Dr. Katherine (Katy) Serafin

CONTACT INFORMATION

University of Florida
Department of Geography
College of Liberal Arts and Sciences
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RESEARCH INTERESTS

coastal hazards; compound events; hazard adaptation and resilience; extreme value analysis; probabilistic modeling; sea level change; risk analysis

EDUCATION

Ph.D., **Oregon State University**, Corvallis, OR — 2018
Ocean, Earth, and Atmospheric Sciences

Certificate, **Oregon State University**, Corvallis, OR — 2016
Graduate Certificate in College and University Teaching

M.S., **Oregon State University**, Corvallis, OR — 2013
Ocean, Earth, and Atmospheric Sciences

B.A., **Connecticut College**, New London, CT — 2008
Environmental Studies

PROFESSIONAL APPOINTMENTS

Assistant Professor, University of Florida — Aug 2019 – present
Department of Geography
College of Liberal Arts and Sciences

Visiting Scholar, Stanford University — Aug 2019 – Dec 2019
Department of Geophysics
School of Earth, Energy & Environmental Sciences

Postdoctoral Researcher, Stanford University — Feb 2018 – Aug 2019
Department of Geophysics
School of Earth, Energy & Environmental Sciences

Graduate Research Assistant, Oregon State University — Aug 2010 – Dec 2017
College of Earth, Ocean, and Atmospheric Studies

Data Analyst, Jacobs Technology, Inc. — July 2008 – July 2010
Contracted to the U.S. Geological Survey,
St. Petersburg Coastal and Marine Science Center

HONORS AND AWARDS

UF Water Institute Early Career Faculty Fellow, *University of Florida* — 2024 - 2027
Florida Climate Institute Early Career Faculty Fellow, *University of Florida* — 2021 - 2024
Vice Provost Award of Excellence, *Oregon State University* — 2017
- Envision Tillamook Coastal Futures Project

Outstanding Student Paper Award, *American Geophysical Union* — 2016
Best Oral Presentation, *Pacific Northwest Climate Conference* — 2013
Richard D. Mathews Memorial Scholarship, *Oregon State University* — 2013
Graduate Travel Award, *Oregon State University* — 2013
Oregon Lottery Scholarship, *Oregon State University* — 2010
Phi Beta Kappa Alumni Graduate Scholarship, *Delta of Connecticut Chapter* — 2010

GRANTS AND CONTRACTS

2024 - 2027, The impact of local-scale variability on regional patterns of total water levels.
National Oceanic and Atmospheric Administration, PI: K Serafin, $544,667

2024 - 2026, How colliding forces change: The influence of climate and geography on flood transition zones. U.S. Coastal Research Program/U.S. Army Corps of Engineers Engineer Research & Development Center, PI: K Serafin, UCF, Co-PI: Thomas Wahl, Robert Jane, $391,572

2024 - 2025, Hernando Vulnerability Assessments. Tampa Bay Regional Planning Council, Florida Department of Environmental Protection, PI: Crystal Goodison, UF, Co-PI: K Serafin, $12,500 ($6,647 to Serafin)

2024 - 2025, Citrus Vulnerability Assessments. Tampa Bay Regional Planning Council, Florida Department of Environmental Protection, PI: Crystal Goodison, UF, Co-PI: K Serafin, $12,500 ($6,647 to Serafin)

2023, Tampa Bay Regional Inundation Coordination (TBRIC): Creating a Unified Approach and Inundation Models to Support Local Assessments. Tampa Bay Regional Planning Council, Florida Department of Environmental Protection, PI: Crystal Goodison, UF, Key Personnel: K Serafin, $25,000

2020 - 2022, When forces collide: Developing a scalable framework for compound flood risk assessment. U.S. Coastal Research Program, PI: Thomas Wahl, UCF, co-PI: K Serafin, $376,477 ($163,838 to Serafin/UF)

REFEREED PUBLICATIONS

* indicates student-led manuscript † indicates authors contributed equally

[1] MacKie, E.J.†, Millstein, J.†, and **Serafin, K.A.**, 2024. 47 Years of Large Antarctic Calving Events: Insights From Extreme Value Theory, *Geophysical Research Letters*, 51(23), doi:10.1029/2024GL112235
Media Coverage:
AGU EOS Research Spotlight, Massive Antarctic Icebergs May Calve at Random
UF CLAS News, Antarctic ice sheet faces "death by a thousand cuts"

[2] Amanambu, A. C.*, Mossa, J., **Serafin, K.A.**, and Binford, M. 2024. Hydrological drought and floodplain disconnectivity: quantifying flow thresholds in a large coastal plain river, *Hydrological Sciences Journal*, 69(16), doi:10.1080/02626667.2024.2410908

[3] Quadrado, G.P.* and **Serafin, K.A.**, 2024. The Timing, Magnitude, and Relative Composition of Annual Maximum Total Water Levels Vary Seasonally along the U.S. Atlantic Coast, *Journal of Geophysical Research: Oceans*. 129(9), doi:10.1029/2023JC020557

[4] **Serafin, K.A.**, Koseff, J.R., Ouyang, D., and Suckale, J., 2024. Moving from total risk to community-based risk trajectories increases transparency and equity in flood risk mitigation planning along urban rivers, *Environmental Research Letters*. 19(6), doi:10.1088/1748-9326/ad3c58
Media Coverage:
Stanford Report, Preparing for urban floods with an eye toward equity
UF CLAS News, Scientists lead the charge for equity in flood risk mitigation

[5] Bowers, C.*, **Serafin, K.A.**, and Baker, J.W., 2024. Uncovering Drivers of Atmospheric River Flood Damage using Interpretable Machine Learning, *Natural Hazards Review*, 25(3), 04024022.

[6] Bowers, C.*, **Serafin, K.A.**, and Baker, J.W., Temporal Compounding increases economic impacts of atmospheric rivers in California, *Science Advances*, 10(3), doi:10.1126/sciadv.adi7905
Media Coverage:
Stanford Report, Clusters of atmospheric rivers amp up California storm damages

UF CLAS News, Study reveals compounding risks of atmospheric river storms
San Francisco Chronicle, California could face more atmospheric river 'super-sequences,' study finds
Washington Post, Why record rain hasn't washed away California's water woes

[7] Bowers, C.*, **Serafin, K.A.**, Tseng, K.C., and Baker, J.W., 2023. Atmospheric river sequences as indicators of hydrologic hazard in historical reanalysis and GFDL SPEAR future climate projections, *Earth's Future*, 11(2), doi:10.1029/2023EF003536

[8] Huguenin, C.N.*, **Serafin, K.A.**, and Waylen, P.R., 2023. A spatio-temporal analysis of the role of climatic drivers influencing extreme precipitation events in a Costa Rican basin, *Weather and Climate Extremes*, 42, doi:10.1016/j.wace.2023.100602

[9] Hsu, C.E.*, **Serafin, K.A.**, Yu, X., Hegermiller, C., Warner, J.C., and Olabarrieta, M.. 2023. Total water levels along the U.S. East Coast during three along-shelf propagating tropical cyclones: relative contribution of storm surge and wave runup, *Natural Hazards and Earth System Sciences*, doi:10.5194/nhess-23-3895-2023

[10] Wahl, T., **Serafin, K.A.**, Jane, R.A., Malagón-Santos, V., Rashid, M.M., Doebele, L., Timmers, S.R., Schmied, L. and Lindemer, C., 2023. When forces collide: Developing a scalable framework for compound flood risk assessment, *Coastal Sediments 2023: The Proceedings of the Coastal Sediments 2023*, doi:10.1142/9789811275135_0263

[11] Jane, R. A., Malagón-Santos, V., Rashid, M.M., Doebele, L., Wahl, T., Timmers, S.R., **Serafin, K.A.**, Schmied, L. and Lindemer, C., 2022. A hybrid framework for rapidly locating transition zones: a comparison of event- and response-based return water levels in the Suwannee River FL, *Water Resources Research*, doi:10.1029/2022WR032481

[12] Juárez, B., Stockdon, S., **Serafin, K.A.**, and Valle-Levinson, A., 2022. Compound flooding in a subtropical estuary caused by Hurricane Irma 2017, *Geophysical Research Letters*, doi:10.1029/2022GL099360

[13] Bowers, C.*, **Serafin, K.A.**, Baker, J.W., 2022. A Performance-Based Approach to Quantify Atmospheric River Flood Risk, *Natural Hazards and Earth System Sciences*, 22(4), 1371-1393

[14] Shope, J.B., Erikson, L.H., Barnard, P.L., Storlazzi, C.D., **Serafin, K.A.**, Doran, K., Stockdon, H.F., Reguero, B., Mendez, F., Castandeno, S., Cid, A., Cagigal, L., Ruggiero, P., 2022. Characterizing storm-induced coastal change hazards along the United States West Coast, *Scientific Data*, 9(1), 1-20

[15] Kasmalkar, I. G*., **Serafin, K. A.**, and Suckale, J., 2021. Integrating urban traffic models with coastal flood maps to quantify the resilience of traffic systems to episodic coastal flooding, *MethodsX*, 8, 101483

[16] Bick, I.A.*, Santiago Tate*, A.F., **Serafin, K.A.**, Miltenberger, A., Evans, M., Ortolano, L., Ouyang, D., and Suckale, J., 2021. Rising Seas, rising inequity? Communities at risk in the San Francisco Bay Area and implications for adaptation policy, *Earth's Futures*, doi:10.1029/2020EF001963

[17] Mills, A.K., Ruggiero, P., Bolte, J.P., **Serafin, K.A.**, and Lipiec, E., 2021. Quantifying uncertainty in exposure to coastal hazards associated with both climate change and adaptation strategies: A US Pacific Northwest alternative coastal futures analysis, *Water*, 3(4), 545. doi:10.3390/w13040545

[18] Conlin, M.*, **Serafin, K.A.**, and Ruggiero, P., 2020. Do something! A daring ocean rescue by coastal fieldworkers on the Oregon coast, *Journal of Coastal Research:*

Stories from the Field (special issue), 101(sp1), pp. 377-382. doi:10.2112/JCR-SI101-067.1

[19] Kasmalkar, I.G.*, **Serafin, K.A.**†, Miao, Y., Bick, I.A., Ortolano, L., Ouyang, D., and Suckale, J., 2020. When floods hit the road: Resilience to flood-induced commute disruption in the San Francisco Bay area and beyond, *Science Advances*, 6(32). doi:10.1126/sciadv.aba2423
Media Coverage:
Stanford researchers project regionwide commute disruption with Bay Area coastal flooding
UF CLAS News, Geography Professor Analyzes Impact of San Francisco Bay Area Coastal Flooding on Commutes

[20] **Serafin, K.A.**, Ruggiero, P., Parker, K.A., and Hill, D.F., 2019. What's streamflow got to do with it? Understanding contributions to extreme total water levels along an ocean-to-river gradient, *Natural Hazards and Earth System Science*,19(7), pp. 1415-1431. doi:10.5194/nhess-19-1415-2019

[21] **Serafin, K.A.**, Ruggiero, P., Barnard, P.L. and Stockdon, H.F., 2019. The influence of shelf bathymetry and beach topography on extreme total water levels: Linking large-scale changes of the wave climate to local coastal hazards, *Coastal Engineering*, 150, pp. 1-17. doi:10.1016/j.coastaleng.2019.03.012

[22] Parker, K., Ruggiero, P., **Serafin, K.A.**, and Hill, D.F., 2019. Emulation as an approach for rapid estuarine modeling, *Coastal Engineering*, 150, pp. 79-93. doi:10.1016/j.coastaleng.2019.03.004

[23] Cohn, N., Ruggiero, P., García-Medina, G., Anderson, D., **Serafin, K.A.**, and Biel, R., 2019. Environmental and morphologic controls on wave-induced dune response, *Geomorphology*, 329, pp. 108 - 128. doi:10.1016/j.geomorph.2018.12.023

[24] Erikson, L.H., Espejo, A., Barnard, P.L., **Serafin, K.A.**, Hegermiller, C.A., O'Neill, A., Ruggiero, P., and Limber, P.W., 2018, Identification of storm events and contiguous coastal sections for deterministic modeling of extreme coastal flood events in response to climate change, *Coastal Engineering*, 140, pp. 316–330. doi:10.1016/j.coastaleng.2018.08.003

[25] Mills, A.K., Bolte, J.P., Ruggiero, P., **Serafin, K.A.**, Lipiec, E., Corcoran, P., Stevenson, J., Zanocco, C. and Lach, D., 2018. Exploring the impacts of climate and policy changes on coastal community resilience: Simulating alternative future scenarios, *Environmental Modelling & Software*, 109, pp. 80-92. doi:10.1016/j.envsoft.2018.07.022

[26] Lipiec, E., Ruggiero, P., Mills, A., **Serafin, K.A.**, Bolte, J., Corcoran, P., Stevenson, J., Zanocco, C. and Lach, D., 2018. Mapping out climate change: Assessing how coastal communities adapt using alternative future scenarios, *Journal of Coastal Research*, 34(5), pp. 1196–1208. doi:10.2112/JCOASTRES-D-17-00115.1

[27] **Serafin, K.A.**, Ruggiero, P. and Stockdon, H.F., 2017. The relative contribution of waves, tides, and nontidal residuals to extreme total water levels on US West Coast sandy beaches, *Geophysical Research Letters*, 44(4), pp. 1839–1847. doi:10.1002/2016GL071020

[28] Barnard, P.L., Hoover, D., Hubbard, D.M., Snyder, A., Ludka, B.C., Allan, J., Kaminsky, G.M., Ruggiero, P., Gallien, T.W., Gabel, L. and McCandless, D., Weiner, H.M., Cohn, N., Anderson, D.L., **Serafin, K.A.**, 2017. Extreme oceanographic forcing and coastal response due to the 2015–2016 El Niño, *Nature Communications*, 8,pp. 14365. doi:10.1038/ncomms14365

[29] **Serafin, K.A.** and Ruggiero, P., 2014. Simulating extreme total water levels using a time-dependent, extreme value approach, *Journal of Geophysical Research: Oceans*, 121(5), 925–938. doi:10.1002/2014JC010093

[30] Chavas, D., Yonekura, E., Karamperidou, C., Cavanaugh, N. and **Serafin, K.A.**, 2012. US hurricanes and economic damage: Extreme value perspective, *Natural Hazards Review*, 14(4), pp. 237–246. doi:10.1061/(ASCE)NH.1527-6996.0000102

[31] **Serafin, K.A.**, Campbell C., and Thompson, D.M., 2011, A Comparison of Constrained and Unconstrained Beaches in Groton, CT, *The Northeastern Geographer*. Vol. 3.

TEXTBOOK CHAPTERS

[1] Jane, R., Santiago-Collazo, F. L., Jane, R., Santiago-Collazo, F. L., **Serafin, K. A.**, Gori, A., Peña, F., and Wahl, T., 2025. Compound hazards during tropical cyclones. In *Tropical Cyclones and Associated Impacts*,pp. 95-119. Elsevier.

OTHER PUBLICATIONS

[1] Ruggiero, P., **Serafin, K.A.**, Parker, K., and Hill, D.F, 2019. Assessing the Impacts of Coastal Flooding on Treaty of Olympia Infrastructure. A report to the Quinault Indian Nation, Hoh Tribe, and Quileute Tribe. Oregon Climate Change Research Institute, Corvallis, OR.

[2] Talebi, B., Kaminsky, G.M., Ruggiero, P., Levkowitz, M., McGrath, J., **Serafin, K.A.**, and McCandless,D., 2017, Assessment of coastal erosion and future projections for North Cove, Pacific County, Washington State Department of Ecology, Publication no. 17-06-010.

[3] **Serafin, K.A.**, Ruggiero, P., Stockdon, H.F., Barnard, P., and Long, J.W., 2016, A Framework for Characterizing Storm-Induced Coastal Change Hazards Along the US West Coast, White Paper co-authored by Oregon State University and the USGS.

[4] Allan, J.C., Ruggiero, P., Cohn, N., O'Brien, F.E., **Serafin, K.A.**, Roberts, J.T., and Stimely, L., 2015, Coastal Flood Hazard Study, Curry County, Oregon, Oregon Department of Geology and Mineral Industries Open-File Report O-15-07.

[5] Allan, J.C., Ruggiero, P., Cohn, N., Garcia, G., O'Brien, F.E., **Serafin, K.A.**, and Stimely, L.L., and Roberts, J.T., 2015, Coastal Flood Hazard Study, Lincoln County, Oregon, Oregon Department of Geology and Mineral Industries Open-File Report O-15-06.

[6] Stockdon, HF., Doran, KS., and **Serafin, K.A.**, 2010, Coastal Change on Gulf Island National Seashore during Hurricane Gustav: West Ship, East Ship, Horn, and Petit Bois Islands, U.S. Geological Survey Open-File Report 2010-1090, 18p., online only.

[7] Doran, K.S., Stockdon, H.F., Plant, N.G., Sallenger, A.H., Guy, K., and **Serafin, K.A.**, 2009, Hurricane Gustav: Observations of Coastal Change: U.S. Geological Survey Open-File Report. 2009-1279

[8] Doran, K.S., Plant, N.G., Stockdon, H.F., Sallenger, A.H., and **Serafin, K.A.**, 2009, Hurricane Ike: Observations of Coastal Change: U.S. Geological Survey Open-File Report 2009-1061.

INVITED TALKS

Serafin, K.A., When forces collide: Building resilience to compound flooding hazards. *Distinguished Scholar Seminar, UF Water Institute*, April 2025

Serafin, K.A., Total water level relative composition and its influence on the potential for coastal change across the continental United States. Virtual webinar to *Cascadia CoPe Hub Seminar*, January 2025

Serafin, K.A., Coastal community resilience in the face of increased flooding and sea level change. *U.S. Coastal Research Program Decadal Visioning Workshop*, June 2024

Serafin, K.A., Extreme sea levels and coastal hazards. Virtual webinar to *Managing Stormwater in a Changing Florida Panhandle 2024*, May 2024

Serafin, K.A., When forces collide: Integrating statistical and physical models to improve understanding of compound flooding hazards. *UF Geological Sciences Seminar Series*, April 2024

Serafin, K.A., Sea level rise and coastal hazards. *9th Annual UF Climate Communications Summit*, January 2024

Serafin, K.A., How the timing and relative contribution of extreme coastal water levels vary seasonally across the US Atlantic coast. *Coastal Carolina CMWS Seminar Series*, September 2023

Serafin, K.A., Evaluating the relative contribution of individual processes to extreme total water levels. *U.S. Geological Survey Internal Seminar*, June 2023

Serafin, K.A. and Wahl, T., When forces collide: Developing a scalable framework for compound flood risk assessment. Virtual Webinar to *U.S. Coastal Research Program Monthly Meeting*, April 2023

Serafin, K.A., Timmers, S.R., Jane, R.A., Rashid, M.M., Tomko, B., Schmied, L., and Lindemer, C. Identifying compounding flood drivers along the Savannah River using data-driven and hybrid modeling approaches. *Georgia Water Resources Conference*. Athens, GA. March 2023

Serafin, K.A., Keynote Presentation: Building resilience to coastal extreme events in a changing climate, *Young Coastal Scientists and Engineers Conference - Americas, Pensacola Beach, FL*, November 2022

Serafin, K.A., Flooding and erosion hazards in a changing climate, *Florida Sea Grant Climate Change Work Action Group Quarterly Meeting, Virtual Presentation*, October 2022

Serafin, K.A. and Wahl, T., When forces collide: Developing a scalable framework for compound flood risk assessment. Virtual Webinar to *U.S. Coastal Research Program Monthly Meeting*, June 2022

Serafin, K.A., Coastal Extreme Events and Climate. *Climate and Ocean: Variability, Predictability and Change (CLIVAR) Phenomena, Observations, and Synthesis (POS) Panelist, Virtual Presentation*, July 2020

Serafin, K.A.,Compound flood risk in a changing climate. The Water, Wetlands, and Watersheds Seminar, *University of Florida*, September 2019

Serafin, K.A., Enabling science-based resilience planning in a changing climate. *University of Florida*, February 2019

Serafin, K.A., Enabling science-based resilience planning in a changing climate. *Rice University*, February 2019

Serafin, K.A., Coastal flooding processes in Washington state. *Webinar to the Washington Coastal Hazards Resilience Network*, February 2018

Serafin, K.A. and Mills, A.K. Envisioning coastal futures. *Oregon King Tide End of Year Party, Lincoln City, OR*, February 2015

Serafin, K.A. and Ruggiero, P. Simulating extreme total water level events using a time-dependent, extreme value approach. *IH Cantabria, Santander, Spain*, April 2013

Serafin, K.A. and Ruggiero, P. The role of sea level rise and increased storminess in Pacific Northwest coastal change and flood hazards. *Oregon Coast Aquatic and Marine Science Partnership (OCAMP), Newport, OR*, May 2012

SELECT CONFERENCE ABSTRACTS

**indicates student author $^{+}$indicates presenting author if not first-author*

Sami, M.D.*, **Serafin, K.A.**, and Quadrado, G.P.*, Evaluating the Spatio-Temporal Impact of Storm Surge Duration and Magnitude on Extreme Coastal Water Levels Across U.S. Coastlines, poster presentation to *Florida Society of Geographers Annual Meeting*, Gainesville, FL, February 2025

Huguenin, C.* and **Serafin, K.A.**, Assessing extreme dry spells across the Tempisque-Bebedero River Basin, Costa Rica, poster presentation to *Florida Society of Geographers Annual Meeting*, Gainesville, FL, February 2025

Capps Herron, H.* and **Serafin, K.A.**, Spatiotemporal Variability in Baseflow Relative Contribution to Extreme Annual Streamflow, Florida: Exploration in Climate Division 1, poster presentation to *Florida Society of Geographers Annual Meeting*, Gainesville, FL, February 2025

Quadrado, G.P.* and **Serafin, K.A.** Total Water Level Driving Processes Influence the Potential for Coastal Change along United States Coastlines, oral presentation to *American Geophysical Union Meeting*, Washington, D.C., December 2024

MacKie, E.J., Millstein, J., and **Serafin, K.A.** Extreme value theory shows no increase in Antarctic calving size over the last half century, poster presentation to *American Geophysical Union Meeting*, Washington, D.C., December 2024

MacKie, E.J., Millstein, J., and **Serafin, K.A.** Extreme value theory shows no increase in Antarctic calving size over the last half century, oral presentation to *2024 Scientific Committee on Antarctic Research Open Science Conference*, Pucón, Chile, August 2024

Sami, M.S.*, **Serafin, K.A.**, and Quadrado, G.P.*, Assessing the Influence of Storm Surge Characteristics on the Intensity of Extreme Coastal Water Levels, oral presentation to *6th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Venice, Italy, July 2024

Tomko, B.*, **Serafin, K.A.**, Jane, R.A., Wahl, T., Schmied, L., Lindemer, C., Nasr, A., Comparing Joint Design Events from Event-Based and Response-Based Approaches for Approximating Return Levels Along Atlantic and Gulf Coast River Flood Transition Zones, oral presentation to *6th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Venice, Italy, July 2024

Millstein, J., MacKie, E.J., and **Serafin, K.A.** An extreme value theory perspective on large iceberg calving events, oral presentation to *Community Earth System Model (CESM) Workshop 2024*, Boulder, CO, June 2024

Millstein, J., MacKie, E.J., and **Serafin, K.A.** An extreme value theory perspective on large iceberg calving events, oral presentation to *Colorado Glaciology Workshop 2024*, Boulder, CO, April 2024

Amanambu, A., Mossa, J., **Serafin, K.A.**, and Binford, M. Hydrological Drought and Disconnectivity: Quantifying Low Flow Conditions in a Large Coastal plain River, oral presentation to *2024 Association of American Geographers (AAG) Annual Meeting*, Honolulu, HI, April 2024

Quadrado, G.P.* and **Serafin, K.A.**, Annual maximum total water levels vary across storm seasons along the U.S. Atlantic Coast, poster presentation to *9th Biennial UF Water Institute Symposium*, Gainesville, FL, February 2024

Tomko, B.*, **Serafin, K.A.**, Jane, R.A., Rashid, M.M., Nasr, A., Wahl, T., Schmied, L., Lindemer, C., Identifying flood transition zone variation across multiple Gulf and Atlantic Coast Rivers, poster presentation to *9th Biennial UF Water Institute Symposium*, Gainesville, FL, February 2024

Sami, M.S.* and **Serafin, K.A.**, Durational pattern analysis of extreme water level events: A step toward understanding compounding coastal risks, poster presentation to *9th Biennial UF Water Institute Symposium*, Gainesville, FL, February 2024

Huguenin, C.*, **Serafin, K.A.**, Waylen, P.R., Climatic drivers of extreme precipitation in a Costa Rican basin: A spatiotemporal analysis, poster presentation to *9th Biennial UF Water Institute Symposium*, Gainesville, FL, February 2024

Quadrado, G.*, **Serafin, K.A.**, and Adams, P.N. What drives coastal change? Assessing the relative composition of total water levels over morphological thresholds along the U.S. Atlantic Coast, poster presentation to *Florida Society of Geographers Annual Meeting*, St. Augustine, Florida, February 2024.

Bowers, C.*, **Serafin, K.A.**, Tseng, K.C., Baker, J.W., Temporal Compounding Amplifies Hydrologic and Economic Impacts of Atmospheric Rivers in California, Oral presentation to *American Geophysical Union Meeting*, San Francisco, CA, December 2023

Quadrado, G.*, **Serafin, K.A.**, Adams, P.N., What drives coastal change? Assessing the relative composition of total water levels over morphological thresholds along the U.S. Atlantic Coast, Poster presentation to *Center for Coastal Solutions 2023 Optimizing Solutions for Resilient Coasts Summit*, Gainesville, FL, December 2023

Tomko, B.*, **Serafin, K.A.**, Jane, R.A., Rashid, M.M., Wahl, T., Schmied, L., Lindemer, C., Identifying Flood Transition Zone Variation Across Multiple Atlantic and Gulf Coast Rivers, Poster presentation to *Center for Coastal Solutions 2023 Optimizing Solutions for Resilient Coasts Summit*, Gainesville, FL, December 2023

Bowers, C.*, **Serafin, K.A.**, and Baker, J.W. Interpretable Machine Learning for Flood Damage Estimation: Challenges and Opportunities, *13th International Workshop on Statistical Hydrology*, Boston, MA, November 2023

Wahl, T., **Serafin, K.A.**, Jane, R.A., Rashid, M.M., Schmied, L., Lindemer, C., Where land meets the ocean: compound flood risk and transition zones along U.S. coastal rivers, Oral presentation to *World Environmental and Water Resources Congress*, Henderson, NV May 2023

Wahl, T., **Serafin, K.A.**, Jane, R.A., Malagon-Santos, V., Rashid, M.M., Doeble, L., Timmers, S.R., Schmied, L., Lindemer, C., When forces collide: Developing a scalable framework for compound flood risk assessment, Oral presentation to *Coastal Sediments 2023*, New Orleans, LA, April 2023

Tomko, B.*, **Serafin, K.A.**, Jane, R.A., Rashid, M.M., Wahl, T., Schmied, L., Lindemer, C., Identifying the Flood Transition Zone Along the Potomac River, Poster presentation to *Florida Society of Geographers*, St. Augustine, FL, February 2023

Quadrado, G.* and **Serafin, K.A.**, Assessing The Drivers of Extreme Total Water Level Events Along The U.S. Atlantic Coast, Poster presentation to *Florida Society of Geographers*, St. Augustine, FL, February 2023

Huguenin, C.*, **Serafin, K.A.**, Waylen, P.R., Characterizing precipitation drivers of intra and inter annual variability in hydroclimatic extremes with time dependent variables. The case of the Tempisque-Bebedero river basin in northwestern Costa Rica, Oral presentation to *Florida Society of Geographers*, St. Augustine, FL, February 2023.

Serafin, K.A., Timmers, S.R., Wahl, T., Jane, R.A., Rashid, M.M., Malagon-Santos, V., Doebele, L., Schmied, L., Lindemer, C., Identifying spatially variable compounding flood drivers along coastal rivers using observed and simulated data, Poster presentation to the *American Geophysical Union Meeting*, Chicago, IL, December 2022

Bowers, C.*, **Serafin, K.A.**, Baker, J.W., Filipek, E., Occurrence and impacts of AR Sequences, Oral presentation to *International Atmospheric Rivers Conference (IARC) Community*, October 2022

Jane, R.A., Malagon-Santos, V., Rashid, M.M., Doebele, L., Wahl, T., Timmers, S.R., **Serafin, K.A.**, Schmied, L., Lindemer, C. Can an event-based approach provide robust estimates of extreme water levels along the transition zone of the Suwannee River, Florida?. Oral presentation to *5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Orlando, FL, May 2022

Timmers, S.R.*, **Serafin, K.A.**, Rashid, M.M., Jane, R.A., Malagon-Santos, V., Doebele, L., Wahl, T., Schmied, L., Lindemer, C. Identifying spatially variable compounding flood drivers along coastal rivers using observed and simulated data. Poster presentation to *5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Orlando, FL, May 2022

Quadrado, G.P.* and **Serafin, K.A.** Spatial and temporal distribution of extreme total water levels drivers along the Atlantic margin of the Southeastern United States. Poster presentation to *5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Orlando, FL, May 2022

Serafin, K.A., Koseff, J., Baker, J.W., Suckale,J. Flood risk transfer as a consequence of climate change and infrastructure modifications along the San Francisquito Creek, California. Oral presentation to *5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Orlando, FL, May 2022

Huguenin, C.*, **Serafin, K.A.**, Waylen, P. Assessing the drivers of extreme dry spells across the Tempisque-Bebedero River Basin, Costa Rica. Oral presentation to *5th International Conference Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Orlando, FL, May 2022

Huguenin, C.*, **Serafin, K.A.**, Waylen, P. Characterizing inter and intra annual variability in hydroclimatic extremes: The case of the Tempisque river basin in Northwestern Costa Rica. Poster presentation *American Geophysical Union Meeting*, December 2021

Timmers, S.R.*, **Serafin, K.A.**, Wahl, T., Understanding Compound Flood Drivers through a Hybrid Modeling Approach along Southeastern U.S. Coastal River Systems. Poster presentation at *American Geophysical Union Meeting*, December 2021

Quadrado, G.P.*, **Serafin, K.A.**, Adams, P.N. The Relative Contribution to Total Water Levels Over Morphological Thresholds along the Atlantic and Gulf Coasts of Florida. Poster presentation at *American Geophysical Union Meeting*, December 2021

Bowers, C.*, **Serafin, K.A.**, Baker, J.W. A Performance-Based Approach to Quantifying Atmospheric River Flood Risk in Northern California, Poster presentation at *American Geophysical Union Meeting*, December 2021

Quadrado, G.P.* and **Serafin, K.A.**, Spatio-temporal variability of extreme water level drivers on the East and Gulf coasts of Florida. Oral presentation at *Young Coastal Scientists and Engineers Conference-Americas*, October 2021

Timmers, S.R.*, **Serafin, K.A.**, Wahl, T., Identifying compound flood drivers along the Savannah River, South Carolina. Oral presentation at *American Beach and Shore Preservation Association (ASBPA) Annual Meeting*, September 2021

Caplen, D.*, **Serafin, K.A.**, Analyzing the impact of coastal water levels on beach morphology near Matanzas Inlet, Florida. Poster presentation at *Florida Society of Geographers*, February 2021

Timmers, S.R.*, **Serafin, K.A.**, A data-driven analysis of compound flood occurrence along coastal rivers in the southeastern United States. Poster presentation at *Florida Society of Geographers*, February 2021

Serafin, K.A., Suckale, J., Koseff, J., Baker, J.W. Climate change and management decisions could transfer flood risk to socioeconomically disadvantaged communities along the San Francisquito Creek, California. Oral presentation at *American Geophysical Union Meeting*, December 2020

Bowers, C.*, **Serafin, K.A.**, Baker, J.W. Identifying key damage drivers of atmospheric river-induced flooding in northern California. Oral presentation at *American Geophysical Union Meeting*, December 2020

Bowers, C.*, **Serafin, K.A.**, Baker, J.W. A Performance-Based Framework to Quantify Atmospheric River-Induced Losses in Northern California, Oral presentation to *International Atmospheric Rivers Conference (IARC) Community*, October 2020

Serafin, K.A., Nuisance flooding duration across the United States. Poster presentation to *Ocean Sciences Meeting*, San Diego, CA, February 2020

Serafin, K.A., Kasmalkar, I., Miao, Y., Bick, I.A., Ortolano, L., Ouyang, D., Mariwala, A., Bhattacharjee, G., Baker, J.W., Suckale, J., The cascading consequences of sea level rise: Evaluating flood-induced commute disruption in the San Francsico Bay Area. Oral presentation to *Natural Hazards Researchers Meeting*, Boulder, CO, July 2019

Serafin, K.A., Baker, J.W., Suckale, J., Compound flood risk in the south San Francisco Bay: A city manager's worst nightmare. Poster presentation to *Workshop on Correlated Extremes*, Columbia University, New York, NY, May 2019

Serafin, K.A., Suckale, J., Koseff, J.R., and Baker, J.W., Rethinking return levels: Towards a meaningful assessment of flood risk in a changing climate. Oral presentation to *American Geophysical Union Fall Meeting*, Washington, D.C., December 2018

Kasmalkar, I., **Serafin, K.A.**, Bick, I.A., Suckale, J., Ortolano, L., Ouyang, D., Miao, Y., Mariwala, A., Bhattacharjee, G., Baker, J.W., When floods hit the road: Commute disruption due to coastal flooding and sea level rise in the San Francisco Bay Area. Oral presentation to *American Geophysical Union Fall Meeting*, Washington, D.C., December 2018

Serafin, K.A., Ruggiero, P., Parker, K.A., Hill, D.F. What drives flooding? An exploration of the physical processes dominating extreme total water Levels along an ocean-to-river gradient. Poster presentation to *Ocean Sciences Meeting*, Portland OR, February 2018

Serafin, K.A., Ruggiero, P., Parker, K.A., Hill, D.F. Interpreting contributions to extreme total water levels along an ocean-to-river water level gradient. Oral presentation to *Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Southampton, UK, September 2017

Serafin, K.A., Ruggiero, P., Stockdon, H.F., Barnard, P., Long, J.W. Location, Location, Location! Morphologic controls on US West Coast total water levels. Poster presentation to *American Geophysical Union Fall Meeting*, San Francisco, CA, December 2016

Serafin, K.A., Ruggiero, P., Stockdon, H.F. Total Water Level Fun Facts: The relative contribution of extreme total water levels along the US West Coast. Poster presentation to *Ocean Sciences Meeting*, New Orleans, LA, February 2016

Evans-Wilent, J., **Serafin, K.A.**, Bolte, J.P., Ruggiero, P., Schwartz, C., Stevenson, J. Engaging stakeholders in coastal adaptation planning in light of climate change in the Pacific Northwest: Comparing knowledge to action networks for two coastal communities. Poster presentation to *Ocean Sciences Meeting*, New Orleans, LA, February 2016

Serafin, K.A., Ruggiero, P.$^{+}$,Stockdon, H.F. Simulating the relative contributions of extreme total water levels along the US West Coast. Oral presentation to *Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN)*, Santander, Spain, September 2015

Serafin, K.A., Ruggiero, P., Stockdon, H.F., Barnard, P.L., Long J. Quantifying the role of climate variability on extreme total water level impacts: An application of a full simulation model to Ocean Beach, California. Oral presentation to *American Geophysical Union Fall Meeting*, San Francisco, CA, December 2014

Serafin, K.A., Mills, A.K., Lipiec, E., Ruggiero, P., Bolte, J.P., Zanocco, C.M., Stevenson, J., Lach, D.H. New thoughts on envisioning climate change impacts to coastal communities: Providing usable metrics for adaptation planning. Poster presentation to *Pacific Northwest Climate Science Conference*, Seattle, WA, September 2014

Serafin, K.A., Méndez, F.J., Espejo, A., Camus, P., Ruggiero, P. Improving estimates of extreme total water levels: Incorporating local climate indices into a full simulation model. Oral presentation to *Ocean Sciences Meeting*, Honolulu, HI, February 2014.

Serafin, K.A., Ruggiero, P., Erikson, L. Impact of projected changes in wave climate on extreme total water levels in the US Pacific Northwest. Oral presentation to the *Pacific Northwest Climate Conference*, Portland, OR, September 2013

Serafin, K.A. and Ruggiero, P. Simulating Extreme Total Water Level Events using a time-dependent extreme value Approach. Oral presentation to the *International Coastal Symposium*, Plymouth, UK, April 2013

Serafin, K.A. and Ruggiero, P. Evaluating extreme total water levels in the NE Pacific using a full simulation, time-dependent, extreme value approach. Poster presentation to *American Geophysical Union Fall Meeting*, San Francisco, CA, December 2012

Serafin, K.A. and Ruggiero, P. Extreme waves and high water levels in the NE Pacific. Oral presentation to *Ocean Sciences Meeting*, Salt Lake City, UT, February 2012

TEACHING EXPERIENCE

University of Florida, Gainesville, FL

Instructor of Record

- GEO3222 Sea Level Science — Spring 2023
- IDS2935 Living with Rising Seas — Spring 2021 - 2024, Fall 2023
- GEO2230 Living with Rising Seas — Spring 2025
- GEO6936/4285 Water, Risk, and Extreme Events — Fall 2020, Spring 2022, Fall 2022

Guest Lecturer

- IDS4930: Introduction to Gulf Studies — Spring 2025

Stanford University, Stanford, CA

Guest Lecturer

- Topics in Disaster Resilience Research — Spring 2018

Teaching Mentor

- Resilient SF Bay — Spring 2018 - 2019, Winter 2019

Oregon State University, Corvallis, OR

Guest Lecturer

- Introduction to Atmospheric Science — Winter 2015
- Coastal Geomorphology — Winter 2015
- Special Topics: Coastal Hazards — Winter 2014
- Marine Resource Management Seminar — Fall 2013

Field Lecturer

- Cascadia Field Trip — Fall 2015, 2017

Teaching Internship

- Coastal Hazards, (Graduate course, 12 students) — Spring 2016

Teaching Assistant

- The Solid Earth, (Graduate course, 18 students) — Fall 2015

GRADUATE STUDENTS

CURRENT
PhD Students:
Holli Capps Herron
Caroline Huguenin
Gabrielle Quadrado
Sabiha Sabrina
Md. Shamsudduha Sami

Masters Students:
Ally Recalde

PhD Committee Member:
Ehsan Ahmadi Afzadi, Civil Engineering
Airin Akter, Geography
Zainab Ali, Geography
Copeland Cromwell, Geological Sciences
Matheus de Assis Bose, Geological Sciences
Casey Harris, Soil, Water, and Ecosystem Sciences
Jesse Kisembe, Geography
Jenna Reimer, Soil, Water, and Ecosystem Sciences
Michelle Ruiz, Geography
Jawata Saba, Geography
Juan Torres, Coastal and Oceanographic Engineering

GRADUATED
Masters Students:

Samantha Timmers, Summer 2022.
Current: Support Meteorologist for NOAA Hurricane Hunters
Brianna Tomko, Summer 2024.
Current: Climate Adaptation Specialist for AECOM

PhD Committee Member:
Amobichukwu Amanambu, Geography, 2023
Chu-En Hsu, Coastal and Oceanographic Engineering, UF, 2022

Masters Committee Member:
Holli Capps Herron, 2021

External PhD Committee Member:
Corinne Bowers, Civil and Environmental Engineering, Stanford University, 2023
Anais Couasnon, VU Amsterdam, Netherlands, 2023

International Thesis Examiner:
PhD thesis examiner, University of Newcastle, Australia, 2022 PhD thesis examiner, University of Tasmania, Australia, 2025

UNDERGRADUATE STUDENTS

Honors Thesis Students Advised:
David Caplan, Geography, 2022
Honors Thesis Committee Member:
Savannah Stockton, Civil Engineering, 2021

SERVICE

Professional Service

- UF Water Institute, Hydrologic Sciences Academic Concentration Coordinating Committee (elected), (2025 - present)
- UF Water Institute, Faculty Advisory Committee Member (elected), (2022 - present)
- Florida Climate Institute, Faculty Advisory Committee Member, (2021 - present)
- Florida Society of Geographers, Executive Committee Board Member, (2021 - present)
- SE Climate Adaptation Science Center Coastal Resiliency Working Group, (2020-2021)

- *Organizing and Scientific Committee Member*: 6th International Advances in Extreme Value Analysis and Applications to Natural Hazards (EVAN) Meeting, Venice, Italy, June 2024
- *Session Moderator*: Forecasting Impacts of Climate Change, Extreme Events and Sea Level Rise, 9th Biennial UF Water Institute Symposium, Gainesville, FL, February 2024
- *Planning Committee Member*: 9th Biennial UF Water Institute Symposium, Gainesville, FL, February 2024
- *Session Co-organizer*: Storm Surges, Waves, and Coastal Hazards, 28th General Assembly of the International Union of Geodesy and Geophysics (IUGG), Berlin, Germany, July 2023
- *Session Co-Chair and Moderator*: Linking Nearshore and Onshore Sediment Transport Processes and Geomorphic Responses: Insights From Observational and Modeling Studies, American Geophysical Union Fall Meeting, Chicago, IL, December 2022
- *Scientific Committee Member*: 5th International Advances in Extreme Value Analysis and Applications to Natural Hazards (EVAN) Meeting, Orlando, FL, May 2022
- *Session Co-Chair and Moderator*: Linking Nearshore and Onshore Sediment Transport Processes and Geomorphic Responses: Insights From Observational and Modeling Studies, American Geophysical Union Fall Meeting, New Orleans, LA, December 2021
- *Session Co-Chair and Moderator*: Extreme Sea Levels: Statistics, Impacts, and Adaptation, American Geophysical Union Fall Meeting, Virtual, December 2020

- *Session Chair Co-Chair and Moderator*: Extreme sea levels and coastal flood risk, Ocean Sciences Meeting, San Diego, CA, February 2020
- *Session Co-organizer*: Storm Surges, Waves, and Coastal Hazards, 27th General Assembly of the International Union of Geodesy and Geophysics (IUGG), Montreal, Canada, July 2019

- *Journal Reviewer*
  Earth Systems: Nature Sustainability, Nature Communications, Geophysical Research Letters, Environmental Research Letters, Physical Geography, Nature Communications Earth & Environment, Earth's Future, Surveys in Geophysics, Earth Surface Dynamics, Environmental Modelling & Software
  Hazards: Natural Hazards and Earth Systems Sciences, Natural Hazards
  Coastal/Ocean: Journal of Geophysical Research: Oceans, Ocean Engineering, Continental Shelf Research, Journal of Waterway, Port, Coastal, and Ocean Engineering, Journal of Atmospheric and Oceanic Technology, Estuaries and Coasts
  Water:Water Resources Research, Journal of the American Water Resources Association, Journal of Great Lakes Research
  Climate: Nature Climate Change, Climatic Change, Environmental Research: Climate, International Journal of Climatology

- *Proposal/Panel Reviewer*:
  - Panel reviewer, National Science Foundation, CiviL Infrastructure research for climate change Mitigation and Adaptation (CLIMA), 2023
  - Proposal reviewer, National Science Foundation, Physical Oceanography Program, 2021, 2022, 2023
  - Proposal reviewer, UK National Environmental Research Council (NERC) Standard Grants programme, 2021
  - Proposal reviewer, National Science Foundation, Arctic Social Sciences Program, 2020
  - Proposal reviewer, North Carolina Water Resources Research Institute, 2020
  - Proposal reviewer, North Carolina Sea Grant, 2019

Departmental Service

- Communications Committee, co-chair 2023 - present
- Alumni Development Committee, member 2021 - 2023
- Remote Sensing Faculty Search Committee, member 2023
- Graduate Admissions Committee, member 2020 - 2022
- Awards Committee, member 2020 - 2022
- AI + Atmospheric/Climate Science Faculty Search Committee, member 2021

Community Outreach

- Invited panel, *Impacts to the Gulf Environment*, 2024 Future of Florida Summit, Gainesville, FL (2025)
- Invited seminar, *Sea level change and coastal hazards*, UF Florida Chapter of Sustainable Ocean Alliance, Gainesville, FL (2024)
- Invited lecture, *Sea level rise and Florida's changing coastline*, Oak Hammock Institute of Learning in Retirement Spring course "Climate Change – What does it mean for Floridians?", Gainesville, FL (2021)
- Exhibit organizer for the Corvallis Farmer's Market, Corvallis, OR (2017)
- Science Judge, National Competition, National Ocean Sciences Bowl, Corvallis, OR (2017)
- Science Judge, Regional Competition, National Ocean Sciences Bowl, Corvallis, OR (2017)

- Workshop presenter for Tillamook Bay Community College Tech Trek Camp (2014)
- Rules Judge, Regional Competition, National Ocean Sciences Bowl, Corvallis, OR (2015)
- Rules Judge, Regional Competition, National Ocean Sciences Bowl, Corvallis, OR (2012)

INVITED WORKSHOPS

NCAR Earth System science and Technology hubs (NESTs), Charleston, SC 2023
- Full support for accepted participants

NSF Coastlines and People (CoPe), San Diego, CA 2018
- Full support for accepted participants

NASA Flood Risk Workshop, Boulder, CO 2018

NCAR Advanced Study Program (ASP) Summer Colloquium, Boulder, CO 2011
- Statistical assessment of extreme weather phenomena under climate change
- Full support for the 25 accepted students

FIELD EXPERIENCE

Sandbar-aEolian-Dune Exchange EXperiment (SEDEX2) 2017
Bathymetric surveying

Oregon State University Coastal Monitoring Program 2010-2017
Topographic and bathymetric surveying

PROFESSIONAL DEVELOPMENT

Unlearning Racism in the Geosciences (URGE) 2021
University of Florida

Social Justice Initiative, Session 1 and 2 2017
Oregon State University

The Inclusive Global Classroom 2016
Center for Teaching and Learning Symposium
Oregon State University

C-MORE Teaching Methods and Strategies Workshop 2015
Oregon State University

PROFESSIONAL AFFILIATIONS

American Geophysical Union, Member 2010–present
American Association for the Advancement of Science, Member 2019–2021
Florida Society of Geographers, Member 2020–present
UF Water Institute, Affiliate, 2019–present
UF Climate Institute, Affiliate 2019–present
UF Center for Coastal Solutions, Affiliate 2021–present