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

EDUCATION

Ph.D.	December 2016
Civil & Environmental Engineering, Rice University. Advisor: Dr. Philip B. Bedient <i>Dissertation: Quantifying Flood Hazard & Risk in Highly Urbanized Coastal Watersheds</i>	
B.S.	May 2011
Civil & Environmental Engineering, Rice University <i>Focus Areas: Urban Hydrology & Water Resources (II), Urban Infrastructure & Management (III)</i>	

PROFESSIONAL EXPERIENCE

Assistant Professor	2020-present
<i>Department of Earth, Marine and Environmental Sciences, The University of North Carolina at Chapel Hill Joint Assistant Professor, Environment, Ecology, and Energy Program (E3P) Adjunct Assistant Professor, Department of Environmental Science and Engineering</i>	
Associate Research Scientist	2018-2019
<i>Department of Marine Sciences, Texas A&M University - Galveston Campus</i>	
Postdoctoral Researcher	2018
<i>Department of Civil & Environmental Engineering, Rice University</i>	
	2016-2017
<i>Department of Hydraulic Engineering, Delft University of Technology</i>	
Netherlands America Foundation (NAF)/Fulbright Flood Management Fellow	2014-2015
<i>Department of Hydraulic Engineering, Delft University of Technology</i>	
Graduate Research & Teaching Assistant	2012-2016
<i>Department of Civil & Environmental Engineering, Rice University</i>	
Project Manager/Scientific Staff	2011-2012
<i>Severe Storm Prediction, Education and Evacuation from Disasters (SSPEED) Center, Rice University</i>	

RESEARCH INTERESTS

Flood Hazard & Risk; Extreme Precipitation; Storm Surge; Coastal Resilience; Hydrologic & Hydraulic Modeling; Geospatial Statistics; Stochastic Modeling; Climate Change Impacts & Adaptation; Environmental Planning

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
Rice University Center for Civic Engagement (CCE) Fellowship	2009
Federal Employee Education & Assistance (FEEA) Scholarship	2007
Congress Bundestag Youth Exchange (CBYX) Scholarship	2006

PUBLICATIONS

Refereed Journal Articles (student or postdoc mentored or advised at the time of the research project)

1. 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.
2. 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.
3. Wang, Y.V., **Sebastian, A.** (2022). Equivalent Hazard Magnitude Scale. *Natural Hazards Earth Systems Sciences (NHESS)*, 22(12), 4103-4118, doi: 10.5194/nhess-22-4103-2022.
4. Wang, Y.V., **Sebastian, A.** (2022). Murphy Scale: A Locational Equivalent Intensity Scale for Hazard Events. *Risk Analysis*, doi: 10.1111/risa.13933.
5. 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.
6. 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.
7. **Sebastian, A.**, Bader, D.J., Nederhoff, C.M., Leijnse, T.W., Bricker, J.D., Aarkinof, 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.
8. Wang, Y.V., **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.
9. Mobley, W., **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.
10. Fagnant, C., Gori, A., **Sebastian, A.**, Bedient, P.B., Ensor, K.B. (2020). Characterizing spatiotemporal trends in extreme precipitation in Southeast Texas. *Natural Hazards*, doi: 10.1007/s11069-020-04235-x.
11. 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.
12. **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.
13. 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*, doi: 10.1111/jfr3.12549. ⁺these authors contributed equally to this work
14. 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
15. 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.
16. 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.
17. 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.

18. 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.
19. 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.
20. 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.
21. **Sebastian, A.**, Dupuits, E.J.C., Moráles-Napoles, 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.
22. 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.
23. 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.
24. 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.
25. **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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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 Journal Articles (In Preparation & Under Review)

1. Garcia, H., **Sebastian, A.**, Fitzpatrick, K., Thomson, H., Zeff, H.B., Characklis, G.W. Historical Inundation of Coasts and Streams (HINDCAST): A bottom-up approach to spatially explicit flood hazard and risk assessment of repetitive loss in North Carolina Watersheds. *Environmental Research Letters*, planned submission 08/2023.
2. Quintal, H.C., **Sebastian, A.**, Dello, K. Land cover and climate change projections generate non-linear increases in discharge and flood hazards across a large watershed in eastern North Carolina by end of century. *Science of the Total Environment*, planned submission 07/2023.
3. Grimley, L.E., **Sebastian, A.**, Leijnse, T., Ratcliff, J., Luettich, R. Determining the relative contribution of pluvial and fluvial processes to flooding across eastern North Carolina during Hurricane Florence (2018). *Water Resources Research*, planned submission 05/2023.
4. Bates, S.L., Eddy, M.C., **Sebastian, A.**, Salzberg, A. Integrating Green Infrastructure into the Watershed Flow and Allocation (WaterFALL) Model to Support Regional Planning, *Water Resources Research*, planned submission 05/2023.

5. Kazadi, A., Doss-Gollin, J., **Sebastian, A.**, Silva, A., FloodGNN-GRU: A Spatio-Temporal Graph Neural Network for Flood Prediction. *Environmental Data Science*, submitted 04/2023.

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.

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.

Short Communications & Interdisciplinary Products

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

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*. <https://tinyurl.com/y6pl9b5o>.
3. Blessing, R., **Sebastian, A.** (2018, September). Out of Bounds: Rethinking U.S. Flood Risk Delineation. *EARTH Magazine*. <https://tinyurl.com/yaxf46eq>
4. Brand, N., **Sebastian, A.**, Kothuis, B. (2017, October). A Multidisciplinary Perspective on Texas' Flood Risk Challenge. *DeltaLinks Magazine*. Jonkman, S.N.J., Van Veelen, P., Rijcken, T. (Eds.), <https://tinyurl.com/y8zrh9av>.
5. Van Oldenborgh, G.J., Van der Wiel, K., **Sebastian, A.** (2017, September). Harvey: een meter neerslag in Houston, Klimaatverandering? *Meteorologica Magazine*. Bintanja, R. (Ed.), <https://tinyurl.com/ybf8dqp>.
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.

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. BRIGAD 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.

PRESENTATIONS & POSTERS

Oral Conference Presentations **denotes presenter*

1. 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.
2. Grimley, L.E.*, Hollinger, K.E., Lackmann, G. **Sebastian, A.** Linking Tropical Cyclone Precipitation in Future Climates to Shifts in Flood Exposure. *2023 NC WRRRI Meeting*. Raleigh, NC.
3. 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.

4. **Sebastian, A.***, Hino, M., Kothegal, N., Luettich, R., Dollar, N., Gardner, A., Stoutamire, B., Frankenberg, E. (2022). Muddy Waters Integrating Engineering and Social Science to Measure Household Impacts from Hurricane Exposure on Ocracoke, North Carolina. *2022 AGU Fall Meeting*. Chicago, IL.
5. Quintal, H.C.***, Dello, K. Sebastian, A.** (2022). 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.
6. Grimley, L.E.***, Leijnse, T., Ratcliffe, J., Luettich, R., Sebastian, A.** (2022). Flooding at the Fringe: A Reduced-physics Model for Assessing Compound Flooding from Pluvial, Fluvial, and Coastal Hazards. *2022 AGU Fall Meeting*. Chicago, IL.
7. Garcia, H.***, Sebastian, A.**, Thompson, H., Zeff, H.B, Characklis, G.W. (2022). Dynamic Vulnerability: Reconstructing Historical Flood Footprints and Exposure in Eastern North Carolina. *2022 AGU Fall Meeting*. Chicago, IL.
8. Zeff, H.B.***, Sebastian A.**, Garcia, H., Thompson, H., Kleinman R., Characklis, G. (2022). Cascading financial risks in the residential property market as a result of consecutive flood events. *2022 AGU Fall Meeting*. Chicago, IL.
9. Kazadi, A.***, Doss-Gollin, J., Sebastian, A.**, Silva, A. (2022). Flood Prediction with Graph Neural Networks. *Tackling Climate Change with Machine Learning: NeurIPS 2022*. November 28-December 9.
10. Garcia, H.G.***, Grimley, L.E., Smiley, A.M., Ruiz, J., Berke, P., Hino, M., Sebastian, A.** (2022). 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.
11. Thompson, H.***, Characklis, G.W., Zeff, H.B., Sebastian, A.**, Kleiman, R. (2022). 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.
12. **Sebastian, A.***, Dello, K. (2022). Mapping community exposure to extreme heat and flood hazards in the Carolinas. *2022 European Geophysical Union General Assembly*. Austria, Vienna. May 23-27, 2022.
13. Smiley, A.M.***, Grimley, L.E., Garcia, H., Ruiz, J., Berke, P., Hino, M., Piehler, M., Sebastian, A.** (2022). Integrating Ecosystem Services into Flood Resilience Planning in New Bern, NC. *Joint Aquatic Sciences Meeting*. Grand Rapids, MI. May 14-20, 2022.
14. Dello, K.***, Sebastian, A.** (2022). *Catawba-Wateree Water Management Group (CWWMG) Annual Summit*. Richburg, SC. March 30, 2022.
15. Quintal, H.***, Dello, K., Sebastian, A.** (2022). Staggered Hazards: Outdated Floodplain Maps Underestimate Extreme Flooding Under Future Climate and Land Use Land Cover Change. *2022 NC WRRRI Conference*. Raleigh, NC. March 23-24, 2022.
16. Zeff, H.B.***, Sebastian, A.**, Thomson, H., Kleiman, R., Characklis, G.W. (2021). 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.
17. Wang, Y.V.***, Sebastian, A.**, Kim, S.H., Piechota, T., Kafatos, M. (2021). Deep Learning for Spatial Interpolation of Rainfall Events. *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.
18. Hino, M.***, BenDor, T., Kaza, N., Sebastian, A.**, Branham, J., Sweeney, S. (2021). One Step Forward, Two Steps Back: Managing Floodplain Development in North Carolina (Invited). *2021 AGU Fall Meeting*. New Orleans, LA. December 13-17, 2021.
19. **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
20. 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.
21. Hino, M.***, Branham, J., BenDor, T., Kaza, N., Sebastian, A.**, Sweeney, S. (2021). 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

22. Wang, Y.*, **Sebastian, A.** (2021). Empirical Numerical Simulation of Precipitation Events for Pluvial Flood Management. *Proceedings of ASCE Geo-Extreme 2021*, Savannah, GA, November 7-10, 2021.
23. Wang, Y.*, **Sebastian, A.** (2021). 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
24. Wang, Y.*, **Sebastian, A.** (2021). 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
25. Wang, Y.*, **Sebastian, A.** (2020). Equivalent Magnitude Scale for Natural Hazard. *2020 AGU Fall Meeting*. December 1-17, 2021. *virtual due to COVID-19
26. 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
27. Hino, M.*, BenDor, T., Branham, J., Kaza, N., Schwaller, N., **Sebastian, A.**, Sweeney, S. (2020). Measuring Floodplain Management Parcel-by-Parcel in North Carolina. *45th Annual Natural Hazards Research and Applications Workshop*, Broomfield, CO. *virtual due to COVID-19
28. BenDor, T.*, Hino, M., Branham, J., Kaza, N., Sweeney, S., **Sebastian, A.**, Salvesen, D. (2020). 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
29. Brody, S.D.*, Highfield, W.E. **Sebastian, A.**, Blessing R., Mobley, W., Atoba, K., Stearns, L. (2019). 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.
30. Maulsby, F.*, **Sebastian, A.**, Bedient, P.B. (2018). 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.
31. **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.
32. Blessing, R.*, **Sebastian, A.**, Highfield, W.E., Brody, S.D. (2018). Measuring, Mapping and Managing Urban Flood Risk: A Pilot Program in Southeast Texas. *2018 AGU Fall Meeting*. Washington, DC.
33. Fagnant, C.*, Gori, A., Ensor, K.B., **Sebastian, A.**, Bedient, P.B. (2018). Characterizing spatio-temporal trends in extreme precipitation across the southern Texas coast. *2018 AGU Fall Meeting*. Washington, DC.
34. **Sebastian, A.*** Modeling the Influence of Urbanization on the 1% Floodplain (Invited). *2018 SSPEED Urban Flooding & Infrastructure Conference: Moving Forward from Harvey*, Houston, Texas.
35. Mobley, W.* & **Sebastian, A.** Leveraging Machine Learning and Twitter to identify rescue needs during Hurricane Harvey. *2018 ACSP 58th Annual Conference*, Buffalo, New York.
36. 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.
37. 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.
38. 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.
39. **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.
40. 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.

41. **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.
42. 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.
43. **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.
44. **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.
45. 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.
46. **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.
47. 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.
48. 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.
49. **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. 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 WRRRI Meeting*. Raleigh, NC.
2. 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 WRRRI Meeting*. Raleigh, NC.
3. Grimley, L.E.*, Filatova, T., **Sebastian, A.** Exploring the Drivers of Household Participation in Voluntary Buyouts with an Agent-Based Model. *2023 NC WRRRI Meeting*. Raleigh, NC.
4. 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. (2022) 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.
5. Lopez de Silva, A., Kazadi, A.*, Doss-Gollin, J., **Sebastian, A.** (2022). Flood Prediction with Graph Neural Networks. Neural Information Processing Systems (NeurIPS) 2022 Workshop: Tackling Climate Change with Machine Learning. Virtual. December 9, 2022.
6. Wagenblast, T.*, Filatova, T., Noll, B., Grimley, L.E., **Sebastian, A.** (2022). Influence of Social Networks in Private Climate Adaptation. *2022 Social Simulation Conference*. Milan, Italy. September 12-16, 2022.
7. Grimley, L.E.*, **Sebastian, A.** (2022). Exploring the effects of climate change on compound flooding in NC estuarine communities. *2022 NC WRRRI Conference*. Raleigh, NC. March 23-24, 2022.
8. Grimley, L.E.*, **Sebastian, A.** (2021). Quantifying the relative contribution of flood mechanisms that drive historical insured losses in eastern North Carolina. *2021 AGU Fall Meeting*. New Orleans, LA.
9. Quintal, H.*, **Sebastian, A.** (2021). Risky Business: How Humans Will Shape Floodplain Landscapes Over the 21st Century. *2021 AGU Fall Meeting*. New Orleans, LA.
10. Frankenberg, E., *et al.* (2021). The Dynamics of Extreme Events, People and Places: A Convergent Approach to Understanding Flooding Exposures and Impacts. *2021 AGU Fall Meeting*. New Orleans, LA.

11. Grimley, L.E.*, **Sebastian, A.** (2021). Flood hazards at the river-coastal interface of Carolina watersheds. *Carolinas Climate Resilience Conference*. Durham, NC.
12. Brannum, S.*, **Sebastian, A.** (2020). Characterizing Trends in Design Floods along Major Rivers in the Southeastern USA. *2020 AGU Fall Meeting*. *virtual due to COVID-19
13. Fagnant, C.*, Gori, A., Ensor, K.B., **Sebastian, A.**, Bedient, P.B. (2020). Characterizing spatio-temporal trends in extreme precipitation in Southeast Texas. *2020 Women in Statistics and Data Science*. Pittsburgh, PA.
14. **Sebastian, A.***, Mobley, W., Highfield, W.E., Brody, S.D. (2019). Leveraging Machine Learning and Twitter, to identify rescue needs during Hurricane Harvey. *2019 AGU Fall Meeting*. San Francisco, CA. doi: 10.1002/es-soar.10501349.1.
15. Mobley, W., **Sebastian, A.***, Blessing, R., Juan, A., Highfield, W.E. (2019). Random Forest Classification for Flood Hazard Mapping at Large Spatial Scales. *2019 AGU Fall Meeting*. San Francisco, CA.
16. Garner, M.*, **Sebastian, A.**, Hakkenberg, C., Juan, A., Gori, A., Bedient, P.B. (2019). 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.
17. Zeff, H.B.*, Characklis, G.W., **Sebastian, A.** (2019). Real estate debt and flood risk: who is financially exposed? *2019 AGU Fall Meeting*. San Francisco, CA.
18. Juan, A.*, Pranavesh, P., **Sebastian, A.**, Padgett, J.E, Bedient, P.B. (2019). 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.
19. Zeff, H.B.*, Characklis, G.W., **Sebastian, A.**, Chiu, W.A., Kaihatu, J.M. (2019). 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.
20. Fagnant, C.*, Gori, A., Ensor, K.B., **Sebastian, A.**, Bedient, P.B. (2019). Characterizing spatiotemporal trends in extreme precipitation across the southern Texas coast. *Rice Oil & Gas High Performance Computing Conference*. Houston, TX.
21. Do, C.*, Juan, A., **Sebastian, A.**, Bedient, P.B. (2018). Characterization of compound flooding in a highly urbanized coastal watershed during Hurricane Harvey. *2018 AGU Fall Meeting*. Washington, DC.
22. de Ruiter, M.*, **Sebastian, A.**, Gori, A., Englehardt, J., de Moel, H. (2018). Assessing temporally-dynamic flood vulnerability using empirical building-type depth-damage curves A case study of Houston. *2018 EGU Meeting*, Vienna, Austria.
23. **Sebastian, A.***, Juan, A., Gori, A., Maulsby, F., Bedient, P.B. (2017). Quantification of Interbasin Transfers into the Addicks Reservoir during Hurricane Harvey. *2017 AGU Fall Meeting*, New Orleans, LA.
24. 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. *2017 AGU Fall Meeting*, New Orleans, LA.
25. 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.
26. **Sebastian, A.***, Juan, A., Brody, S.D., Bedient, P.B. (2016). Quantifying the Influence of Urbanization on a Coastal Floodplain. *2016 AGU Fall Meeting*, San Francisco, CA.
27. Irza, J.N.*, **Sebastian, A.**, Bedient, P.B. (2016). Quantification of Uncertainty for Residential Flood Damage Estimates. *2016 SSPEED Avoiding Disasters Conference: How to Reduce Impacts from the Next Big Storm*, Houston, TX.
28. **Sebastian, A.***, Dupuits, E.J.C., Morales-Nápoles, O., Jonkman, S.N. (2015). Assessing Flood Risk from Hurricane-induced Precipitation and Storm Surge: A Bayesian Network Approach. *2015 AGU Fall Meeting*, San Francisco, CA.

29. 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.
30. **Sebastian, A.***, Dupuits, E.J.C., Morales-Nápoles, O., Jonkman, S.N. (2015). 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.
31. **Sebastian, A.***, Brody, S.D., Bedient, P.B. (2013). Evaluating the 100 year floodplain as an indicator of flood risk in low-lying coastal watersheds. *2013 AGU Fall Meeting*, San Francisco, CA.
32. **Sebastian, A.***, Bedient, P.B. (2012). Using NEXRAD Radar Rainfall to Calibrate a Development Impact Model in a Coastal Watershed. *2012 AGU Fall Meeting*, San Francisco, CA.
33. **Sebastian, A.***, Doubleday, G., Bedient, P.B. (2012). 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. 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.
2. 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
3. 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.
4. 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
5. 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
6. 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
7. Panelist: Leadership in Professional Research HON 296 (2021). NC State University, Raleigh, NC. September 29, 2021.
8. Panelist: College of Arts and Sciences New Faculty Orientation (2021). University of North Carolina at Chapel Hill, Chapel Hill, NC. August 16, 2021.
9. 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.

10. 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
11. Disciplines-101 Collaboratory for Coastal Adaptation Over Space and Time (C-COAST) (2021). *Compound Flood Hazards*. University of North Carolina at Chapel Hill, Chapel Hill, NC. March 25, 2021.
12. 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
13. 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
14. Guest Lecture: Coastal Resiliency & Sustainability (PLAN 641) (2019). *Accommodation: Resilience Strategies for Flood Mitigation*. Texas A&M University, College Station, Texas. April 15, 2019.
15. 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.
16. 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.
17. Guest Lecture (2019). *The State of Texas: One Year after Hurricane Harvey*. Deltares, Delft, The Netherlands. January 30, 2019.
18. Seminar: Institute for Environmental Studies (2019). *Flood Mitigation Decision-making under Non-stationary Boundary Conditions*. Vrije Universiteit Amsterdam, The Netherlands. January 29, 2019.
19. Seminar: Department of Civil & Environmental Engineering (2018). *Delineating Flood Risk under Evolving Coastal Hazards*. Rice University, Houston, Texas. March 21, 2018.
20. Guest Lecture: Architecture Core Design Studio (ARCH 504) (2018). *Flood Risk Mitigation in the City of Houston*. Rice University, Houston, Texas. February 16, 2018.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. Seminar: Department of Hydraulic Engineering (2015). *Assessing Flood Risk & Loss in Southeast Texas*. Delft University of Technology, Delft, The Netherlands. June 9, 2015.
29. Research Presentation: TU Delft and Texas A&M Colloquium (2014). *Low Impact Development: Applications in Heavy Rainfall Regions*. Delft University of Technology, Delft, The Netherlands. February 16, 2014.

30. 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

Primary Instructor at UNC

Sustainable Triangle Field Site Capstone (ENEC 698)	Spring 2023 (7)
Special Topics "Rivers and Floods" (GEOL 590)	Spring 2021 (8)
Groundwater Hydrology (GEOL 435)	Fall 2020 (6), Fall 2021 (7), Fall 2022 (8)

Postdoctoral Advisor (current position, affiliation)

Yi Victor Wang (Postdoc, Chapman University)	2020-2021
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Graduate Student Advisor (university, track)

John Baer (UNC, MS)	2023-present
Hunter Quintal (UNC, PhD)	2022-present
Helena M. Garcia (UNC, PhD) <i>*co-advised w/ M. Hino</i>	2021-present
Lauren E. Grimley (UNC, PhD)	2020-present
Hunter Quintal (UNC, MS)	2020-2022

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

Valeria Orozco Saldarriaga (UNC, Independent Research)	Spring 2023-present
Kevin Gomez (UNC, Independent Research)	Fall 2022-present
Anna Keener (UNC, Independent Research)	Fall 2022
Owen Ryerson (UNC, Independent Research)	Spring 2022
Sarah Brannum* (UNC, BS Honors Thesis)	2020-2021
Hayden Brinke (UNC, Independent Research)	Fall 2020
Daphne Dominique Charlot (UNC, IDEA Program)	Summer 2020

Graduate Student Committee Member (university, track) **denotes daily supervisor*

Kaitlin Karaffa (North Carolina State University, MS)	2023-present
Jose Daniel Valez Castro (UNC, PhD)	2023-present
Katherine Hollinger (North Carolina State University, PhD)	2022-present
John David Ratcliff (UNC, PhD)	2022-present
Anne Margaret Smiley (UNC, PhD)	2022-present
Marissa Dudek (UNC, PhD)	2022-present
Christopher Samoray (UNC, PhD)	2021-present
Julianne Davis (UNC, PhD)	2021-present
Ted Langhorst (UNC, PhD)	2020-2023
Wayana Dolan (UNC, PhD)	2020-2023
Dirk Eilander (VU Amsterdam, PhD)	2022
Sarah L. Bates (UNC, MSPH)	2021-2022
John Malito (UNC, MSc)	2020-2021
Hope Thompson (UNC, MSPH)	2020-2021
Morgan Garner (Rice, MSc)	2019-2020
Daan Bader (TU Delft, MSc)	2018-2019
Ferne Maulsby* (Rice, MSc)	2018-2019
Pablo Sanchez Gomez* (Rice, MSc)	2018-2019
Luisa Torres Dueñas* (TU Delft, MSc)	2018
Feihong Liu* (TU Delft, MSc)	2017
Anaïs Couasnon* (TU Delft, MSc Cum Laude)	2016-2017
Martijn Schlepers (TU Delft, MSc)	2014-2015

GRANTS & FELLOWSHIPS

Awarded (\$3.6 million in funding awarded to UNC; \$2.7 million direct)

1. 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). **\$98,125 (direct) to UNC. Co-PI with N. Kaza (UNC) as Lead PI. Effort: 0.13%**
2. DHS Coastal Resilience Center. *Identifying obstacles to equitable flood mitigation funding* (07/01/2023-06/30/2024; \$149,150 (UNC)); with M. Hino (PI). **\$98,125 (direct) to UNC. Co-PI with M. Hino (UNC) as Lead PI. Effort: 4.17%**
3. 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%**
4. 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%**
5. Texas One Gulf (TONE). *Flood Risk and Vulnerability: Evaluation of the Fiscal, and Social Implications of Property Acquisition and Buyouts in Flood-prone Communities* (01/16/2023-01/15/2024; \$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%**
6. 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%**
7. 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%**
8. 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%**
9. 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%**
10. UNC 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%**
11. UNC 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%**
12. 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.**
13. Senior Personnel: 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.**
14. 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. NIH RFA-ES-23-007. *Center for Research on Communities, Risk, Sustainability, and Population Health (CRISPH)* (09/01/2023-08/31/2026; \$3,930,853); with E. Frankenberg (PI) and C. Davis, N. Dollar, M. Hino, N. Ingewesen, R. Luettich, C. Martin. Submitted 05/2023. **\$2,557,085 (direct) to UNC. Core Co-Lead with E. Frankenberg as Lead PI. Effort: 20.8%**
2. Texas General Land Office. *Developing Effective Flood Risk Communication Tools for Texas Communities* (01/01/2023-12/31/2025; \$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%**
3. NSF 22-520 Navigating the New Arctic. *Collaborative Research: NNA Research: Arctic Estuarine and Coastal Response to Climate Change and its Impacts on Community Infrastructure and Navigation* (09/15/2023-09/14/2027; \$43,171 (UNC) of \$3,000,000); with N. Stark (PI) and E. Eidam, P. Larson, K. Frank, D. Stilwell, G. Williams, K. Franke, Z. Yang, T. Ravens, C. Castro-Bolinaga. Submitted 02/2023. **\$27,853 (direct) to UNC. UNC PI with N. Stark (U Florida) as PI. Effort: 4.17%**
4. NASA A.28 Interdisciplinary Research in Earth Sciences. *Disparate Impacts of Land-Cover/Land-Use Change Caused by Salinity Intrusion on People and Communities in Coastal North Carolina* (06/01/2023-05/31/2026; \$1,399,879); with C. Song (PI) and C. Davis, E. Frankenberg, M. Piehler, Q. Zhang. Submitted 11/2022. **\$937,138 (direct) to UNC. co-PI with C. Song (UNC) as PI. Effort: 8.33%**

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

1. 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. Faculty Advisor. Effort: 0.0%**
2. 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%**
3. 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%**
4. 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%**

PROFESSIONAL SERVICE*External Committees*

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

Internal Committees

Member, Department of EMES Undergraduate Curriculum Committee	2021-present
Chair, Department of Geological Sciences Colloquium Committee	2020-2021
Member, Department of Geological Sciences Graduate Admissions Committee	2020, 2021

Manuscript Reviewer

Nature Climate Change; Nature Communications; Geophysical Research Letters; Environmental Research Letters; Natural Hazards; Natural Hazard Earth System Science (NHES); 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

Registered Engineer in Training (EIT), State of Texas, License No. 57722

OTHER SELECTED SERVICE

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

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1. *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.*
 2. *Extreme Value Analysis and Application to Natural Hazards (EVAN) Conference.* University of Central Florida, Orlando, FL. May 17-19, 2022. *Scientific Committee.*
 3. *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.*
 4. *AI and Machine Learning for Climate and Extreme Weather Prediction.* AGU Fall Meeting, New Orleans, LA. December 13-17, 2021. *Session Convener.*
 5. *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*
 6. *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*
 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 9-13, 2019. *Session Convener.*
 8. *AI and Machine Learning for Climate and Extreme Weather Prediction.* AGU Fall Meeting, San Francisco, CA. December 9-13, 2019. *Session Convener.*
 9. *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.*
 10. *Urban Flooding & Infrastructure: Moving Forward from Harvey.* 2018 SSPEED Center Conference, Rice University, Houston, TX. February 21-22, 2018. *Session Convener.*
 11. *Spring 2017 BRIGAIID Meeting.* BRIGAIID European Union Horizon2020 Programme, Berlin, Germany. May 10-12, 2017. *Workshop Organizer.*
 12. *Fall 2016 BRIGAIID Meeting.* Bridging the Gap in Innovations for Disasters (BRIGAIID) European Union Horizon2020 Programme, Leuven, Belgium. November 16-18, 2016. *Workshop Organizer.*
 13. *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.*
 14. *Hurricane Ike: 5 Years Later.* 2013 SSPEED Center Conference, Rice University, Houston, TX. September 24-25, 2013. *Conference Organizer.*
 15. *Prediction of Coastal Surge Impacts and Sea Level Rise.* 2012 World Environmental and Water Resources Congress, Albuquerque, NM. May 20-24, 2012. *Session Organizer.*

16. *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 - <i>virtual due to COVID-19</i>	07/2020
NSF Hazards Enabling Fellows Workshop I*, Puerto Rico - <i>virtual due to COVID-19</i>	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