

Curriculum Vitae
Steven D. Meyers

Chief Scientist
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Education

Florida State University, Tallahassee, FL	Oceanography	postdoc, 1991-1993
University of Texas at Austin, Austin, TX	Physics	Ph.D., 1990
University of Rochester, Rochester, NY	Physics	B.S., 1984
University of Rochester, Rochester, NY	Mathematics	B.A., 1984

Appointments

Handling Editor, Transportation Research Record, National Academy of Sciences, 2020-present
Chief Scientist, Center for Maritime and Port Studies, USF, 2017-present.
Senior Scientist, Ocean Modeling and Prediction Laboratory, USF, 2001-2017 (30 hr/wk, 0.75 FTE).
Visiting Assistant Professor, University of South Florida, 1998-2001.
Co-Assoc. Director, Center Ocean-Atmosphere Prediction Studies, Florida State University. 1994-1998.
Research Associate, Center Ocean-Atmosphere Prediction Studies, Florida State University. 1993-1994.
ONR Educator Postdoctoral Fellowship, Mesoscale Air-Sea Interaction Group, Florida State University. 1991-1993.

Current Research Topics and Achievements

- Using a genetic algorithm to select causeway cut-throughs that reduce HABs by optimizing hydrodynamic flushing while minimizing costs
- Monitoring wave strength before and after installation of a living shoreline in Pinellas County
- Applying artificial intelligence to improve vessel identification
- Modeling the impact of sea level rise on vessel navigation in coastal regions
- Machine learning to examine increased risk of coastal infrastructure failure due to sea level rise
- Mining vessel records to examine emergency response to Puerto Rico following Hurricane Marie
- Bibliometric study of changing national priorities in maritime navigation research
- Using big data to examine vessel activity in Tampa Bay, wake generation, and shoreline impacts
- Address nitrogen pollution by empowering at risk communities to organize and co-develop culturally sensitive, science-based solutions. NSF funded.

Synergistic Activities

- Collaborating with GCOOS and SECOORA on the application of AI to maritime navigation
- Working with the Tampa Bay Estuary Program to assess shoreline erosion from ship wakes
- Partner with international team modeling the impact of barrier island loss on tides and storm surge
- Worked with scientists from NOAA and Florida Fish and Wildlife to model retention of oyster larvae
- Member of Climate Science Advisory Panel, Tampa Bay
- Supervised numerous postdoctoral researchers, graduate, and undergraduate students.

Professional Organizations and Associations

American Geophysical Union, Florida Climate Institute, Coastal and Estuarine Research Federation, American Meteorological Society West Central Florida, Tampa Bay Climate Science Advisory Panel

Journal Reviewer (2018-2022)

J. Operational Oceanography, J. Coastal Research; J. of Waterway, Port, Coastal, and Ocean Engineering; Frontiers in Marine Science; Estuaries and Coasts; J. of Marine Science and Application; Geophysical Research Letters; IEEE Access; J. Geophysical Research: Oceans; Maritime Policy & Management; Marine Pollution Bulletin; Urban Climate

Recent Presentations:

- 2022: Steven Meyers and Mark Luther, Designing a Genetic Algorithm for the Selection of Causeway Cut-Throughs in Old Tampa Bay: Planning and Prototyping, Old Tampa Bay Working Group, virtual, June 2.
- 2022: Steven Meyers and Mark Luther, Extreme Vessels Meet Extreme Values, Creating Hazards Near the Coast, Extreme Value Analysis and Application to Natural Hazards, May 18, Orlando, FL
- 2022: Steven Meyers, Andrew Kramer, and Mark Luther, Florida at Risk: Maritime Connectivity During the COVID-19 Pandemic, Florida Academy of Sciences, virtual, March 11.
- 2022: Steven Meyers, Shawn Landry, and Mark Luther, A Simple Machine Learning Approach to Modeling Sanitary Sewer Overflows in Southern Pinellas County, FL, BASIS 7, St. Petersburg, FL, February 28.
- 2022: Steven Meyers and Mark Luther, Predicting High Cross-Currents Near South Florida Ports Using Machine Learning: Initial Result, SECOORA Coastal Observing in Your Community Webinar, January 25.
- 2021: Andrew M. Kramer, Steven Meyers, and Mark Luther, Estimating risk for epidemic spread via maritime shipping networks in the context of SARS-CoV-2, Epidemics, Bologna, Italy, Dec. 2.
- 2021: Steven Meyers, Shawn Landry, and Mark Luther, Using Logistic Regression to Model the Risk of Sewer Overflows Triggered by Compound Flooding with Application to Sea Level Rise, Florida Water & Climate Alliance Webinar, Sep 2.
- 2021: Steven Meyers and Mark Luther, A Bibliometric Analysis of Research on Maritime Traffic Data from the Automatic Identification System, Sixth Biennial Marine Transportation System Innovative Science and Technology Conference: Advancing the Marine Transportation System through Automation and Autonomous Technologies: Trends, Applications and Challenges, March 15.
- 2021: Steven Meyers and Mark Luther, Predicting High Cross-Currents Near South Florida Ports Using Machine Learning: Initial Results, NOAA Ocean and Coastal Community Modeling Workshop, Oct. 20.
- 2021: Steven Meyers and Mark Luther, Developing a Machine Learning Tool for the Prediction of High-Speed Cross-Currents Near South Florida Ports, NOAA Coastal Ocean Modeling Seminar, Dec. 14.
- 2020: Steven Meyers, Shawn Landry, and Mark Luther, Machine Learning Applied to Sewer Overflows and Sea Level Rise, Florida Stormwater Association, Jul 15.
- 2020: Steven Meyers and Mark Luther, Evaluating the Maritime Response to Puerto Rico Following Hurricane Maria using AIS Data (poster), AGU Ocean Sciences, Feb 18.

Recent Peer-Reviewed Publications

- 2022: Meyers, S.D., Y. Yilmaz, M.E. Luther, Some Methods for Addressing Errors in Static AIS Data Records, Ocean Engineering, accepted.
- 2022: Meyers, S.D., A. Kramer, M.E. Luther, Florida at Risk: Maritime Connectivity During the COVID-19 Pandemic, Florida Scientist, in press.

- 2022: Azevedo, L., S. Meyers, A. Pleskachevsky, H.P.P. Pereira, and M.E. Luther, Characterizing Rogue Waves in the Entrance of Tampa Bay (Florida, USA), *J. Mar. Sci. Eng.* 2022, 10(4), 507; <https://doi.org/10.3390/jmse10040507>.
- 2021: Meyers, S.D., M.E. Luther, S. Ringuet, G. Raulerson, E. Sherwood, K. Conrad and G. Basili, Ship Wakes in Tampa Bay, *Ocean and Coastal Management*, 211, doi.org/10.1016/j.ocecoaman.2021.105749.
- 2021: Meyers, S.D., L. Azadevo, M.E. Luther, A Scopus-based Bibliometric Study on the Use of Maritime Automatic Identification System Data in Artificial Intelligence and Related Research, *Transportation Research Interdisciplinary Perspectives*, doi.org/10.1016/j.trip.2021.100387.
- 2021: Meyers, S.D., S.M Landry, M. Beck, M.E. Luther, Using Logistic Regression to Model the Risk of Sewer Overflows Triggered by Compound Flooding with Application to Sea Level Rise, *Urban Climate*, doi.org/10.1016/j.uclim.2020.100752.
- 2020: Meyers, S.D., M.E. Luther, S. Ringuet, G. Raulerson, E. Sherwood, K. Conrad and G. Basili, Characterizing Vessel Traffic using the AIS: a Case Study in Florida's Largest Estuary, *Journal of Waterway, Port, Coastal, and Ocean Engineering*, 10.1061/(ASCE)WW.1943-5460.0000592.
- 2020: Meyers, S.D. and M.E. Luther, Simulating the Impact of Sea Level Rise on Maritime Navigation within a Large, Channelized Estuary, *Maritime Policy & Management*, doi.org/10.1080/03088839.2020.1723810.
- 2017: Meyers, S. D., A. Linville, and M. E. Luther, Changes in Residence Time Due to Large-Scale Infrastructure in a Coastal Plain Estuary. *Journal of Coastal Research*, 33(4), 815-828.
- 2017: Arnold, B., S. D. Meyers, M. E. Luther, S. Geiger, D. Narvaez, E. Hoffman, and M. E. Luther, Salinity and Larval Dispersal in Pensacola Bay and Its Implications for Restoration of Oyster Reefs, *Journal of Shellfish Research*, 36(1), 101-118.
- 2016: Ulm, M., Arns, A., Wahl, T., Meyers, S.D., Luther, M.E. and J. Jensen, The Impact of Barrier Island Loss on Extreme Events in Tampa Bay. *Frontiers in Environmental Science*, [doi: 10.3389/fmars.2016.00056](https://doi.org/10.3389/fmars.2016.00056).
- 2015: Wahl, T., S. Jain, J. Bender, S.D. Meyers and M.E. Luther, Increased Risk of Compound Flooding from Storm Surge and Rainfall for Major US Cities, *Nature Climate Change*, [doi:10.1038/nclimate2736](https://doi.org/10.1038/nclimate2736).
- 2015: Meyers, S.D., Wilson, M., Luther, M.E., 2015. Observations of hysteresis in the annual exchange circulation of a large microtidal estuary. *Journal of Geophysical Research, Oceans* 120, 2904-2919.

Recent Non-Reviewed Publications

- 2022: Meyers, S.D. and M.E. Luther, Designing a Genetic Algorithm for the Selection of Causeway Cut-Throughs in Old Tampa Bay: Planning and Prototyping, TBEP Technical Report #08-22.
- 2022: Luther, M.E., S.D. Meyers, S. Ringuet, G. Raulerson, E. Sherwood, K. Conrad and G. Basili, Ship Wakes in Tampa Bay and Their Potential Shoreline Impacts, *Ocean and Coastal Management*, BASIS 7 Proceedings, St. Petersburg, FL, March 03, 2022.
- 2022: Meyers, S.D., S.M Landry, M. Beck, M.E. Luther, A Simple Machine Learning Approach to Modeling Sanitary Sewer Overflows in Southern Pinellas County, FL, BASIS 7 Proceedings, St. Petersburg, FL, March 03, 2022.
- 2019: Meyers, S.D., M.E. Luther, S. Ringuet, G. Raulerson, E. Sherwood, K. Conrad and G. Basili, Meyers, S.D. and M.E. Luther. 2019. Ship Wakes in Tampa Bay. Tampa Bay Estuary Program, St. Petersburg, FL. TBEP Technical Report #06-19. 68 pp.
- 2019: Meyers, S.D and M.E. Luther, Potential Changes in Salinity Associated with Port Tampa Bay New Berth Construction in East Bay, Port Tampa Bay, 22 pp.
- 2018: Meyers, S.D., M.E. Luther, S. Ringuet, G. Raulerson, E. Sherwood, K. Conrad and G. Basili, Wakes from Large Vessels and the Risk to the Shoreline Environment in Tampa Bay, Proceedings OCEANS 2018, Charleston, SC.

- 2018: Luther, M.E., S.D. Meyers, and J. Scudder. Real Time Observations of Oceanographic and Meteorological Parameters for Maritime Transportation: Origins and Novel Applications, Proceedings OCEANS 2018, Charleston, SC.
- 2016: Meyers, S.D., M.E. Luther, M. Ulm, A. Arns, T. Wahl, and J. Jensen, How Losing Egmont Key Will Impact Tides and Storm Surge in Tampa Bay, Proceedings of the Bay Area Scientific Information Symposium, 221-225.
- 2016: Meyers, S.D., M.E. Luther and A.M. Moss, Changes in Residence Time Due to Large-Scale Infrastructure in a Coastal Plain Estuary, Proceedings of the Bay Area Scientific Information Symposium, 10-18.

Earlier Peer-Reviewed Publications:

- 2014: Burghart, S., L. D. VanWoundenberg, C., S. D. Meyers, R. P. Kitzmiller, E., and M. Breitbart, DNA Barcoding of Individual Fish Eggs to Assess Spawning Aggregations. *Marine Ecology Progress Series*, 503: 195-204
- 2014: Meyers, S. D. and M. E. Luther, Real-Time Oceanographic Data : From Safety to Science. *Eos, Transactions American Geophysical Union*, 95: 305-306
- 2014: Wilson, M., S. D. Meyers, and M. E. Luther, Synoptic Volumetric Variations and Flushing of the Tampa Bay Estuary. *Climate Dynamics*, 29: 914-918.
- 2013: Meyers, S. D., A. Linville, and M. E. Luther, Alteration of Residual Circulation Due to Large-Scale Infrastructure in a Coastal Plain Estuary. *Estuaries and Coasts*: 1-15.10.1007/s12237-013-9691-3
- 2010: Havens, H., M. E. Luther, S. D. Meyers, and C. A. Heil, Lagrangian Particle Tracking of a Toxic Dinoflagellate Bloom within the Tampa Bay Estuary. *Marine Pollution Bulletin*, 60: 2233-2241
- 2009: Havens, H., M. E. Luther, and S. D. Meyers, A Coastal Prediction System as an Event Response Tool: Particle Tracking Simulation of an Anhydrous Ammonia Spill in Tampa Bay. *Marine Pollution Bulletin*, 58: 1202-1209
- 2008: Meyers, S. D. and M. E. Luther, A Numerical Simulation of Residual Circulation in Tampa Bay. Part II: Lagrangian Residence Time. *Estuaries and Coasts*, 31: 815-827.10.1007/s12237-008-9085-0
- 2007: Meyers, S. D., M. E. Luther, M. Wilson, H. E. Holm, A. Linville, and K. Sopkin, A Numerical Simulation of Residual Circulation in Tampa Bay. Part I: Low-Frequency Temporal Variations. *Estuaries and Coasts*, 30: 679-697
- 2006: Shi, J. Z., M. E. Luther, and S. Meyers, Modelling of Wind Wave-Induced Bottom Processes During the Slack Water Periods in Tampa Bay, Florida. *International Journal for Numerical Methods in Fluids*, 52: 1277-1292
- 2006: Wilson, M., S. D. Meyers, and M. E. Luther, Changes in the Circulation of Tampa Bay Due to Hurricane Frances as Recorded by Adcp Measurements and Reproduced with a Numerical Ocean Model. *Estuaries and Coasts*, 29: 914-918
- 2005: Luther, M. E. and S. D. Meyers, Hydrodynamic Simulations of Circulation and Dependent Physical Parameters in the Palm River and McKay Bay, 253 pp.
- 2005: Meyers, S. D., Luther, M.E., Circulation Modeling in the Vicinity of the H.L. Culbreath Bayside Power Station, Hillsborough Bay, Florida.
- 2001: Meyers, S. D., E. M. Siegel, and R. H. Weisberg, Observations of Currents on the West Florida Shelf Break. *Geophysical Research Letters*, 28: 2037-2040
- 2001: Zamudio, L., A. P. Leonardi, S. D. Meyers, and J. J. O'Brien, Enso and Eddies on the Southwest Coast of Mexico. *Geophysical Research Letters*, 28: 13-16.10.1029/2000gl011814
- 2000: Basu, S., S. D. Meyers, and J. J. O'Brien, Annual and Interannual Sea Level Variations in the Indian Ocean from Topex/Poseidon Observations and Ocean Model Simulations. *Journal of Geophysical Research: Oceans*, 105: 975-994.10.1029/1999jc900231
- 1999: Melsom, A., S. D. Meyers, J. J. O'Brien, H. E. Hurlburt, and J. E. Metzger, Enso Effects on Gulf of Alaska Eddies. *Earth Interactions*, 3: 1-30

- 1999: Meyers, S. D. and S. Basu, Eddies in the Eastern Gulf of Alaska from Topex/Poseidon Altimetry. *Journal of Geophysical Research: Oceans*, 104: 13333-13343
- 1999: Meyers, S. D., J. J. O'Brien, and E. Thelin, Reconstruction of Monthly SST in the Tropical Pacific Ocean During 1868–1993: Using Adaptive Climate Basis Functions. *Monthly Weather Review*, 127: 1599-1612
- 1999: Mizoguchi, K.-i., S. D. Meyers, S. Basu, and J. J. O'Brien, Multi- and Quasi-Decadal Variations of Sea Surface Temperature in the North Atlantic. *Journal of Physical Oceanography*, 29: 3133-3144
- 1999: Spiesberger, J. L., H. E. Hurlburt, M. Johnson, M. Keller, S. Meyers, and J. J. O'Brien, Acoustic Thermometry Data Compared with Ocean Models: The Importance of Enso in Modifying the Ocean Interior. *J. Acoust. Soc. Amer.*, 106: 2120-2120
- 1998: Meyers, S. D., A. Melsom, G. T. Mitchum, and J. J. O'Brien, Detection of the Fast Kelvin Wave Teleconnection Due to El Niño-Southern Oscillation. *Journal of Geophysical Research: Oceans*, 103: 27655-27663
- 1998: Spiesberger, J. L., H. E. Hurlburt, M. Johnson, M. Keller, S. Meyers, and J. O'Brien, Acoustic Thermometry Data Compared with Two Ocean Models: The Importance of Rossby Waves and Enso in Modifying the Ocean Interior. *Dynamics of Atmospheres and Oceans*, 26: 209-240
- 1996: Meyers, S. D., M. A. Johnson, J. L. Spiesberger, M. Liu, and J. J. O'Brien, Interdecadal Variability in a Numerical Model of the Northeast Pacific Ocean: 1970-89. *J. Phys. Oceanogr.*, 26: 2635-2652
- 1995: Kelly, B. G., S. D. Meyers, and J. J. O'Brien, On a Generating Mechanism for Yanai Waves and the 25-Day Oscillation. *Journal of Geophysical Research: Oceans*, 100: 10589-10612
- 1995: Meyers, S. D. and J. J. O'Brien, Pacific Ocean Influences Atmospheric Carbon Dioxide. *Eos, Transactions American Geophysical Union*, 76: 533-533
- 1994: Meyers, S. D., Cross-Frontal Mixing in a Meandering Jet. *Journal of Physical Oceanography*, 24: 1641-1646
- 1994: Meyers, S. D., J. F. Mangan, and J. J. O'Brien, Fractal Trajectories in a Numerical Model of the Upper Indian Ocean. *Nonlin. Proc. Geophys.*, 1: 45-50
- 1994: Meyers, S. D., C. S. Jones, D. M. Legler, K. F. Miles, and J. J. O'Brien, The Sensitivity to Parametric Variation in Direct Minimization Techniques. *Monthly Weather Review*, 122: 1632-1639
- 1993: Meyers, S. D., B. G. Kelly, and J. J. O'Brien, An Introduction to Wavelet Analysis in Oceanography and Meteorology: With Application to the Dispersion of Yanai Waves. *Monthly Weather Review*, 121: 2858-2866
- 1991: Behringer, R. P., S. D. Meyers, and H. L. Swinney, Chaos and Mixing in a Geostrophic Flow. *Physics of Fluids*, 3: 1243-1249
- 1989: Meyers, S. D., J. Sommeria, and H. L. Swinney, Laboratory Study of the Dynamics of Jovian-Type Vortices. *Physica D: Nonlinear Phenomena*, 37: 515-530
- 1989: Sommeria, J., S. D. Meyers, and H. L. Swinney, Laboratory Model of a Planetary Eastward Jet. *Nature*, 337: 58-61
- 1988: Sommeria, J., S. D. Meyers, and H. L. Swinney, Laboratory Simulation of Jupiter's Great Red Spot. *Nature*, 331: 689-693