNC, Data Science Practicum)	Spring 2025
Sara Boburka* (UNC, Data Science Practicum)	Spring 2024
Jillian Evans-Strong (UNC, Independent Research)	Spring 2024-Spring 2025
Claudia Sandoval (UNC, Independent Research)	Spring 2024
Kevin Gomez (UNC, Independent Research)	Fall 2022-Spring 2023
Anna Keener (UNC, Independent Research)	Fall 2022
Owen Ryerson (UNC, Independent Research)	Spring 2022
Sarah Brannum* (UNC, BS Honors Thesis)	Spring 2020
Hayden Brinke (UNC, Independent Research)	Fall 2020
Daphne Dominique Charlot (UNC, IDEA Program)	Summer 2020

Graduate Student Committee Member (university, degree program) **denotes daily/primary supervisor*

Ruitian Yan (UNC, PhD Ecology (E3P))	2025-present
Kieran Fitzmaurice (UNC, PhD ESE)	2024-present
Kaitlin Karaffa (North Carolina State University, PhD MEAS)	2024-present
Linda Jennifer Waters (University of Maryland, PhD CEE)	2024-2025
Kica Solomon (UNC, PhD EMES)	2023-present
Austin Mccarthy Lord (UNC, MS ESE)	2023-2025
Isabela M. Arauz (UNC, MS EMES)	2023-2025
Jose Daniel Valez Castro (UNC, PhD EMES)	2023-present
Marissa Dudek (UNC, PhD EMES)	2022-present
Katherine Hollinger Beatty (North Carolina State University, PhD MEAS)	2022-2025
Julianne Davis (UNC, PhD EMES)	2021-2025
Kaitlin Karaffa (North Carolina State University, MS MEAS)	2022-2024
John David Ratcliff (UNC, PhD Marine Science)	2022-2024
Kieran Fitzmaurice (UNC, MS ESE)	2022-2024
Anne Margaret Smiley (UNC, PhD Marine Science)	2022-2024
Ted Langhorst (UNC, PhD Geological Sciences)	2020-2023
Wayana Dolan (UNC, PhD Geological Sciences)	2020-2023
Dirk Eilander (VU Amsterdam, PhD SocioEconomic and Natural Sciences of the Environment (SENSE))	2022

Sarah L. Bates (UNC, MSPH ESE)	2021-2022
John Malito (UNC, MSc Marine Science)	2020-2021
Hope Thomson (UNC, MSPH ESE)	2020-2021
Morgan Garner (Rice, MSc CEE)	2019-2020
Daan Bader (TU Delft, MSc CE)	2018-2019
Ferne Maulsby* (Rice, MSc CEE)	2018-2019
Pablo Sanchez Gomez* (TU Delft, MSc CE)	2018-2019
Luisa Torres Dueñas* (TU Delft, MSc CE)	2018
Feihong Liu* (TU Delft, MSc CE)	2017
Anaïs Couasnon* (TU Delft, MSc CE (Cum Laude))	2016-2017
Martijn Schlepers (TU Delft, MSc CE)	2014-2015

Interdisciplinary Student Research Teams Mentored/Advised

Delft University of Technology Multidisciplinary Masters Project — Spring/Summer 2017
Project Title: Addicks and Barker Dams: An optimization to minimize damage due to flooding; *Team Members*: **Anneroos Brussee; Laura van der Doef; Lise Jansen; Natasja Oostrum**

Center for Civic Leadership Houston Area Research Team — Fall 2015/Spring 2016
Project Title: Houston Public Library Customer Choice Model; *Team Members*: **Shaan Patel** (Senior, Architecture); **Tiffany Tang** (Sophomore, Statistics); **Madeline Tibaldi** (Senior, Policy Studies); **Melanie Zook** (Senior, Policy Studies); *Project Honors*: School of Social Sciences Prize (1st) at the Rice Undergraduate Research Symposium

Center for Civic Leadership Houston Area Research Team — Summer/Fall 2014
Project Title: Secondary Collision Modeling for City of Houston Freeways; *Team Members*: **Jan Dudek** (Sophomore, Math & Economics); **Jacob Jaffe** (Sophomore, Political Science & Computer Science); **Carolina Osuna** (Senior, Environmental Science); **Madhuri Venkateswar** (Sophomore, Chemical Engineering & Policy Studies); *Project Honors*: School of Social Sciences Top Project Award (1st), Center for Civic Leadership Prize (1st), Shell Center for Sustainability: Sustainable Development Award (3rd) at the Rice Undergraduate Research Symposium

Center for Civic Leadership Houston Area Research Team — Spring 2014
Project Title: Houston Public Library Master Plan; *Team Members*: **Kristin Foringer** (Sophomore, Policy Studies & Hispanic Studies); **Shaan Patel** (Junior, Architecture); **Nicholas Petersen** (Junior, Statistics); **Kara van Schilfgaarde** (Sophomore, History); **Melanie Zook** (Sophomore, Policy Studies & Sociology); *Project Honors*: Baker Institute for Public Policy Prize (1st), Center for Civic Leadership Prize (1st) at the Rice Undergraduate Research Symposium

GRANTS & FELLOWSHIPS

Awarded ($5.0 million in funding awarded to UNC; $3.9 million direct to UNC; $1.2 million direct to Sebastian Lab)

1. North Carolina Policy Collaboratory. *Automated Recovery Monitoring Post Helene (Phase I)* (01/01/2025-6/30/2027; $51,928). **$51,928 (direct) to UNC. Lead PI with A. Mostafavi as co-PI. Effort: 8.33%**.
2. FEMA Contract Number: 70RSAT21G00000013. *Advancing the science of extreme storms for hydrological and hydraulic modeling* (10/01/2024-12/31/2025; $500,000 (UNC)); with R. Luettich (PI) and D.B. Wright (UW-Madison). **$424,590 (direct) to UNC. co-PI with R. Luettich as PI. Effort: 8.33%**
3. NSF Award No. 2435089. *CHIRRP RCN: Catalyzing Flood Justice in the USA* (01/2025-06/2029; $20,000 (UNC) of $500,000); with A. Flores (PI) and E. Tellman, E. Tate, M. Hendricks (co-Is). **$12,862 (direct) to UNC. co-PI with A. Flores (Arizona State) as PI. Effort: 1.5%** (this award was terminated in April 2025)
4. NSF Award No. 2431625. *Conference: Compounding and Cascading Climate Risks to US Frontline Communities; Portland, Oregon; Spring 2025* (01/01/2025-12/31/2025; $85,377); with D. Singh (PI) and C. Raymond (co-PI). **$0 (direct) to UNC. Senior Personnel with D. Singh (Washington State University) as PI. Effort: 0%**
5. North Carolina Policy Collaboratory. *Improving Community Resilience to Extreme Events: Strategies for reducing mortgage default and home abandonment after flooding in eastern North Carolina* (07/01/2024-06/30/2026; $500,000); with G. Characklis (PI). **$500,000 (direct) to UNC. Co-PI with G. Characklis as Lead PI. Effort: 8.33%**.
6. Texas General Land Office. *Developing Effective Flood Risk Communication Tools for Texas Communities* (09/01/2023-08/31/2025; $303,343 (UNC) of $3,000,000); with R. Blessing (PI) and K. Stephens (co-I). **$227,816 (direct) to UNC. UNC PI with R. Blessing (Texas A&M at Galveston) as Lead PI. Effort: 8.33%**

7. UNC School of Data Science and Society (SDSS) Seed Grant. *Finding Unconventional Housing in Risky Places* (07/01/2023-06/30/2024; $49,911 (UNC)); with N. Kaza (PI) and M. Hino (co-PI). **$49,911 (direct) to UNC. Co-PI with N. Kaza (UNC) as Lead PI. Effort: 0.13%**

8. DHS Coastal Resilience Center. *Identifying obstacles to equitable flood mitigation funding* (07/01/2023-06/30/2025; $307,309 (UNC)); with M. Hino (PI). **$202,177 (direct) to UNC. Co-PI with M. Hino (UNC) as Lead PI. Effort: 4.17%** (the DHS Centers of Excellence were terminated in April 2025)

9. NASA-ROSES-2022 (NNH22ZDA001N-CNVOE). *Evaluation of Capella SAR Data for mapping high-tide flooding inundation extent* (02/01/2023-01/31/2024; $99,307 (UNC)); with T. Pavelsky (PI) and M. Hino, C. Wang (co-Is). **$63,863 (direct) to UNC. Co-PI with T. Pavelsky (UNC) as Lead PI. Effort: 4.17%**

10. North Carolina Office of Emergency Management. *Understanding North Carolina's Flood Risk in a Changing Climate* (01/01/2023-12/31/2026; $162,000 (UNC) of $700,000); with K. Dello (PI) and J. Bowden (co-I). **$162,000 (direct) to UNC. UNC PI with K. Dello (NC State) as Lead PI. Effort: 8.33%**

11. Texas OneGulf Center of Excellence. *Flood Risk and Vulnerability: Evaluation of the Fiscal, and Social Implications of Property Acquisition and Buyouts in Flood-prone Communities* (01/25/2023-02/14/2024; $45,000 (UNC) of $150,000); with M. Davlasheridze (PI) and K. Atoba, Q. Miao (co-Is). **$29,247 (direct) to UNC. UNC PI with M. Davlasheridze (Texas A&M at Galveston) as Lead PI. Effort: 8.16%**

12. Looking Forward: NC A&T and UNC-CH Collaborative Research. *Improving Prediction of Flooding Associated with Tropical Cyclones in Eastern North Carolina* (09/01/2022-08/31/2024; $76,362 (UNC) of $200,000); with L. Liu, R. Luettich (PIs), and H. Li, Y. Lin (co-Is). **$76,362 (direct) to UNC. Co-PI with R. Luettich (UNC) as PI. Effort: 0.00%**

13. NOAA-OAR-CPO-2021-2006677 Regional Integrated Sciences and Assessments (RISA) Program. *Innovating a Community-based Resilience Model on Climate and Health Equity in the Carolinas* (2021-2026; $1,206,318 (UNC) of $5.4 million); with K. Dello, J. Runkle, L. Rivers (PIs), and M. Hino, K. Stevenson, Hoffman, J. Harrison (co-Is). **$812,296 (direct) to UNC. UNC PI with K. Dello (NC State) as Lead PI. Effort: 8.33%** (this award was terminated in May 2025)

14. UNC Committee on Faculty Research and Scholarly Leaves. *Investigation of the Coupled Human-Natural System Dynamics Driving the Evolution of Household Flood Risk in the Neuse River Watershed, North Carolina* (01/01/2021-12/31/2021; $10,000). Junior Faculty Development Award. **$10,000 (direct) to UNC. Sole PI. Effort: 6.25%**

15. NSF CMMI. *Growing Convergence Research: Climate Resilience in the Coastal Zone* (10/01/2020-09/30/2025; $1,149,999 (UNC)); with E. Frankenberg (PI) and R. Luettich, M. Piehler (Co-PIs). Award No. 2021086. **$765,495 (direct) to UNC. Researcher with E. Frankenberg (UNC) as PI. Effort: 2.75%**

16. North Carolina Policy Collaboratory. *Strengthening Flood Resilience in Eastern North Carolina* (10/01/2019-06/01/2021; $99,049). Session Law 2019-224. **$99,049 (direct) to UNC. Sole PI. Effort: 8.33%**

17. North Carolina Policy Collaboratory. *Innovating floodplain buyouts: evaluating the buyout process and physical risk reduction through buyout targeting* (10/01/2019-06/01/2021; $424,878); with T. BenDor (PI) and M. Hino, D. Salvesen, N. Kaza. Session Law 2019-224. **$424,878 (direct) to UNC. co-PI with T. BenDor (UNC) as PI. Effort: 8.33%**

18. NSF HDBE. *Enabling the Next Generation of Hazards Researchers* (05/30/2019-08/26/2021; $669,646); T. Cova (PI) and T. Norton, S. Grineski, T. Collins (Co-PIs). Award No. 1921157. **$0 to UNC. Program Participant with T. Cova (Utah) as PI.**

19. Texas General Land Office. *Measuring, Mapping, and Managing Flood Risk in Texas* (02/18/19-04/30/21; $2,000,000); with S.D. Brody (PI) and W.E. Highfield (co-I). Contract No. 19-181-000-B574. **$0 to UNC. co-PI with S. Brody (Texas A&M at Galveston) as PI.**

20. NSF PIRE. *Coastal Flood Risk Reduction Program: Integrated, multi-scale approaches for understanding how to reduce vulnerability to damaging events* (10/1/2015-09/30/2020; $3,598,501); with S.D. Brody (PI) and J. Figlus, W. Merrell, W. Highfield, M. Davlasheridze (Co-PIs). Award No. 1545837. **$0 to UNC. Researcher with S. Brody (Texas A&M at Galveston) as PI.**

21. Netherlands America Foundation (NAF)/Fulbright Fellowship in Flood Management. *Quantifying Flood Risk and Influencing Coastal Defense Planning* (09/01/14-05/31/15; $10,800). **$0 to UNC. Sole PI.**

Pending

1. North Carolina Policy Collaboratory. *Automated Recovery Monitoring Post Helene (Phase II)* (07/01/2025-6/30/2027; $600,000); with G. Characklis (co-PI). **$600,000 (direct) to UNC. Lead PI with A. Mostafavi and G. Characklis as co-PIs. Effort: 8.33%**.
2. NOAA WPO. *Developing Enhanced and Extended-Lead-Time GEFS-Based Machine-Learning Guidance* (08/2025-07/2028; $241,680 (UNC) of $893,738); with A. Hill (PI) and R. Schumacher (co-PI). **$153,685 (direct) to UNC. UNC PI with A. Hill (University of Oklahoma) as Lead PI. Effort: 2.08%**. *Recommended for funding 05/2025.*

Student Awards, Grants & Fellowships (as Lead Faculty Advisor)

1. NC Sea Grant and WRRI Mountains to Sea Graduate Fellowship. *What are the odds? Probabilistic Flood Hazard Assessment for New Bern, North Carolina* (03/01/2024-02/28/2025; $10,000). Student Advisee: John Baer. **$0 to UNC. Lead Faculty Advisor. Effort: 0.0%**
2. AGU Robert E. Horton Research Grant. *Parsing the drivers of nuisance and extreme flooding along coastal watersheds.* (2023-2024; $9,560). Student Advisee: Lauren Grimley. **$0 to UNC. Lead Faculty Advisor. Effort: 0.0%**
3. CUAHSI Pathfinder Fellowship. (2021; $5,000). Student Advisee: Lauren Grimley. **$0 to UNC. Faculty Advisor. Effort: 0.0%**
4. 4TU.DeSIRE Resilience Fellowship Young Fellows Program. (2021;) Student Advisee: Lauren Grimley. **$0 to UNC. Faculty Advisor. Effort: 0.0%**
5. NC WRRI and NC Sea Grant Graduate Student Research Funding. *Determining the impacts of nuisance flooding in a river-coastal community under future climate conditions* (03/01/2022-08/28/2023; $10,000). Student Advisee: Lauren Grimley. **$0 to UNC. Lead Faculty Advisor. Effort: 0.0%**
6. NC Sea Grant Coastal Resilience Team Competition. *Incorporating Ecosystem Services into Flood Resilience Planning in New Bern, North Carolina* (01/01/2022-12/31/2023; $20,000). Student Advisees: Anne Margaret Smiley (PhD), Lauren Grimley (PhD), Helena Garcia (PhD), Jacqueline Ruiz (BA). **$0 to UNC. Lead Faculty Advisor. Effort: 0.0%**
7. NC WRRI and USGS 104(b) Student Program. *Understanding the Flood Mitigation Benefits of Buyouts: A Hydrologic Assessment of Property Acquisition in North Carolina Watersheds* (03/01/2021-02/28/2022; $10,000). Student Advisee: Hunter Quintal (MS). **$10,000 (direct). Lead PI/Faculty Advisor. Effort: 0.0%**
8. UNC Geological Sciences Charlie & Elaine Mims Undergraduate Research Fellowship. (01/01/2021-05/31/2021; $700). Student Advisee: Sarah Brannum (BS). **$700 (direct). Lead Faculty Advisor. Effort: 0.0%**
9. UNC Weiss Urban Livability Fellowship. (08/01/2020-05/31/2021; $4,000). Student Advisee: Lauren Grimley (PhD). **$0 to UNC. Lead Faculty Advisor. Effort: 0.0%**

PROFESSIONAL SERVICE

External Committees

NSF Panelist
AGU Hydrology Section Horton Research Grant Review Panelist (Rotator) 2021-2023
ASCE Hydroclimatology and Engineering Adaptation (HYDEA) 2021-present
Subcommittee of the Committee on Adaptation to a Changing Climate (CACC)
ASCE Coasts, Oceans, Ports, and Rivers Institute (COPRI) Coastal Engineering Sciences Committee 2020-present

Internal Committees

Member, Department of EMES Undergraduate Curriculum Committee 2021-present
Member, Department of EMES Faculty Search Committee 2024
Organizing Committee/Judge, EMES Undergraduate Student Research Symposium 2023-present
Chair, Department of Geological Sciences Colloquium Committee 2020-2021
Member, Department of Geological Sciences Graduate Admissions Committee 2020, 2021, 2024

Manuscript Reviewer

Nature Climate Change; Nature Communications; Geophysical Research Letters; Environmental Research Letters; Natural Hazards; Natural Hazard Earth System Science (NHESS); ASCE Natural Hazards Review; Journal of Hydrology; Ocean Dynamics; Water Resources Research; Earth's Future; Water; Anthropocene; Risk Analysis

Professional Affiliation

American Geophysical Union (AGU); American Society of Civil Engineers (ASCE); International Association of Hydro-Environment Engineering and Research (IAHR); National Association of Geoscience Teachers (NAGT); Fulbright Alumni Association; Congress Bundestag Youth Exchange (CBYX) Alumni Network

OTHER SELECTED SERVICE

Board of Directors, Deltares USA	2023-present
Guest Editor, Natural Hazards Earth System Sciences (NHESS) Special Issue	2023-present
Resilience-Mitigation-Reduction Technical Advisory Group for NCDEQ's Flood Resiliency Blueprint	2023-present
Town of Chapel Hill Booker Creek Stormwater Working Group	2021-2022
Greater Houston Flood Mitigation Consortium	2017-2019
Netherlands America Foundation (NAF) Houston Chapter, Education Committee Co-chair	2018-2019
Rice Alumni Volunteers for Admission (RAVA) Interviewer	2016-2020
NSF Program for International Research & Exchange (PIRE), Mentor	2016-2021

WORKSHOP & CONFERENCE ORGANIZATION

1. *Compounding, cascading, and critical risks to U.S. infrastructure and security*. Portland, OR. August 4-6, 2025. *Program Committee*.
2. *Compound, Consecutive, and Cascading Events: Challenges for Risk Assessment and Management of Multihazards*. AGU Fall Meeting, San Francisco, CA. December 11-15, 2023. *Convener and Chair*.
3. *Concurrent, Consecutive and Cascading Events: An Emerging Challenge for Risk Assessment and Management of Multi-hazards and Disaster Risk*. AGU Fall Meeting, Chicago, IL. December 12-16, 2022. *Primary Convener and Chair*.
4. *Extreme Value Analysis and Application to Natural Hazards (EVAN) Conference*. University of Central Florida, Orlando, FL. May 17-19, 2022. *Scientific Committee*.
5. *Concurrent, Consecutive and Cascading Events: An Emerging Challenge for Risk Assessment and Management of Natural and Natech Hazards*. AGU Fall Meeting, New Orleans, LA. December 13-17, 2021. *Primary Convener and Chair*.
6. *AI and Machine Learning for Climate and Extreme Weather Prediction*. AGU Fall Meeting, New Orleans, LA. December 13-17, 2021. *Session Convener*.
7. *Concurrent, Consecutive and Cascading Events: An Emerging Challenge for Risk Assessment and Management of Natural and Natech Hazards*. AGU Fall Meeting, San Francisco, CA. December 1-17, 2020. *Primary Convener and Chair. *virtual due to COVID-19*
8. *AI and Machine Learning for Climate and Extreme Weather Prediction*. AGU Fall Meeting, San Francisco, CA. December 1-17, 2020. *Session Convener. *virtual due to COVID-19*
9. *Concurrent, Consecutive and Cascading Events: An Emerging Challenge for Risk Assessment and Management of Natural and Natech Hazards*. AGU Fall Meeting, San Francisco, CA. December 9-13, 2019. *Session Convener*.
10. *AI and Machine Learning for Climate and Extreme Weather Prediction*. AGU Fall Meeting, San Francisco, CA. December 9-13, 2019. *Session Convener*.
11. *Compound and Cascading Events: an Emerging Challenge for Natural Hazard Risk Assessment and Management*. AGU Fall Meeting, Washington, D.C. December 10-14, 2018. *Session Convener*.
12. *Urban Flooding & Infrastructure: Moving Forward from Harvey*. 2018 SSPEED Center Conference, Rice University, Houston, TX. February 21-22, 2018. *Session Convener*.
13. *Spring 2017 BRIGAID Meeting*. BRIGAID European Union Horizon2020 Programme, Berlin, Germany. May 10-12, 2017. *Workshop Organizer*.

14. *Fall 2016 BRIGAID Meeting*. Bridging the Gap in Innovations for Disasters (BRIGAID) European Union Horizon2020 Programme, Leuven, Belgium. November 16-18, 2016. *Workshop Organizer*.
15. *Avoiding Disasters: How to Reduce Impacts from the Next Big Storm*. 2016 SSPEED Center Conference, Rice University, Houston, TX. April 26-27, 2016. *Conference Organizer*.
16. *Hurricane Ike: 5 Years Later*. 2013 SSPEED Center Conference, Rice University, Houston, TX. September 24-25, 2013. *Conference Organizer.*
17. *Prediction of Coastal Surge Impacts and Sea Level Rise*. 2012 World Environmental and Water Resources Congress, Albuquerque, NM. May 20-24, 2012. *Session Organizer*.
18. *Gulf Coast Hurricanes: Mitigation And Response*. 2012 SSPEED Center Conference, Rice University, Houston, TX. April 10 - 11, 2012. *Conference Organizer*.

PROFESSIONAL DEVELOPMENT WORKSHOPS ATTENDED

**denotes external funding awarded for travel*

NSF Hazards Enabling Fellows Workshop II*, Colorado University at Boulder	07/2021
National Center for Faculty Development (NCFDD) Faculty Success Program	Fall 2020
Early Career Geoscience Faculty Workshop*, SERC, Carleton College - *virtual due to COVID-19*	07/2020
NSF Hazards Enabling Fellows Workshop I*, Puerto Rico - *virtual due to COVID-19*	06/2020
Center for Faculty Excellence Course Design Institute, UNC Chapel Hill	06/2020
CEE Rising Stars Workshop*, Massachusetts Institute of Technology	10/2017
Preparing for the Academic Job Market, Rice University	04/2016
The Art of Science by Professor Roel Snieder, Delft University of Technology	06/2015
Freshman Writing Instructor Training, Rice University	12/2013

MEDIA APPEARANCES, SCIENCE COMMUNICATION & PUBLIC OUTREACH

2025

wral.com, UNC study: 43% of flooded NC buildings were outside FEMAs hazard zones
Due South, Extreme weather and the future of hurricane prediction; plus, filling in North Carolina's flood records
UNC Endeavors, Flooded Futures
UNC News, New study reveals widespread and overlooked flooding across NC
WPTF Afternoon News, Helena Garcia, Ph.D. candidate at UNC-Chapel Hill, discusses extreme rainfall and inland flooding in North Carolina
WBTV, UNC study reveals widespread, overlooked flooding
Spectrum News 1, New study finds flaws in FEMAs North Carolina Flood Maps
The News & Observer, UNC study sees flooding outside NC high-risk areas. Can AI reveal blind spots?
NBC News, New study targets past flooding as key to helping property owners assess climate threats
WECT, New study reveals widespread flooding across NC is more common than previously thought
NC Health News, From flooded basements to smarter planning: What NC storm survivors can teach us
wral.news, Record rainfall in Chapel Hill reveals growing inland flood risks
CoastalReview, UNC study: Repeat flooding more widespread than thought
WUNC, FEMA floodplains determine who must get insurance. NC's are insufficient
UNC News, Studies of eastern flooding guide work in western NC
UNC News, NC Collaboratory project builds resilience after hurricane
UNC News, Sustainable Triangle Field Site unites policy and practice in immersive lesson on urban sustainability

2024

UNC News, Triangle Field Site UNC News, Beating the heat, one tree at a time: Sustainable Triangle Field Site explores heat vulnerability on campus National Geographic, Many Americans are buying homes in flood zones - and don't realize it
The News&Observer, Helene was a warning. NC must get ready for climate shocks
npr 'All Things Considered', As the climate changes, inland areas face increase flood risk
Politico, Its going to be a mess: The flood insurance crisis following Helenes wreckage
USA Today, 'So many hollers': Appalachia's remote terrain slows recovery from Helene
abcNews, Asheville tragedy shows there are no climate change safe havens: experts

SciLine Media Briefing, Hurricane aftermath: Damage to infrastructure, health, and the environment
Smart Cities Dive, In a sea of flood-risk data, how can cities know which information to use?

2023

The New York Times, 'A Beautiful Place That Has a Dragon': Where Hurricane Risk Meets Booming Growth
The News&Observer, 'We're making our jobs harder.' NC builds thousands of homes in flood-prone areas

2022

APM Research Lab, Inundating the Gulf: Fewer Americans Covered by Federal Flood Insurance Even as Population Grows in Flood-prone Areas
The New York Times, Hurricane Harvey Hit 5 Years Ago. Its Floodwaters Did Not Strike Equitably
USA Today, 'I can't do it again': Can Appalachia blunt the devastating impacts of more flooding, climate change?
WITN, Flood insurance hikes could prove costly for waterfront homeowners
WNCT, New research from NC State suggests many more may be at risk for flooding than FEMA says

2021

WNCT, Carteret County to receive millions from state budget for flood mitigation
WITN, Scientists weigh in on latest United nations climate report
Queen City News, FEMA ranks Charlotte among one of the nations top for flood mitigation; B-reel on X (née Twitter)
Houston Chronicle, Editorial: From Houston to New York, disaster is the new normal. We must act on climate change.
Undark, A $26-Billion Plan to Save the Houston Area from Rising Seas
Grist, Study: Climate change to blame for $8 billion of Hurricane Sandy damages

2020

Houston Chronicle, Prone to floods or not, now is the time to buy flood insurance
Rice News, Natural bayou better when floods threaten Houston

2019

AGU, Property values plummeted and stayed down after Hurricane Ike
Forbes, The Impact Of Flooding Depends More On Societal Change Than Climate Change
The New Republic, The False Comfort of Higher Seawalls

2018

Scientific American, Extreme Flooding from Florence Likely, Due to a Converge of Threats
ClimateWire, Ever Heard of 'Compound' Disasters? It's New to Experts, too
The Times, Flooding really was worse in the old days
ScienceDaily, Hurricane Harvey: Most fatalities occurred outside flood zones, Dutch-Texan research shows
The New York Times, Houston Speculators Make a Fast Buck from Storm's Misery
Re:think, Lessons from Hurricane Harvey: Planners will have to make room for nature while designing cities
abc13, Flood Problems: Experts give city of Houston's drainage system a failing grade

2017

Scientific American, Global Warming Tied to Hurricane Harvey
The New York Times, Scientists Link Hurricane Harvey's Record Rainfall to Climate Change
Houston Chronicle, Climate change made Harvey's 51 inches of rain 3 times more likely, scientists say
HBO, Last Week Tonight with John Oliver, Floods
Rice News, Decade of data shows FEMA flood maps missed 3 in 4 claims
The New York Times, Water Damage From Hurricane Harvey Extended Far Beyond Flood Zones
de Ingenieur, TU Delft Trekt Lessen Uit Harvey