DYLAN ANDERSON

Field Research Facility, 1261 Duck Rd, Kitty Hawk, NC 27949
Research Civil Engineer, Coastal Hydraulics Laboratory, United States Army Corps Of Engineers
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PROFESSIONAL PREPARATION

Boston College	Chestnut Hill, MA	Geology & Geophysics	B.S. 2012
Oregon State Uni.	Corvallis, OR	Civil Engineering	PhD 2019

APPOINTMENTS

Research Civil Engineer (DBIV), USACE Coastal Hydraulics Lab	2022 - Present
ORISE Scholar, Field Research Facility, USACE Coastal Hydraulics Lab	2019 - 2022
Postdoctoral Scholar, North Carolina State University	2021 - 2022
Graduate Research Assistant, Oregon State University	2013 - 2019
Research Assistant, Boston College & Woods Hole Oceanographic Institute	2010 - 2013

JOURNAL PUBLICATIONS (IN PRESS)

1. Leung, M., P. Ruggiero, L. Cagigal, **D. Anderson**, and F. Mendez. The Role of El Nino Southern Oscillation in driving Coastal Hazards in the U.S. Pacific Northwest. *in revision at Nature Communications*

2. Cuevas Lopez, T.A., B.J. Tucker, J.C. Dietrich, **D. Anderson**, E. Lobaton, and J.S. Mariegaard. Neural Network Predictions of Peak Storm Tides due to Tropical Cyclones. *in review at Ocean Modelling*

JOURNAL PUBLICATIONS (REFEREED)

1. Cohn, N., and **D. Anderson**. Projecting the longevity of coastal foredunes under stochastic meteorological and oceanographic forcing. *accepted at Earth's Future* (May 25, 2025)

2. O'Dea, A., **D. Anderson**, R. Holman, C. Painter, and K. Brodie. (2025) cBathy-derived bathymetric estimates from satellite video. *Coastal Engineering*, 200, 104753. doi:10.1016/j.coastaleng.2025.104753

3. **Anderson, D.**, and N. Cohn. (2025) Future coastal tundra loss due to compounding environmental changes in Alaska. *Journal of Geophysical Research: Earth Surface, Special Issue: Forcing, response, and impacts of coastal storms in a changing climate*, 130(4), e2024JF008076, doi:10.1029/2024JF008076

4. **Anderson, D.**, A.S. Bak, N. Cohn, K.L. Brodie, B. Johnson, and P. Dickhudt. (2023) The impact of inherited morphology on sandbar migration during mild wave conditions. *Geophysical Research Letters.* 50(3), doi:10.1029/2022GL101219

5. McCann, M., **D. Anderson**, S. Bak, C. Sherwood, B. Bruder, K. Brodie. (2022) CoastalImageLib: An open-source Python package for creating common coastal image products. *SoftwareX*, 20, 101215, doi:10.1016/j.softx.2022.101215

6. Gharagozlou, A., **D. Anderson**, J.F. Gorski, and J.C. Dietrich. (2022) Emulator for Eroded Beach and Dune Profiles due to Storms. *Journal of Geophysical Research: Earth Surface*, 127, e2022JF006620. doi:10.1029/2022JF006620

7. **Anderson, D.**, J.C. Dietrich, S. Spiegler, and C. Cothron. (2022) Adaptation pathways for climate change resilience on barrier islands. *Shore & Beach*, 90(1), 1-11, doi:10.34237/1009012

8. **Anderson, D.**, P. Ruggiero, F.J. Mendez, P. Barnard, L. Erikson, A. O'Neill, M. Merrifield, A. Rueda, L. Cagigal, and J. Marra. (2021) Projecting Climate Dependent Coastal Flood Risk with a Hybrid Statistical Dynamical Model. *Earth's Future*, 9(12), doi:10.1029/2021EF002285

9. Gharagozlou, A., J.C. Dietrich, T.C. Massey, **D. Anderson**, J.F. Gorski, and M.F. Overton. (2021) Formation of a Barrier Island Breach and its Contributions to Lagoonal Circulation. (2021) *Estuarine, Coastal, and Shelf Science*, 262, 107593. doi:10.1016/j.ecss.2021.107593

10. Kim, Y., R.S. Mieras, **D. Anderson**, and T.W. Gallien. (2021) A Numerical Study of Sheet Flow Driven by Skewed-Asymmetric Shoaling Waves Using SedWaveFoam. (2021) *Journal of Marine Science Engineering*, 9, 936. doi:10.3390/jmse9090936

11. **Anderson, D.**, A.Spicer Bak, K.L. Brodie, N. Cohn, R. A. Holman, and J. Stanley. (2021) Quantifying Optically Derived Two-Dimensional Wave-Averaged Currents in the Surf Zone. *Remote Sensing*, 13(4), 690. doi:10.3390/rs13040690

12. Cagigal, L., A. Rueda, **D. Anderson**, P. Ruggiero, M. Merrifield, J. Montano, G. Coco, and F.J. Mendez. (2020) A multivariate, stochastic, climate-based wave emulator for shoreline change modelling. *Ocean Modelling*, 154. doi:10.1016/j.ocemod.2020.101695

13. **Anderson, D.**, A. Rueda, L. Cagigal, J.A.A. Antolinez, F.J. Mendez and P. Ruggiero. (2019) Time-varying emulator for short and long-term analysis of coastal flood potential. *Journal of Geophysical Research: Oceans*, 124(12). doi:10.1029/2019JC015312

14. Kim, Y., R. Mieras, Z. Cheng, **D. Anderson**, T. Hsu, J. Puleo, and D. Cox. (2019) A numerical study of sheet flow drien by velocity and acceleration skewed near-breaking waves on a surf zone sandbar using SedWaveFoam. *Coastal Engineering*. 152, doi:10.10.106/j.coastaleng.2019.103526

15. Antolinez, J.A.A., F. Mendez, **D. Anderson**, and P. Ruggiero. (2019) Predicting climate driven coastlines with a simple and efficient multi-scale mode. *Journal of Geophysical Research: Earth Surface*. 124(6), 1596-1624. doi:10.1029/2018JF004790

16. Mieras, R., J. Puleo, **D. Anderson**, D. Cox, and T. Hsu. (2019) Relative contributions of bed load and suspended load to sediment transport under skewed-aysmmetric waves on a sandbar crest. *Journal of Geophysical Research: Oceans*. 124(2). doi:10.1002/2018JC014564

17. Cohn, N., P. Ruggiero, G. Garcia-Medina, **D. Anderson**, K. Serafin, and R. Beil. (2019) Environmental and morphologic controls on wave-induced dune response. *Geomorphology*. 329. doi:doi:10.1016/j.geomorph.2018.12.023

18. **Anderson, D.**, P. Ruggiero., F.J. Mendez, J.A.A. Antolinez, and J. Allen. (2018) A climate index optimized for longshore sediment transport reveals interannual to multidecadal littoral cell rotations. *Journal of Geophysical Research: Earth Surface*, 123(8), 1958-1981. doi:10.1029/2018JF004689

19. **Anderson, D.**, D. Cox.,R. Mieras, J. Puleo, and T. Hsu. (2017) Observations of wave-induced pore pressure gradients and bed level response on a surf zone sandbar. *Journal of Geophysical Research: Oceans*, 122(6), 5169-5193. doi:10.1002/2016JC012557

20. Mieras, R., J. Puleo, **D. Anderson.**, D. Cox., and T. Hsu. (2017) Large-scale experimental observations of sheet flow on a sandbar under skewed-asymmetric waves. *Journal of Geophysical Research: Oceans*, 122(6), 5022-5045. doi:10.1002/2016JC012438

21. Barnard, P., D. Hoover, D. Hubbard, A. Snyder, B. Ludka, J. Allen, G. Kaminsky, P. Ruggiero, T. Gallien, L. Gabel, D. McCandless, H. Weiner, N. Cohn, **D. Anderson**, and K. Serafin. (2017) Extreme oceanographic forcing and coastal response due to the 2015-16 El Nino. *Nature Communications*. 8, 14365. doi:10.1038/ncomms14365

22. Susa, T., P. Ruggiero, **D. Anderson**, and N. Cohn. (2014) Morphological change and sand transport mechanisms in the dynamic dune complex of South Beach State Park, Oregon. *Shore and Beach*.

82(4), 24-34.

JOURNAL PUBLICATIONS (IN PREP)

1. Cromwell, C., P. Adams, and **D. Anderson**. Feedbacks between wave climate and satellite-derived shorelines indicate a multi-decadal shift in mid-Atlantic longshore sediment transport.
2. Brand, M., and **D. Anderson**. Hybrid modeling of future marsh restorations.
3. Ding, Y., and **D. Anderson**. Probabilistic simulations of shoreline change with a wave emulator

TECHNICAL NOTES AND GUIDANCE DOCUMENTS

1. **Anderson, D.**, M.C. Yawn, L.A. Aucoin, M.L. Carr, and N.C. Nadal-Caraballo. Evaluation of the Coastal Hazards System (CHS) Probabilistic Framework's storm selection methods along the U.S. West Coast. USACE ERDC Coastal and Hydraulics Laboratory Technical Note (in review)
2. **Anderson, D.** Update on CHL's Artificial Intelligence/Machine Learning in Coastal Engineering Activities. White Paper for the Board on Coastal Engineering Research. August 15, 2024.
3. **Anderson, D.**, C. Painter, A. O'Dea, T. Hesser, and K. Brodie. Processing Plant SkySat Video Collects for Bathymetric Inversions from Space. (2024), Coastal and Hydraulics Engineering Technical Note, U.S. Army Engineer Research and Development Center, ERDC/CHL CHETN-I-103, doi:10.21079/11681/48777
4. **Anderson, D.**, A. O'Dea, J.A. Straub, N.J. Spore, S.M. Brown, B.L. Bruder, T.A. Jernigan, K. Brodie, and M.W. Farthing. Evaluation of the Advanced Tactical Awareness Kit - Expeditionary Radar (ATAK-ER V1) for Accuracy and Reliability in Surf Zone Characterization in a Range of Environmental Conditions. (2024), Coastal and Hydraulics Engineering Technical Note, U.S. Army Engineer Research and Development Center, ERDC/CHL CHETN-VI-52, doi:10.21079/11681/48760
5. **Anderson, D.** ERDC's Expertise and International Collaborations in the Arctic. White Paper for the Board on Coastal Engineering Research. March 23, 2023.

CONFERENCE PAPERS

1. Ding, Y., and **D. Anderson**. (2025) Quantifying Uncertainty of Regional Shoreline Evolution Using Stochastic Wave Climate Emulator. *Proceedings of the 2025 World Environmental and Water Resources Congress Conference.* Anchorage, Ak, USA.
2. Brodie, K., A. O'Dea, **D. Anderson**, E. Holzenthal, N. Cohn, J. Braun, B. Johnson, and P. Dickhudt. (2025) Decadal Data Set of Hourly Beach Profile Evolution in Duck, NC. *Proceedings of the Coastal Dynamics Conference 2025.* Lisbon, Portugal.
3. Holzenthal, E., **D. Anderson**, N. Cohn, B. Johnson, and K. Brodie. (2025) Physics-Informed Machine Learning for Beach Morphodynamics Prediction. *Proceedings of the Coastal Dynamics Conference 2025.* Lisbon, Portugal.
4. Collins, A., A.S. Bak, **D. Anderson**, I. Conery, G. Fischer, and K. Brodie. (2025) Surf-zone Rip Current Measurements using Robotic Drifters. *Proceedings of the Coastal Dynamics Conference 2025.* Lisbon, Portugal.
5. Ding, Y., and **D. Anderson**. (2025) Probabilistic Long-Term and Regional Shoreline Evolution Using Stochastic Wave Climate Emulator for Estimation of Extreme Shoreline Changes. *Proceedings of the Coastal Dynamics Conference 2025.* Lisbon, Portugal.
6. Cagigal, Y., **D. Anderson**, et al. (2025) BlueMath-Hub: A cloud-based, open-source, python framework with interactive notebooks for statistical analysis and simulation of coastal climate hazards in a changing climate. *Proceedings of the Coastal Dynamics Conference 2025.* Lisbon, Portugal.

7. **Anderson, D.**, A. Gharagozlou, J. Gorski, and P. Ruggiero. (2023) Emluation of beach profile response to storms, in *The Proceedings of the Coastal Sediments Conference 2023*, New Orleans, LA, USA.

8. Heminway, S., N. Cohn, J. Skaden, E. Davis, C. Hein, and **D. Anderson**. (2023) Modeled changes in foredune morphology influence by variable storm intensity and sea-level rise. *Proceedings of the Coastal Sediments Conference 2023*. New Orleans, LA, USA.

9. Cohn, N., **D. Anderson**, J. Skaden, and B. van Westen. (2023) Simulating tipping points in future dune states. *Proceedings of the Coastal Sediments Conference 2023*. New Orleans, LA, USA.

10. Leung, M., P. Ruggiero, **D. Anderson**, F.J. Mendez, A. Rueda, and J. Bolte. (2019) Incorporating a probabilistic climate emulator into an agent-based coastal future forecasting system. *Proceedings of the Coastal Sediments Conference 2019*. St. Petersburg, FL, USA.

11. Antolinez, J.A.A., **D. Anderson**, F.J. Mendez, P. Ruggiero, and G. Kaminsky. (2019) Understanding long term coastal change and variability using a simple and efficient multi-process model. *Proceedings of the Coastal Sediments Conference 2019*. St. Petersburg, FL, USA.

12. Rueda, A., L. Cagigal, **D. Anderson**, C. Storlazzi, A. Dongeren, S. Pearson, J.Marra, P. Ruggiero, and F.J. Mendez. (2019) Towards a flood risk assessment on a reef-lined shoreline. *Proceedings of the Coastal Sediments Conference 2019*. St. Petersburg, FL, USA.

13. Mieras, R., J. Puleo, **D. Anderson**, D. Cox, and T. Hsu. (2017) Large-scale experimental observations of wave-induced sediment transport over a surf zone sandbar. *Proceedings of the 18th International Conference on Coastal Dynamics*. Helsingor, Denmark.

14. **Anderson, D.**, and P. Ruggiero. (2015) Modeling interannual to multi-decadal shoreline rotation of headland-bounded littoral cells, in *The Proceedings of the Coastal Sediments Conference 2015*, edited by P. Wang, J. Rosati, and J. Cheng, World Scientific Pub Co Inc, San Diego, USA, doi:10.1142/9789814689977_0195 (student paper award).

15. Cohn, N. **D. Anderson**, and P. Ruggiero. (2015) Observations of intertidal bar welding along a high energy dissipative coastline, in *The Proceedings of the Coastal Sediments Conference 2015*, edited by P. Wang, J. Rosati, and J. Cheng, World Scientific Pub Co Inc, San Diego, USA, doi:10.1142/9789814689977_0021

AWARDS AND HONORS

USACE CHL Merit Achievement Award	2025
Coastal Hydraulics Laboratory Superior Achievement by a Junior Staff Member	2024
Department of the Army Civilian Service Achievement Award	2024
Coastal Hydraulics Laboratory Outstanding Journal Publication Award	2023
Outstanding Reviewer Award: Journal of Oceanic Engineering	2021
USCRP Coastal Adaptation Pathways for Barrier Island Communities: $226,624	2019
Chapman Profession Development Award	2018
National Science Foundation Graduate Research Fellowship	2014 - 2017
Outstanding Student Paper Award - AGU Fall Meeting	2016
Best Student Presentation Award - State of the Coast	2015
Best Student Paper - Coastal Sediments Conference	2015
ARCS Scholarship (Achievement Rewards for College Scientists)	2013 - 2016
Provost's Distinguished Graduate Fellowship, Oregon State University	2013 - 2014

FUNDED PROJECTS

Partially-frozen surf zone dynamics (Lead-PI: $1.65M) 2023-2027

Funded by the DoD Military Engineering 6.1 Basic Research Program, this effort is developing a remote monitoring station transitioning technology developed at the Field Research Facility to a permafrost

bluff along the Arctic Ocean to observe coastal forcing and subsequent erosion at rapid timescales to better account for fundamental processes in future models. Capabilities include terrestrial LiDAR, multiple optical modalities, and in situ permafrost and meteorology instruments that communicate via satellite internet.

Pacific Basin storm hazard emulation (Co-PI, Technical Lead: $350k) 2025-2026
Funded by FEMA with supplemental funds from the USACE Civil Works Program, this is a scoping effort for transitioning the USACE Coastal Hazards System to the Pacific Basin, including the West Coast, Alaska, and the Pacific Island Territories. This will provided recommended next steps for implementing a state-of-the-art hazards framework accounting for Pacific Basin hazards (extratropical storms, climatic water levels, multi-swell sea states, infragravity wave energy, storm clusterings). The plan is for this effort to become a 6-year $20M+ project.

Probabilistic dune and beach recovery (Lead-PI: $280k) 2024-2026
Funded by the USACE Coastal Ocean Data Systems Program's Open Coast Physical Processes strategic focus area, with a goal of developing chronological morphologic modeling capabilities that account for inter-storm recovery processes traditionally represented by simplified rule-based assumptions rather than dynamic processes. Hourly terrestial lidar scans from the last decade have been processed to run data-informed empirical and machine-learning models.

Probabilistic shoreline modeling w/ assimilated satellite obs (Co-PI: $375k) 2023-2025
Funded by the USACE Coastal Ocean Data Systems Program, this effort demonstrated enhanced GENCADE shoreline modeling capabilities by coupling to a stochastic emulator for Monte Carlo simulations while assimilating frequent observations from CoastSat.

Coastal topography and bathymetry inversion from satellite (Co-PI: $450k) 2022-2025
This effort has been jointly funded by USACE, ONR, and NGA, including methods for estimating bathymetry from single snap shots, paired images, and short (30-60s) videos from space. The effort has both civil implications for tracking nearshore sediment volumes, and military implications for mission preparation.

Environmental forcing of sandbar migrations 2019-2023
Common morphological states of sandbar morphologies surveyed at the Field Research Facility are identified with automated clustering of complex EOFs, and subsequently ordered by phase of net offshore migration (NOM). Shortfalls of coastal morpho-models are assessed by modeling the transitions between NOM-states using the wave and water level data that drove those changes in nature.

Emulation of nearshore nourishment evolution (Co-PI: $275k) 2020-2022
Funded by USCRP, this projects aims to quantify the response of a hypothetical nearshore nourishment to synthetic storm chronologies by developing a surrogate model for dune erosion and a statistical climate emulator to generate plausible storm strengths/orderings not observed in the historical record.

Deriving 2D surf zone currents from Argus 2019-2023
Development of a method to quantify surf zone flows with optical flow algorithms tracking the residual foam in wave-averaged movies. Circulation cells and rips are identified with low pixel resolutions and small file sizes such that cross- and longshore flows can be resolved in a continuous monitoring system. Surf-zone drifter deployments are used to validate remotely sensed spatially-varying flows.

CONFERENCE PRESENTATIONS (SELECTED)

1. Ruggiero, P., A. Stevens, **D. Anderson**, M. Taherkhani, S. Vitousek, and K. Parker. Decadal Climate Variability and Coastal Morphodynamics in the U.S. Pacific Northwest. Proceedings on the 14th Symposium on River, Coastal, and Estuarine Morphodyamics 2025. Barcelona, Spain.

2. Thomson, J., **D. Anderson**, L. Crews, E. Eidam, A. Mahoney, I. Robertson, M. Smith, M. Steele, and J. Zhang. Coastal wave exposure in the Alaska Arctic. Alaska Marine Science Symposium.

Anchorage, AK, USA.

3. **Anderson, D.**, N. Cohn, and Y. Ding. Efficient stochastic simulations of coastal morphodynamics at the Field Research Facility. American Geophysical Union Fall Meeting December 2024. Washington, D.C., USA

4. Cagigal, Y., **D. Anderson**, et al. BlueMath-Hub: A cloud-based, open-source, python framework with interactive notebooks for statistical analysis and simulation of coastal climate hazards in a changing climate. *Proceedings of the Coastal Dynamics Conference 2025.* Lisbon, Portugal.

5. Cantos, J.O., P. Camus, L. Cagigal, A. Ricondo, P. Ruggiero, M. Merrifield, **D. Anderson**., J. Obeysekera, A.B. Murray, M. Leung, R.K. Hoeke, E. Echevarria, and F. Mendez. Muliscale Climate-based Emulator for Assessing Compound Flooding Hazards Considering Extratropical and Tropical Cyclones: TESLA-XTC&TC. American Geophysical Union Fall Meeting December 2024. Washington, D.C., USA

6. Markel, J., A. O'Dea, **D. Anderson**, and K. Brodie. Wave-inversion Bathymetry Methods for Commercial SAR Video. American Geophysical Union Fall Meeting December 2024. Washington, D.C., USA

7. O'Dea, A., **D. Anderson**, C. Painter, J. Markel, and K. Brodie. Wave Kinematics-Based Bathymetry Estimation from Satellite Optical Video. American Geophysical Union Fall Meeting December 2024. Washington, D.C., USA

8. Cuevas, T., Dietrich, C., and **D. Anderson**. (2024) Prediction of high resolution maps of storm driven coastal flooding using deep learning. International Conference on Coastal Engineering Sept 2024. Rome, Italy.

9. Heminway, S., N. Cohn, **D. Anderson**, and P. Ruggiero. Decadal scale prediction of coastal dune evolution at Long Beach, WA, USA. International Conference on Coastal Engineering Sept 2024. Rome, Italy.

10. Ruggiero, P., **D. Anderson**, F. Mendez, et al. Stochastic coastal hazards modeling. International Conference on Coastal Engineering Sept 2024. Rome, Italy.

11. Devore, K., **D. Anderson**, and K. Brodie. Evaluating space-based remote sensing algorithms for Arctic shoreline detection. International Conference on Coastal Engineering Sept 2024. Rome, Italy.

12. Ding, Y., and **D. Anderson**. Probabilistic long-term and regional shoreline evolution modeling using a wave climate emulator. International Conference on Coastal Engineering Sept 2024. Rome, Italy.

13. **Anderson, D.**, A. O'Dea, C. Painter, B. Bruder, T. Hesser, and K. Brodie. Satellite-derived Bathymetry Inversions: Observing wave-kinematics in videos from space. RD24 April 2024. ERDC Vicksburg, MS, USA.

14. **Anderson, D.**, C. Painter, A. O'Dea, B. Bruder, T. Hesser, K. Brodie,and R. Holman. Satellite-derived Bathymetry Inversions: Observing wave-kinematics in videos from space. Ocean Sciences Conference Feb 2024. New Orleans, LA, USA.

15. Painter, C., **D. Anderson**, A. O'Dea, B. Bruder, T. Hesser, and K. Brodie. Assessing the Relationships Between Satellite look-angles and Optical Signatures of Waves from Satellite Videos. Ocean Sciences Conference Feb 2024. New Orleans, LA, USA.

16. O'Dea, A., T. Hesser, **D. Anderson**, J.H. Lee, C. Painter, B. Bruder, M. Farthing, K. DeVore, and K. Brodie. Assessing the Relationships Between Satellite look-angles and Optical Signatures of Waves from Satellite Videos. Ocean Sciences Conference Feb 2024. New Orleans, LA, USA

17. Ding, Y., and **D. Anderson**. Probabilistic Long-Term and Regional Shoreline Evolution Using Stochastic Wave Climate Emulator. Ocean Sciences Conference Feb 2024. New Orleans, LA, USA.

18. Palmsten, M., K. Brodie, B. Bruder, R. Holman, J. Brown, J. Long, M. Conlin, S. Harrison, **D. Anderson**, M. McCann, M. Harley, and K. Splinter. Progress, Impacts, and Future Directions for the Coastal Imaging Research Network (CIRN). Ocean Sciences Conference Feb 2024. New Orleans, LA, USA.

19. McCann, M., **D. Anderson**, and A.S. Bak. Validation and uncertainty quantification in optical flow estimates of surf zone circulation during DUNEX 2021. Ocean Sciences Conference Feb 2024. New Orleans, LA, USA.

20. Cromwell, C., P. Adams, and **D. Anderson**. Satellite-derived shoreline orientations coupled with wave hindcasts show seasonal reversals of LST in the Georgia Bight. American Geophysical Union Fall Meeting Dec 2023. San Francisco, CA, USA.

21. Cohn, N., **D. Anderson**, L. Bosche, and T. Douglas. Simulating future changes in coastal tundra retreat along the Alaskan Chukchi Sea. American Geophysical Union Fall Meeting Dec 2023. San Francisco, CA, USA.

22. **Anderson, D.**, A. Gharagozlou, J. Gorski, and P. Ruggiero. Emluation of beach profile response to storms, *Coastal Sediments Conference 2023*, New Orleans, LA, USA. April 2023.

23. Heminway, S., N. Cohn, J. Skaden, E. Davis, C. Hein, and **D. Anderson**. Modeled changes in foredune morphology influence by variable storm intensity and sea-level rise. *Coastal Sediments Conference*. New Orleans, LA, USA. April 2023.

24. Cohn, N., **D. Anderson**, J. Skaden, and B. van Westen. Simulating tipping points in future dune states. *Coastal Sediments Conference*. New Orleans, LA, USA. April 2023.

25. **Anderson, D.**, J.C. Dietrich, A. Gharagozlou, and J. Gorski. Forecasting the Effectiveness of Beach and Dune Nourishments in a Changing Climate. *Ocean Sciences*, virtual. February 2022. (oral)

26. **Anderson, D.**, A.S. Bak, N. Cohn, B.D. Johnson, K.L. Brodie, and P. Dickhudt. Assessing the Environmental Forcing of 40 Years of Sandbar Migrations at the Field Research Facility. *AGU Fall Meeting*, virtual. December 2020. (oral)

27. Leung, M. P. Ruggiero, F.J. Mendez, **D. Anderson**, A. Rueda, L. Cagigal, A.C. Carrera, N.R. Cabarga, and J.J. Marra. The Varying Drivers and Impacts of Extreme Total Water Levels in the Pacific Basin. *AGU Fall Meeting*, virtual, December 2020.

28. Gharagozlou, A., **D. Anderson**, J.F. Gorski, J.C. Dietrich, and D. Ryan. Developing an Emulator for Morphodynamic Response of the Nourished Beaches During Future Storm Events Based on XBeach Predictions. *ASPBA National Coastal Conference*, virtual, October 2020.

29. **Anderson, D.**, A.S. Bak, G. Wilson, and R. Holman. Optical currents derived from wave-averaged movies. *Ocean Sciences Meeting*, San Diego, CA. February 2020. (oral)

30. Ruggiero, P., **D. Anderson**, F.J. Mendez, T. Anderson, A. Rueda, L. Cagigal, J. Marra, P. Barnard, and M. Merrifield. Combining a stochastic climate emulator with surrogate models of dynamic coastal simulators to drive coastal flood impacts research. *AGU Fall Meeting*, San Francisco, CA. December 2019. (oral)

31. Leung, M., P. Ruggiero, **D. Anderson**, F.J. Mendez, A. Rueda, and J. Bolte. Incorporating a probabilistic climate emulator into an agent-based coastal future forecasting system. *Coastal Sediments Conference*, St. Petersburg, FL. May 2019. (poster)

32. Antolinez, J.A.A., **D. Anderson**, F.J. Mendez, P. Ruggiero, and G. Kaminsky. (2019) Understanding long term coastal change and variability using a simple and efficient multi-process model. *Coastal Sediments Conference 2019*. St. Petersburg, FL. May 2019. (oral)

33. Rueda, A., L. Cagigal, **D. Anderson**, C. Storlazzi, A. Dongeren, S. Pearson, J.Marra, P. Ruggiero, and F.J. Mendez. (2019) Towards a flood risk assessment on a reef-lined shoreline. *Coastal Sediments Conference 2019*. St. Petersburg, FL. May 2019. (poster)

34. Mendez, F., A. Rueda, L. Cagigal, **D. Anderson**, and P. Ruggiero.Tesla: Un emulator multi-escala de eventos de inundacion costera. *XV Jornadas Espanolas de Ingenieria de Costas y Puertos*, May 2019. (oral).

35. Marra, J., W. Sweet, E. Leuliette, C. Storlazzi, P. Ruggiero, **D. Anderson**, M. Merrified, J. Becker, I. Roberston, M. Widlansky, A. Genz, F. Mendez, A. Rueda, J.A.A. Antolinez, L. Cagigal, M. Menendez, H. Lobeto, and J. Obeysekera. Advancing Best Practices for the Analysis of the Vulnerability of Military Installations in the Pacific Basin to Coastal Flooding under a Changing Climate. *AGU Fall Meeting*. December 2018 (poster)

36. Ruggiero, P., **D. Anderson**, F. Mendez, A. Rueda, L. Cagigal, M. Merrifield, and J. Marra. Time-varying emulator for short-and long-term analysis of coastal flooding extremes. *AGU Fall Meeting*. December 2018. (poster)

37. **Anderson, D.**, P. Ruggiero, F.J. Mendez, A. Rueda, J.A.A. Antolinez, L. Cagigal, J. Marra, C. Storlazzi, and P. Barnard. Time-varying Emulator for Short-and Long-term Analysis of coastal flooding: TESLA-flood. *International Conference on Coastal Engineering*, Baltimore, MD. July 2018. (oral)

38. **Anderson, D.**, P. Ruggiero, F.J. Mendez, A. Rueda, J.A.A. Antolinez, L. Cagigal, J. Marra, C. Storlazzi, and P. Barnard. Time-varying Emulator for Short-and Long-term Analysis of coastal flooding: TESLA-flood. *Ocean Sciences Meeting*, Portland, OR. February 2018. (oral)

39. Mendez, F.J., **D. Anderson**, P. Ruggiero, A. Rueda, J.A.A. Antolinez, Cagigal, C. Storlazzi, and P. Barnard. Defining time-dependent hydraulic boundary conditions for the analysis of the climate variability of extremes of coastal flooding. *XBeachX IG Conference* at Delatres, Delft, Netherlands, November 2017. (oral)

40. Antolinez, J. A. A., A. Rueda, **D. Anderson**, N. Cohn, F. Mendez, and P. Ruggiero. Multiscale hybrid modeling of integrated beach erosion and flooding events. *1st International Workshop on Waves, Storm Surges, and Coastal Hazards*, Liverpool, UK, September 2017. (oral)

41. Mendez, F., P. Ruggiero, J. Marra, A. Rudea, A., **D. Anderson**, et al. Towards TESLA-flood: a time-varying emulator for short-and long-term analysis of coastal flooding. *Advances in Extreme Value Analysis and Application to Natural Hazards*. Southampton, UK. September 2017. (oral)

42. **Anderson, D.**, D. Cox, J. Puleo, R. Mieras, and T. Hsu. Instantaneous sedimentbed level response to wave-induced pore-pressure gradients on a surf zone sandbar. *AGU Fall Meeting*, San Fancisco, CA. December 2016. (oral, *outstanding student paper award*)

43. Barnard, P., D. Hoover, D. Hubbard, A. Synder, B. Ludka, J. Allen, G. Kaminsky, P. Ruggiero, T. Gallien, L. Gabel, D. McCandless, H. Weiner, N. Cohn, **D. Anderson**, and K. Serafin. Coastal Hazards along the U.S. West Coast during the 2015-16 El Nino. *AGU Fall Meeting*. December 2016. (oral)

44. Mieras, R., J. Puleo, **D. Anderson**, D. Cox, and T. Hsu. From the sand bed to the free surface: an experimental study of wave-induced sediment transport over a sandbar. *AGU Fall Meeting*, San Fancisco, CA. December 2016. (poster)

45. Feehan, S., P. Ruggiero, N. Cohn, and **D. Anderson**. Characterizing feedbacks between environmental forcing and sediment characteristics in coastal systems. *AGU Fall Meeting*, San Fancisco, CA. December 2016. (poster)

46. Rueda, A., J.A.A. Antolinez, C. Hegermiller, K. Serafin, **D. Anderson**, P. Ruggiero, P. Barnard, L. Erikson, S. Vitousek, P. Camus, M. Gonzalez, and F. Mendez. Towards a Multi-scale Monte Carlo Climate Emulator for Coastal Flooding and Long-Term Coastal Change Modeling: The Beautiful Problem. *Ocean Sciences Meeting*, New Orleans, LA, February 2016 (poster)

47. Anderson, D., P. Ruggiero, J.A.A. Antolinez, and F.J. Mendez. On the importance of wave simulation techniques for forecasting shoreline change. *Ocean Sciences Meeting*, New Orleans, LA, February 2016. (oral)

48. Mieras, R. J. Puleo, D. Cox, **D. Anderson**, Y. Kim, and T. Hsu. Large-scale experimental observations of wave-induced sheet flow over a sandbar: Bed shear stress vs. pressure gradient. *Ocean Sciences Meeting*, February 2016. (poster)

49. Anderson, D., and P. Ruggiero. The effect of large-scale climate on Oregon's local coastal erosion hazards. *State of the Coast*, Coos Bay, OR. October 2015. (poster, *best student presentation award*)

50. Anderson, D., and P. Ruggiero. Modeling shoreline rotation of headland-bounded littoral cells due to ENSO-induced wave climate variability. *Coastal Sediments Conference*, San Diego, CA, May 2015. (oral, *best student paper award*)

51. Cohn, N., **D. Anderson**, T. Susa, P. Ruggiero, D. Honegger, and M. Haller. Observations of intertidal bars welding to the shore: examining the mechanisms of onshore sediment transport and beach recovery. *AGU Fall Meeting*, San Francisco, CA, December 2014. (poster)

52. Anderson, D., and P. Ruggiero. Modeling Inter-Annual to Multi-Decadal Shoreline Rotations of Headland-Bounded Littoral Cells in the Pacific Northwest. *AGU Fall Meeting*, San Francisco, CA, December 2014. (poster)

53. Anderson, D., and P. Ruggiero. Relating Shoreline Change Rates to Climatic Trends of Wave Energy in the US Pacific Northwest. *Young Coastal Scientist Conference*, Wilmington, DE, July 2014. (poster)

54. Anderson, D., P. Ruggiero, and J. Allan. Evolving Shoreline Change Rates Along the US Pacific Northwest Coast. *AGU Fall Meeting*, San Francisco, CA, December 2013. (poster)

INVITED TALKS (SELECTED)

USACE Coastal Working Group Annual Meeting, Gulf Shores, AL	Jan. 2025
Oregon State University, Corvallis, OR	Jan. 2025
Board of Coastal Engineering Research, San Francisco, CA	Aug. 2024
Scripps Oceanography, San Diego, CA	Jan. 2024
University of Florida, St. Augustine, FL	May. 2023
Board of Coastal Engineering Research, Chicago, IL	Mar. 2023
Oregon State University, Corvallis, OR	Oct. 2022
Virginia Tech Polytechnical University, Blacksburg, VA	Oct. 2021
Coastal Hydraulics Lab, USACE, Vicksburg, MS	May 2020
East Carolina University, Coastal Studies Institute, Manteo, NC	Mar. 2019
Field Research Facility, USACE, Duck, NC	Mar. 2019
Naval Research Laboratory, Division of Sediment Dynamics, Stennis, MS	Feb. 2019
Rice University, Department of Civil Engineering, Houston, TX	Jan. 2019
Oregon Department of Land Conservation, King Tide Project, Cannon Beach, OR	Feb. 2018
NSF NHERI Coastal Hazards National Workshop, Corvallis, OR	Jul. 2017

IH Cantabria, Santander, Spain May 2017
USGS Pacific Coast and Marine Science Center, Santa Cruz, CA Jul. 2015
ARCS Luncheon, Newport, OR Apr. 2014

FIELDWORK EXPERIENCE (SELECTED)

Lidar and optical remote sensing of wave transformation in Utqiagvik, AK 2023-2025
Drifter deployments & remote sensing of surf zone circulation cells in Duck, NC 2019 - 2023
Annual bathymetric and topographic beach surveys of the Columbia River littoral cell 2013 - 2018
Drifter deployments & remote sensing of longshore currents in Long Beach, WA 2016
RAPID grant beach surveys of El Nino erosion on Netarts Spit, OR 2015
Inter-tidal sandbar topography on South Beach, OR 2015
Salt wedge and plume dynamics in the Connecticut River estuary 2012
Breaching inlet hydrodynamics and morphodynamics in Katama Bay, Martha's Vineyard 2011

TEACHING & MENTORING

Graduate Certificate in College and University Teaching
An 18-credit minor focused on adult learning theories and principles applicable in college teaching. Dedicated courses for the theory of andragogy, practice, curriculum design, and inclusive classrooms.

CE487 Introduction to Coastal Engineering
Senior-level introduction to ocean wave mechanics including generation, transformation, and fluid kinematics. Spiral curricula, formative assessments, and inclusive classroom strategies to facilitate sharing intuition-based hypothesis that encourage constructive learning that builds on past experiences.

GEO499/599 Coastal Hazards
Evidence-based discussions concerning a wide range of coastal hazards. Goal is to humanize the effects of climate change, sea level rise, and erosion, which are all compounded by human policy decisions and often disproportionately affect disadvantaged communities.

GEO433/533 Coastal Geomorphology
Guest lectures in fundamentals of coastal evolution across short and long time scales, including observations of coastal change and various approaches for modeling future changes.

Research Mentor
Technical mentor to multiple ERDC DB2 and DB4 employees, providing advice on scientific methods, writing, and presentations.
Mentored undergrad team in 10-week *Hacking for the Oceans* at UC San Diego/Scripps 2021
Individual and collaborative guidance for conceptualization, methods, analysis, and writing.
PhD: Alireza Gharagozlou (NCSU), Maile McCann (USC), Copeland Cromwell (UF) Masters: Molly McKenna (NCSU), Tomas Cuevas (NCSU), Tyler Anderson (OSU), Undergrad: Jessica Gorski (NCSU), Matt Conlin (OSU), Tyler Susa (OSU), Scott Feehan (OSU)

Fellowship Advisor
I have directly guided 5 successful NSF GRFP applicants and another 7 Honorable Mentions.

SERVICE

Co-chair of *Nearshore Processes* at Ocean Sciences 2022
American Geophysical Union Student Judge at the Fall Meeting 2020
Journal Reviewer: Earth's Future, Journal of Geophysical Research, Journal of Ocean Engineering, Remote Sensing, Marine Geology, Continental Shelf Research, Hydrology and Earth System Sciences