

**RICHARD A. LUETTICH, JR.**  
**Alumni Distinguished Professor**  
**Director, UNC Institute of Marine Sciences**  
**Director, UNC Center for Natural Hazards Resilience**

**ADDRESS:**

University of North Carolina at Chapel Hill  
Institute of Marine Sciences  
3431 Arendell Street  
Morehead City, NC 28557  
tel.: 252-726-6841 ext. 137  
fax: 252-726-2426  
email: rick\_luettich@unc.edu

University of North Carolina at Chapel Hill  
Center for the Study of Natural Hazards and Disasters  
100 Europa Drive, Suite 540  
Chapel Hill, NC 27517

**EDUCATION:**

1987 Sc.D. Civil Engineering, Massachusetts Institute of Technology.  
1981 M.S. Civil Engineering, Georgia Institute of Technology.  
1979 B.C.E. Civil Engineering, with Highest Honors, Georgia Institute of Technology.

**PROFESSIONAL EXPERIENCE:**

2019 – pres. Alumni Distinguished Professor  
2010 - 2013 Sewell Family Term Professor of Marine Sciences  
2008 – pres **Director**, Center for Natural Hazards Resilience  
2007 – pres Chief Domain Scientist, Coastal Modeling, Renaissance Computing Institute  
2004 - pres **Director**, Institute of Marine Sciences  
1999 - 2019 Professor of Marine Sciences and Environmental Sciences & Engineering  
1997 - 1999 Associate Professor of Marine Sciences and Environmental Sciences & Engineering  
1993 - 1997 Associate Professor of Marine Sciences  
1987 - 1993 Assistant Professor of Marine Sciences, UNC Chapel Hill.  
1981 - 1987 RA/TA, Dept. of Civil Eng., Massachusetts Institute of Technology.  
1980 - 1981 Hydrologist, US Geological Survey, Regional Office, Atlanta, Ga.  
1979 - 1980 RA, Dept. of Civil Eng., Georgia Institute of Technology.

**PERSONAL STATEMENT:**

I am most recognized as a leading national and international expert on coastal storm surge, although my research addresses multiple facets of modeling and measurement of circulation and transport in coastal waters. My modeling efforts have emphasized geometrically complex systems such as sounds, estuaries, inlets and inundated regions together with high performance computing. I am one of the principal developers of the ADCIRC circulation and storm surge model ([Luettich et al 1992](#)) and have continued to improve and expand the model over time including supporting its availability to a broad user community (e.g., via [adcirc.org](#) which I maintain). ADCIRC is now widely used by the academic, government and private sectors and has become a cornerstone of coastal hazards / storm surge studies over the last decade and a half. Uses include forensic and scientific studies of past events (I've led or collaborated on many); predicting future events in the context of climate change; statistical studies of coastal hazards (e.g., to determine coastal flood zones for FEMA's National Flood Insurance Program from New York to Texas [I led the North Carolina study and assisted with several others] and to evaluate the vulnerability of coastal nuclear power plants to flooding for the Nuclear Regulatory Commission); and designing coastal risk reduction measures (e.g., by the US Army Corps of Engineers to design the \$14.5 B Hurricane and Storm Damage Risk Reduction System for greater New Orleans and proposed systems such as for the Houston-Galveston area). For the past several years I have led a consortium to build an event-based storm surge forecasting system using ADCIRC. To date this has spawned new research questions, (e.g., the construction of accurate tropical cyclone forecast wind fields and the use of [data assimilation](#) in surge

modeling); yielded valuable information to multiple organizations involved with response and recovery (e.g., Coast Guard, FEMA, Army Corps of Engineers, Texas State Emergency Management Agency, North Carolina Division of Emergency Management, Town of Beaufort, NC, Travelers Insurance Co); and resulted in the National Oceanic and Atmospheric Administration (parent of the National Weather Service) implementing ADCIRC (including our newly developed data assimilation scheme) for their Extratropical Surge and Tide Operational Forecast System (ESTOFS) and their Hurricane Surge On-demand Forecast System (HSOFS). Based on the information we provided during the 2017 hurricane season, US Coast Guard Rear Admiral Peter Brown notified the Department of Homeland Security (DHS) that from now on, *“I won’t show up to hurricane season without ADCIRC”*. An independent study by the University of Southern California’s CREATE Center identified the investments made by DHS to my ADCIRC modeling activities as having the highest return on investment of any project supported through the DHS Centers of Excellence program (~\$500 M total funding) since its inception over a decade ago (R. John et al, in review for Risk Analysis).

In parallel with modeling activities, my observational activities have focused on process based studies in coastal waters, often to understand the role of physics in areas of water quality (e.g., phytoplankton blooms, dissolved oxygen depletion) and fisheries (spawning migration and larval dispersal). Most notable, this work resolved a long standing water quality dispute in North Carolina’s Neuse River Estuary by identifying a physical driver for low oxygen related [fish kills](#) and has elucidated multiple transport pathways through North Carolinas complex sounds. To accomplish the water quality studies, I have developed and received a provisional patent on an autonomous vertical profiling system that provides novel data on high frequency anoxic water upwelling, diel vertical plankton migration, sediment resuspension and wind driven mixing in shallow sounds and lakes (e.g., see <http://jordanlakeobservatory.unc.edu>).

In addition to my research, development and applications accomplishments, I am the Director of UNC’s [Institute of Marine Sciences](#), a remote 3.5 acre campus on the North Carolina coast having a resident population of 75 – 100 faculty, students and staff. I am a very active leader in the coastal natural hazards and coastal modeling communities, leading the competitively awarded, multi-institutional [DHS Coastal Resilience Center of Excellence](#) since 2008 (~\$45M funding) and from 2011-2018 serving as the Southeastern University Research Association’s (SURA) lead PI for the competitively awarded, multi-institutional, [US Integrated Ocean Observing System Coastal Ocean Modeling Testbed \(COMT\)](#) (~\$10M funding) to facilitate the transition of advancements in coastal modeling from research to operations. At the end of my term as PI, the COMT was transitioned to NOAA and it is now a permanent NOAA testbed. I have participated on numerous coastal science committees including three US National Academies committees (I chaired the [Coastal Risk Reduction committee](#) in 2013/14), the Board of Commissioners for the Louisiana [Flood Protection Authority-East](#) (Treasurer and vice-President), the Board of Directors of the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS); multiple advisory boards (see partial list under ACTIVITIES, HONORS and AWARDS), as organizer of two special issues of Journal of Geophysical Research and as Guest Editor of two special issues on coastal hazards related to water for the Journal of Marine Sciences and Engineering. I also served two terms as an elected member of the Carteret County Board of Education.

#### **SELECTED RECENT MEDIA INTERVIEWS / QUOTES:**

- 2022 [WITN, News & Observer, Spectrum, WRAL, Times Picayune](#), NPR Marketplace
- 2021 [WITN, WITN, Spectrum, NBC, ABC, WITN](#),
- 2020 [Coastal Review Online; New York Times \(October\); New York Times \(September\); WITN](#)
- 2019 [Washington Post; News & Observer; WUNC](#)
- 2018 [538, New York Times \(Feb\); New York Times \(Sept\), Mashable, Nature, Scientific American; CNN, NPR All Things Considered, PBS NewsHour, The Guardian, Spectrum News, The Weather Channel, NOLA.com, WNCT9, HomelandSecurityToday](#)

- 2017 [CBS News](#), [MSNBC](#), [New York Times](#), [Vice News](#), [WRAL](#), [Boston Globe](#), AP, News and Observer, [BBC](#), [Georgia Public Broadcasting](#), Savannah Now, [WNCT9 \(May\)](#), [WNCT9 \(Aug\)](#), [Endeavors](#); [Coastal Review Online](#), [NOLA.com](#)
- 2016 [Washington Post](#), [NPR](#), [WNCT9](#); [UNC Podcast Well Said](#)
- 2015 [Spectrum News](#), [TheLense](#), UNC-TV, WCTI12, UNC Alumni Review, [Endeavors](#)
- 2013 Civil Engineering, [UNC-TV](#), [Popular Science](#), News and Observer, [Endeavors](#)

#### **ACTIVITIES, HONORS and AWARDS:**

- 2022 Advisory Board, NSF National Full-Scale Testing Infrastructure for Community Hardening in Extreme Wind, Surge, and Wave Events (NICHE)
- 2021 NOAA Great Lakes Environmental Research Laboratory external review
- 2021 NOAA Science Advisory Board Priorities of Weather Research Study Team - Forecasting
- 2019 UNC Chapel Hill Alumni Distinguished Professor
- 2019 Invited speaker, UNC Chapel Hill University Day, October 12, 2019
- 2019 – 20, North Carolina Climate Science Advisory Panel
- 2018 – pres., Board of Directors, Mid-Atlantic Regional Association Coastal Ocean Observing System
- 2018 – pres., Advisory Board, NSF Natural Hazards Engineering Research Infrastructure SimCenter
- 2018 – 19, Guest Editor, Special Issue: Coastal Hazards Related to Water, Journal of Marine Science and Engineering
- 2016** HPCwire Editor's Choice **Award** for Best Use of High Performance Data Analytics
- 2016 – pres., UNC Faculty Advisory Board, North Carolina Policy Collaboratory
- 2015 UNC Provost's Task Force on the Environment
- 2014 – 17, Advisory Board, Oxford Research Encyclopedia of Natural Hazard Science
- 2014 – 15, Guest Editor, Special Issue: Coastal Hazards Related to Storm Surge, Journal of Marine Science and Engineering
- 2013 – 14, National Academy of Engineering/National Research Council committee on Coastal Risk Reduction (Chair).
- 2013** – International Data Corporation, High Performance Computing Innovation Excellence **Award**
- 2012** – Dept. Homeland Security Science and Technology Impact **Award**
- 2012 – 13, Chesapeake Bay Program Modeling Laboratory Action Team
- 2012 – 21, The Water Institute of the Gulf, Scientific and Engineering Advisory Council
- 2012 – 19, Commissioner Southeast Louisiana Flood Protection Authority – East, Treasurer 2016, Vice President 2016-19.
- 2012 – 14, Northern Gulf Coastal Hazards Collaboratory Advisory Board
- 2011, 13 – Georgia Sea Grant review panel
- 2010** –Dept. Homeland Security Science and Technology Impact **Award**
- 2009 – 2014, Centers for Ocean Science Education Excellence (COSEE) Advisory Board
- 2009 Florida Sea Grant review panel
- 2009 College of William and Mary, High Performance Computing Program Review, co-chair
- 2009 NSF, Track 2 High Performance Computing Review Panel
- 2008 - 2011, SECOORA Science Advisory Committee
- 2007 – 2009, National Academy of Engineering/National Research Council committee on Louisiana Coastal Area Protection and Restoration Program
- 2007 – pres, Member American Meteorological Society, (Committee on Coastal Environment, 2006-08)
- 2006 – 2008, Ocean.US, IOOS Modeling and Analysis Steering Team
- 2006 NSF, Cyber Infrastructure Review Panel
- 2006 AGU Panel of Experts on Hurricane Science
- 2006 - 2009, National Academy of Engineering/National Research Council committee on New Orleans Regional Hurricane Protection Projects – led briefing of final report to Sec of Army and his staff, staff from two Congressional sub-Committees

- 2005 Army COE Inst Water Resources, Working Group on science for post-Katrina/Rita planning for greater New Orleans and Coastal Louisiana
- 2004 NC Water Resources Research Technical Review Panel
- 2003 Naval Research Laboratory, External Review Panel
- 2003 NSF, Information Technology Research Review Panel
- 2002 - 2008, Elected member of the Carteret County Board of Education
- 2001 - 2009, Member Estuarine Research Federation
- 2000 NSF, Physical Oceanography Review Panel
- 1997 - 2000, N.C. Scientific Advisory Council on Water Resources and Coastal Fisheries Management.
- 1995 NOAA, Mid Atlantic Bight National Under Sea Research Program Review Panel.
- 1992 - 2000, Affiliate Scientist., Center Coastal & Land-Margin Res., Oregon Graduate Institute.
- 1992 - pres., Adjunct faculty member, Dept. of Civil Engineering, North Carolina State University.
- 1992 - 1999, Editorial Board, Journal of Marine Environmental Engineering.
- 1992 Visiting Scientist, Proudman Oceanographic Laboratory, UK.
- 1991 DOE, Ocean Margins Program, Physical Oceanography Review Panel.
- 1987 - pres., Member Amer. Geophys. Union.
- 1982 Georgia Tech Sigma Xi award for outstanding M.S. Thesis in Engineering.
- 1980 Who's Who in American Colleges and Universities.
- 1979 B.C.E. degree with highest honors.
- 1975 Graduated 3rd in class of 330 from Cony High School, Augusta, Maine. Selected as the outstanding male in graduating class.

Reviewer for The American Naturalist, Advances in Water Resources, Continental Shelf Research, Ecologia, Env. Fluid Mechanics, Env. Science & Technology, EOS, Estuaries, Estuarine and Continental Shelf Sciences, Int. J. Numerical Methods in Fluids, J. Atmospheric & Oceanic Technology, J. of the Elizabeth Mitchell Society, J. Geophysical Research, J. Hydraulic Engineering, J. Marine Science and Engineering, J. Marine Systems, J. Physical Oceanography, J. Waterway, Port, Coastal & Ocean Engineering, Limnology & Oceanography, Marine Geology, Marine Ecology Progress Series, Nature Climate Change, Ocean Dynamics, Ocean Engineering, Stochastic Environmental Research and Risk Assessment, UNESCO, Sea Grant (CA, DE, FL, GA, LA, MD, ME, RI, TX), DOE, EPA, NOAA NURP, NOPP, NSF, Gulf of Maine Marine Research Program, Hudson River Foundation, NC National Estuarine Research Reserve, NC Water Resources Research Institute, Florida Bay Research Program, SECOORA, numerous academic tenure and promotion decisions.

**COURSES TAUGHT:**

- MASC 155, Turbulent Boundary Layers
- MASC 253, Coastal Circulation
- MASC 256, Transport and Flow in Tidal Inlets

**STUDENTS SUPERVISED:**

Major Advisor

John Ratcliff	MS, UNC Marine Sciences 2022 PhD, Earth, Marine & Env. Sciences - current
Jana Haddad	PhD, UNC Marine Sciences - current
Taylor Asher	PhD, UNC Marine Sciences 2022
Jie Gao	PhD, UNC Marine Sciences 2018
Jessica Smith	MS, UNC Marine Sciences 2017
Jesse Bikman	MS, UNC Marine Sciences (2011-13)
Tony Whipple	MS, UNC Marine Sciences 2007
Mark Ciccarello	MS, UNC Marine Sciences (2005-07)
May Becker	PhD, UNC Marine Sciences 2006

Sarah Carr	PhD, UNC Marine Sciences 2006
Janelle Reynolds-Fleming	PhD, UNC Marine Sciences 2003
James Hench	PhD, UNC Marine Sciences 2002
Zhe Shang	PhD, UNC Marine Sciences (1993-95)
Roger Grenier	PhD, NC St. Univ, Civil Eng., 1996
Shending Hu	PhD, UNC Marine Sciences (1989-92)
Lucy O'Keef	PhD, UNC Physics, April 1992

Thesis / Dissertation Committee Member:

Jonathan Woodruff	PhD, NC State Univ., Civil Eng.
Lauren Grimley	PhD, UNC Geology
Shuo Li	PhD, UNC Marine Sciences
Michael Itzkin	PhD, UNC Geology, 2021
Jeane Camelo	PhD, Univ Central Florida, Civil Eng., 2021
Wenjing Liu	MS, UNC Marine Sciences, 2020
Jessamin Straub	MS, UNC Marine Sciences, 2019
Mike Muglia	PhD, UNC Marine Sciences, 2019
Ajimon Thomas	PhD, NC State Univ., Civil Eng., 2020
David Marshall	PhD, UNC Marine Sciences, 2018
Ethan Theuerkauf	PhD, UNC Marine Sciences, 2016
Patrick Kerr	PhD, Univ. Notre Dame, Civil Eng, 2013.
Greg Dusek	PhD, UNC Marine Sciences, 2011
Amy Haase	MS, NC St. Univ., MEAS, 2009
Nathan Hall	PhD, UNC Marine Sciences, 2009
Choong Ki Kim	PhD, Univ S Alabama, Marine Sciences, 2009
Matt Ogburn	PhD, Duke University, Marine Sciences, 2008
Ethan Kubatko	PhD, Univ. Notre Dame, Civil Eng., 2005
Alfredo Arechavaleta	PhD, UNC Marine Sciences, 2005
Brian Blanton	PhD, UNC Marine Sciences, 2003
Daniel Giffin	PhD, East Car. Univ., Coastal Res. Mgt., 2003
Jun Yong Park	PhD, UNC Marine Sciences, 2000
William Sweet	MS, NC St. Univ., MEAS, 2000
Steve Knowles	PhD, UNC Marine Sciences, 1999
Todd Roessler	MS, UNC Marine Sciences, 1998
Jesse McNinch	PhD, UNC Marine Sciences, 1997
Hunter Lenihan	PhD, UNC Marine Sciences, 1996
Scott Kucera	MS, UNC ESE, 1995
Andre Fortunato	PhD, Oregon Grad. Inst, ESE, 1995
Duncan Young	BS, UNC Env Sci & Eng, 1995
Wei Wang	PhD, UNC Marine Sciences, 1991
Sankey Blanton	MS, UNC Marine Sciences, 1991
James E. Camp	MS, UNC Marine Sciences, 1990
Seok-Yun Kim	PhD, UNC Marine Sciences, 1990
John Schultz	MS, UNC Marine Sciences, 1988

Undergraduate Interns Supervised:

Nadia Cohen	UNC, spring 2019
Molly Gilchrest	UNC, fall 2017, summer 2018
Yohana Dierolf	UNC, fall 2015
Richard Bullock	UNC, fall 2013
Thomas Heath	Univ. Massachusetts, NSF REU, summer 2012

Daniel Ramirez	NC St. Univ., summer 2008
Ben Laroque	UNC, summer 2007, 2008, fall 2008
Gaylin Wells	Rochester Institute of Tech, summer 2002 – 04
Ryan Paerl	East Carteret High Sch., summer 1999, 00
T.J. Lampkin	West Carteret High Sch., summer 1997
Crystal Williams	NC St. Univ., summer 1991, 1993-97
Duncan Young	UNC, summer 1994
Myron Pitcavage	Wilkes Univ., summer 1993
Ron Birkhahn	Wittenberg Univ., summer 1991
Leatrice Bradford	Hampton Univ., summer 1989
Jay Chervenak	Wake Forest Univ., summer 1988
Blair Larsen	Univ. Virginia, summer 1987

Post Doctoral Associates and Research Associates:

Shintaro Bunya	2021-
Corbitt Kerr	2013-14
Robert Weaver	2008-11
Janelle Fleming	2006-13
Cristina Forbes	2007-10
James Hench	2003-04
Jason Fleming	2002-03, 05-08
Christopher Buzzelli	1999-01
Jesse McNinch	1997-98

**PROPOSALS PENDING:**

- 2022–27 Focused CoPe: NEAULA@RRISCG (from Resilience to Retreat through Integration of Science, Communities, and Governance) subcontract to Tulane University, NSF, UNC-PI, \$319,999
- 2022-27 Large-Scale CoPe: The Collaboratory for Coastal Adaptation over Space and Time (C-COAST) Hub for Transdisciplinary Understanding of Coupled Human-Natural Coastal Dynamics, NSF, Senior Personnel, \$19,982,479.
- 2023-25 BRITE Pivot: Improving Coastal Resilience under the Changing Climate by Incorporating Multiple Hazards, subcontract to Missouri University of Science and Technology, NSF, UNC-PI, \$224,775

**SPONSORED RESEARCH - ACTIVE:**

- 2022-24 Looking Forward – NC A&T / UNC Collaborative Proposal, UNC PI, \$77,945.
- 2022-25 A Multi-decadal Coastal Water Level Model Reanalysis for Coastal Inundation and Flood Risk Assessment, NOAA Climate Program Office, Modeling, Analysis, Prediction and Projection (MAPP) Program, co-PI, \$450,000
- 2021-23 UNC Contributions to the Development of the Louisiana Flood Forecasting System, State of Louisiana, PI, \$86,488
- 2021-24 A Multi-decadal Coastal Water Level Model Reanalysis for Coastal Inundation and Flood Risk Assessment, NOAA Integrated Ocean Observing System, Southeast Coastal Ocean Observing Regional Association, co-PI, \$ 589,280.
- 2021-25 Forecasting Coastal Impacts from Tropical Cyclones along the US East and Gulf Coasts using the ADCIRC Prediction System, National Ocean Partnership Program, PI, \$1,400,000
- 2020-25 GCR: The Frontiers of Climate Change. Who Stays, Who Goes? co-PI, NSF, \$1,149,999
- 2020-23 A Process-based Model of Wind Wave and Boat Wake Attenuation to Aid Evaluation and Design of Living Shorelines, NC Sea Grant, co-PI, \$120,000.
- 2019-22 Dynamics of Extreme Events, People and Places, UNC Creativity Hub, co-PI.

- 2019-22 Collaboratory for Coastal Adaptation over Space and Time (C-CoAST), co-PI, NSF Coasts and People, Research Coordination Network, \$499,864
- 2019-22 Academic Research Study: Climatological and Hydrodynamic Model Uncertainties, PI, US Coastal Research Program, \$172,506
- 2019-22 Falls Lake in situ Water Movement Study, North Carolina Policy Collaboratory, PI, \$172,000
- 2018-22 Coupling the National Water Model to the Coastal Ocean for Predicting Water Hazards, NOAA IOOS Coastal and Ocean Modeling Testbed, co-PI, \$881,235
- 2015-23 Coastal Resilience Center of Excellence, Department of Homeland Security, **Lead PI**, \$31,690,416.

**SPONSORED RESEARCH - COMPLETED:**

- 2019-21 Coastal Probabilistic Hazard Analysis, Federal Emergency Management Agency, PI, \$999,990.
- 2019-21 North Carolina Flood Resilience Project, North Carolina Policy Collaboratory, co-PI, \$100,000
- 2015-21 The Apex-Flood Program, Department of Homeland Security, Lead PI, \$1,458,000
- 2014-20 SI2-SSI: Collaborative Research: STORM: a Scalable Toolkit for an Open Community Supporting Near Realtime High Resolution Coastal Modeling, UNC PI, NSF, \$759,047
- 2016-19 In situ measurements of water movement and water quality in Jordan Lake, North Carolina Policy Collaboratory, PI, \$325,669
- 2015-19 EESLR 2015: Understanding and predicting changes in coastal marsh ecosystem services: realizing the combined effects of sea-level rise, tides, and storm surge on marshes and their capacity to protect shorelines, co-PI, NOAA, \$598,885
- 2013-18 A Community Coastal and Ocean Modeling Testbed to Improve Understanding and Operational Forecasts of Extreme Events and Chronic Environmental Conditions Affecting the US, **Lead PI**, NOAA IOOS program, \$5.25 million.
- 2015-18 Understanding and Predicting Salinity Variability and Hypoxic Exposure in Fish Habitats in the Lower Neuse River Estuary, co-PI, North Carolina Coastal Recreational Fishing License Fund, \$196,763.
- 2013-18 Enhancement and Operation of the ADCIRC Surge Guidance System for the Greater New Orleans Area, PI, US Army Corps of Engineers, New Orleans District, \$472,565.
- 2012-17 Defense Coastal / Estuarine Research Program Phase III, co-PI, Department of Defense SERDP, \$200,000.
- 2008-17 Center of Excellence in Coastal Hazards, \$14.51 million, Department of Homeland Security, **Lead PI** and Center Director.
- 2014-16 Strengthening the Hurricane Wave and Surge Forecast Guidance provided to Coastal Communities in North Carolina, co-PI, North Carolina Sea Grant, \$25,000.
- 2012-16 Collaborative Research: Interacting Effects of Local Demography and Larval Connectivity on Estuarine Metapopulation Dynamics. co-PI, NSF Ocean Sciences, \$250,000.
- 2014-15 Independent Review of the Methodology Used to Determine Wave Hazards and Damages Along the Great Lakes for the National Flood Insurance Program, PI, FEMA, \$230,834.
- 2008-14 Collaborative Research: Linkage of bacterial pathogens to human infectious disease in an estuary subjected to extreme climatic events, co-PI, NSF EID, \$233,740.
- 2011-13 US IOOS Coastal and Ocean Modeling Testbed, NOAA IOOS, \$975,000, Lead PI.
- 2012-13 Using XSEDE for Coastal Model Assessment to Improve Models of Environmental Processes on the Gulf of Mexico and U.S. Atlantic Coasts, Lead PI, NSF XSEDE, 12.5 million service units.

- 2009-13 ADCIRC Surge Guidance System, \$320,131, US Army Corps of Engineers, New Orleans District, PI.
- 2010-12 A Super Regional Testbed to Improve Models of Environmental Processes on the U.S. Atlantic and Gulf of Mexico Coasts. Lead PI, NOAA IOOS, \$4.0 million.
- 2010-11 Collaborative Research: Extension of the ADCIRC Coastal Circulation Model for Predicting Near Shore and Inner Shore Transport of Oil from the Horizon Oil Spill, Lead PI, NSF RAPID, \$200,000.
- 2008-11 ADCIRC Contribution to a Southeast Regional Storm Surge Test Bed, \$243,387, National Oceanic and Atmospheric Administration Coastal Services Center, PI.
- 2008-11 A Prototype Operational Modeling System for Waves, Coastal Currents, Inundation and Hydrologic Flooding for Eastern North Carolina, \$1,243,889, National Oceanic and Atmospheric Administration Coastal Services Center, PI.
- 2008 North Carolina Environmental Observing Network System (NC\_EONS), \$148,000, North Carolina Research Competitiveness Fund, Lead PI.
- 2008 Implementation of The Lake Pontchartrain Forecast System for the 2008 Hurricane Season, \$101,512, US Army Corps of Engineers, New Orleans District, PI.
- 2007 Wave-Circulation Model Coupling and Testing in the Near Shore Environment, \$143,000, US Army Corps of Engineers, Engineering Research and Development Center
- 2007-09 A High Resolution Near-Shore Wave Model for the Mid-Atlantic Coast, \$55,973, University Center for Atmospheric Research/COMET
- 2006-12 Dept of Defense, Coastal, Estuarine Research Program - Camp Lejeune, co-PI, SERDP, \$343,092
- 2006-10 CMG Collaborative Research: Adaptive Numerical Methods for Shallow Water Circulation with Applications to Hurricane Storm Surge Modeling, \$167,279, NSF.
- 2006-09 Wave and Circulation Computations on Unstructured Grids, \$134,102, Office of Naval Research.
- 2006-07 Lake Pontchartrain Hurricane Forecast System, \$308,318, US Army Corps of Engineers, New Orleans District.
- 2006-07 Development of a Grid Based Storm Surge and Inundation Modeling System, \$185,190, Southeastern Universities Research Association.
- 2006-07 MORPHOS - 3D Long-wave Hydrodynamics Modeling, \$174,842, US Army Corps of Engineers, Engineering Research and Development Center
- 2005-06 ADCIRC Model Enhancement and Establishment of a Validation Data Site on Bogue Banks, NC, \$32,000, US Army Corps of Engineers, Wilmington District.
- 2004-06 North Carolina Contribution to SURA SCOOP: Data Distribution and Archiving, Model to Model Interfacing and Model Availability in an Open Grid Computing Environment, \$213,883, Southeastern Universities Research Association.
- 2003-07 Impacts of anthropogenic change on the ecology of human pathogens in a eutrophying estuary: the Neuse River Estuary, NC, \$1,600,000, NSF-EID (one of 7 co-PIs).
- 2002-06 Modular Data Assimilation Application with the ADCIRC Circulation Model, \$15,000 UNC portion, NSF-ITR (with J. Muccino, Arizona State Univ., A. Bennett, Oregon State Univ.).
- 2001-06 Atlantic Coastal Environmental Indicators Consortium (ACE INC), EPA, 2001-06, \$5,941,293 (co-Project Director with 8 co-PIs)
- 2001-05 A Multidisciplinary Study of Selective Tidal-Stream Transport: Bio-Physical Coupling and Behavioral Mechanisms, \$99,063, NSF.



- 2001-04 Limited-Area Operational Coastal Ocean Models: Assimilation of Observations from Fixed Platforms on the Continental Shelf and Far-field Forcing from Open Ocean Models, \$442,177, National Ocean Partnership Program, (one of 7 co-PIs)
- 2000-04 ADCIRC Hydrodynamic Circulation and Transport Code Development and Applications, \$147,741 UNC portion, (with J. Westerink, Notre Dame Univ.), US Army Corps of Engineers Waterways Experiment Station.
- 1999-04 Development of a Surface Water Object-Oriented Modeling System (SWOOMS) for the Neuse River Estuary, North Carolina, \$987,884, EPA, (lead PI with 6 co-PIs).
- 1999-01 Neuse River Estuary Modeling and Monitoring Project: Phase II Monitoring, \$295,333, North Carolina Water Resources Research Institute, (lead PI with 5 co-PIs).
- 1998-02 CISNet for the Neuse River Estuary: A Program for Evaluating Nitrogen Driven Eutrophication Associated with Changing Land Use in a Coastal Watershed, \$620,300, EPA (lead PI with 2 co-PIs)
- 1998-02 Geological and Physical Transport Processes on a Cape Attached Shoal, \$250,000, NSF Ocean Sciences (with J. Wells)
- 1997-98 Distance Learning Initiative at Carolina in Marine Sciences (LINC IMS), \$30,000, UNC Chancellor's Instructional Technology Grant.
- 1997-99 Development and Application of a Prognostic Three-Dimensional Baroclinic Capability in the ADCIRC Hydrodynamic Model, \$131,972, Office of Naval Research.
- 1997-98 Exchange Through a Barrier Island Inlet: Modeling and Synthesis, \$7,784, NOAA SABRE program.
- 1997-98 An Interdisciplinary Observational Program for the Neuse River Estuary, NC, \$347,000, North Carolina Department of Environment and Natural Resources, (lead PI with 10 co-PIs).
- 1996-97 The Role of Floating Sargassum Habitat in Mediating Predator-Prey Interactions among Pelagic Fishes on the Continental Shelf of North Carolina, \$5,000, NOAA National Undersea Research Center, (1 of 4 co-PIs).
- 1995-97 The Physical/Hydrographic Characteristics of Shelf-Estuary Exchange Through a Barrier Island Inlet, \$42,000, NOAA SABRE program.
- 1995-96 Implementation of a High Resolution Coastal Ocean Model for Operational Forecasting of Extratropical Storm Surge Along the US East Coast with Initial Emphasis on the North Carolina Coast, \$6,800., University Center for Atmospheric Research/COMET.
- 1995-96 Development of Second Generation Long Wave Hydrodynamic Databases for US Coastal and Continental Margin Waters, \$114,721., US Army Corps of Engineers Waterways Experiment Station.
- 1994-99 Enhancements of the ADCIRC Model for the Analysis of Coastal Inlet Hydrodynamics, \$370,000, (with J. Westerink, Notre Dame Univ.), US Army Corps of Engineers Waterways Experiment Station.
- 1994-95 The Role of Floating Macroalgal Habitat in Promoting the Biodiversity of the Sargassum Ecosystem, \$24,765., (with C. Peterson, M. Hay, N. Lindquist) NOAA CIFO program.
- 1993-94 REU Supplement to Development and Application of the Direct Stress, \$4,838, NSF Ocean Sciences
- 1992 RESEED, Recruitment Experiment Study under Estuarine Energetic Dynamics, \$25,000, (with C. Peterson), NOAA CIFO program.
- 1992-95 Tidal and Storm Surge Circulation Computations for Oregon Inlet, NC, \$85,056, Army Research Office.

- 1992-94 Response of Large Aggregates to Storms: Extension of Current NSF Research to the North Sea, \$16,000, (with J. Wells), NSF International Program.
- 1992-94 Development and Application of the Direct Stress Solution Technique for Modeling Three-Dimensional Circulation in Shallow Waterbodies, \$90,000, NSF Ocean Sciences.
- 1991 Development and Application of a Computer Model for Predicting Water Level and Circulation in Coastal Water Bodies, \$3,000, UNC Junior Faculty Development Award.
- 1990-94 Two and Three-Dimensional Tidal and Storm Surge Circulation Computations for the Western Atlantic Shelf and Gulf of Mexico, \$375,302, (with J. Westerink, Notre Dame Univ.), US Army Corps of Engineers Waterways Experiment Station.
- 1990-92 In Situ Variability of Large Aggregates over a Fluid Mud Bed: Shear Effects, Settling Velocities and Response to Storms, \$100,917, (with J. Wells), NSF Ocean Sciences.
- 1988-89 Development of a Two-Dimensional Numerical Model for Estimating the Long Term Fate of Dredged Material, \$116,093, (with J. Westerink, Texas A&M Univ.), US Army Corps of Engineers Waterways Experiment Station.
- 1987-90 Fates and Effects of Herbicides and Pesticides in Estuaries, \$20,000, EPA, (subcontract to Duke University Marine Lab).
- 1988-90 Regulation and Utilization of Planktonic Primary Production in Pamlico Sound, N.C., \$60,578, (with H. Pearl), North Carolina Sea Grant.
- 1987-88 Turbulent Vertical Mixing Rates in the North Carolina Sounds, \$5,000, UNC Coordinating Committee for Marine Progress Grants.

**SELECTED CONFERENCE / SYMPOSIUM PRESENTATIONS AND SEMINARS:**

- 2022 5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards, Orlando, FL
- 2022 NOAA Modeling Board TED-style panel: Sustaining Community Innovation: Developing Best Practices For Engaging and Leveraging Community Partnerships, (invited)
- 2022 Ocean Sciences, remote (chair for multiple sessions)
- 2022 IBM, International Environmental Sciences seminar series, remote, (invited)
- 2022 American Meteorological Society Annual Meeting, remote
- 2021 International Decontamination Research and Development Conference, remote (invited keynote)
- 2021 National Academy of Engineering, Annual Meeting Symposium on Climate Change and Civil and Environmental Engineering, remote (invited)
- 2021 National Academies, Transportation Research Board, Committee on Hydrology, Hydraulics, and Stormwater, remote (invited)
- 2021 Upper Neuse River Basin Association meeting, remote, (invited)
- 2020 Ocean Sciences, San Diego, CA (session chair)
- 2020 American Meteorological Society Annual Meeting, Boston, MA
- 2019 RISE 2019 National Conference: Transforming University Engagement in Pre- and Post-Disaster Environments, Albany, NY (invited)
- 2019 Making Communities More Resilient to Extreme Flooding, Earth from Space Institute, Columbia, MD, (keynote speaker)
- 2019 American Meteorological Society Summer Community Meeting, Albany, NY (invited)
- 2019 Tulane University Engineering Forum, New Orleans, LA (invited)
- 2018 NOAA Annual Water Meeting, Tuscaloosa, AL (invited)
- 2018 National Disaster Trends and the Corps of Engineers: Trends, Challenges and Opportunities, USACE Institute for Water Resources, Alexandria, VA (invited)
- 2018 NSF Workshop on the Future of Coastal Modeling, Raleigh, NC, (invited)
- 2018 DHS Centers of Excellence Summit, Washington, DC
- 2018 North Carolina Beach, Inlet and Waterway Association, Pine Knoll Shores, NC, (invited)

2018 U.S. Coastal Research Program Storm Processes and Impacts Workshop, St. Petersburg, FL (invited)

2017 Council of Scientific Society Presidents, Washington, DC, (invited)

2017 NOAA Science Seminar Series, Silver Spring, MD

2017 American Meteorological Society Annual Meeting, Seattle, WA

2016 14<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, Kingston, RI (keynote speaker)

2016 American Meteorological Society Annual Meeting, New Orleans, LA (1 day short course)

2015 14<sup>th</sup> International Workshop on Wave Hindcasting and Forecasting and 5<sup>th</sup> Coastal Hazard Symposium, Key West, FL

2015 American Meteorological Society Annual Meeting, Phoenix, AZ

2014 American Meteorological Society Annual Meeting, Atlanta, GA

2013 National Strategic Maritime Risk Stakeholder Alliance Meeting, Purdue University

2013 13<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, San Diego (advisory committee)

2013 American Meteorological Society Annual Meeting, Austin, TX

2012 66<sup>th</sup> Interdepartmental Hurricane Conference, Charleston, SC

2012 Ocean Sciences Meeting, Salt Lake City, Utah

2012 American Meteorological Society Annual Meeting, New Orleans, LA

2012 Climate Science in Support of Coastal Management workshop, Charleston, SC, (invited)

2011 12<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, St. Augustine, FL (advis. committee)

2011 12<sup>th</sup> International Workshop on Wave Hindcasting and Forecasting and 3<sup>rd</sup> Coastal Hazard Symposium, Kohala, HI (invited speaker)

2011 1<sup>st</sup> International Symposium on Large-scale Computational Science and Engineering, Science Council of Japan, Tokyo, Japan (invited plenary speaker)

2011 National Hurricane Center, Miami, FL (invited seminar)

2011 Coastal Ocean Modeling, Gordon Research Conference, Mt. Holyoke College, S. Hadley, MA

2010 American Geophysical Union, Fall meeting, San Francisco, CA (invited speaker)

2010 MIT, Dept of Civil and Environmental Engineering, (invited seminar)

2010 JSOST Deepwater Horizon Oil Spill PI Conference, St. Petersburg, FL (invited)

2010 Science Café, Morehead City, NC (invited seminar)

2010 UNC-CH, Dept of Environmental Sciences and Engineering (invited seminar)

2010 NOAA Cooperative Institute for Climate Studies, Asheville, NC (invited seminar)

2009 Progress Energy Water Resources Seminar, (Keynote speaker), McKimmon Center, Raleigh, NC

2009 Cornell University, School of Civil and Environmental Engineering, (invited seminar)

2009 11<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, Seattle, WA (advisory committee)

2009 Hurricane Surge Workshop, University of South Florida, (invited plenary speaker)

2009 Grand Challenges in Coastal Resiliency, Louisiana State Univ, (advisory committee)

2008 NOAA IOOS Annual Meeting, Washington, DC

2008 USGS/NOAA Coastal Climate Initiative workshop, Washington, DC (invited)

2008 NC State University, Dept of Civil Engineering (invited seminar).

2007 10<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, Newport, RI (advisory committee)

2007 Coastal Ocean Modeling, Gordon Research Conference, New London, NH (invited speaker)

2006 North Carolina Sea Grant Symposium, Coastal Science Serving NC: 1976-2006, (invited speaker)

2006 North Carolina Water Resources Research Inst., Annual Conference, (Keynote speaker)

2006 NOAA Coastal Inundation Conference, Jacksonville, FL, Feb 2006, (Keynote speaker)

2006 American Geophysical Union, Conf. of Experts, Washington, DC, Jan 2006, (invited speaker)

2005 American Geophysical Union, Fall meeting, San Francisco, CA (invited Union session speaker)

2005 9<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, Charleston, SC, (session chair)

2005 18<sup>th</sup> Biennial Estuarine Research Federation Conference, Norfolk, VA

2004 Physics of Estuaries and Coastal Seas Conference, Merida, Mexico – October 2004

2004 Oxygen Dynamics in Chesapeake Bay Revisited, College Park, MD, (invited) – August 2004

2004 58<sup>th</sup> Interdepartmental Hurricane Conference, Charleston, SC, (invited)

- 2003 8<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, Monterey, CA, (session chair)
- 2003 Coastal Ocean Modeling, Gordon Research Conference, New London, NH (session chair)
- 2002 EPA Science Forum 2002, Washington, DC (invited)
- 2002 AGU Ocean Sciences Conference, Honolulu, HI (session chair)
- 2001 US Navy Finite Element Modeling Workshop, Washington, DC (invited)
- 2001 7<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, Tampa, FL (session chair)
- 2001 16<sup>th</sup> Biennial Estuarine Research Federation Conference, Tampa, FL
- 2001 North Carolina Water Resources Research Inst. Annual Conference (session organizer & chair)
- 2000 Physical of Estuaries and Coastal Seas Conference, Norfolk, VA
- 2000 North Carolina Water Resources Research Inst. Annual Conference (session chair)
- 1999 6<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, New Orleans, LA, (session chair)
- 1999 15<sup>th</sup> Biennial Estuarine Research Federation Conference, New Orleans, LA.
- 1999 Coastal Ocean Modeling, Gordon Research Conference, New London, NH. (invited)
- 1997 Nutrients in the Neuse River, Working Toward Solutions, New Bern, NC.
- 1997 5<sup>th</sup> International Conference on Estuarine and Coastal Modeling, Alexandria, VA.
- 1997 SIAM Conf. on Math. & Computational Issues in Geosci., Albuquerque, NM. (Plenary speaker).
- 1997 51<sup>st</sup> Interdepartmental Hurricane Conference, Miami, FL.
- 1997 ASLO 97 Aquatic Sciences Meeting, Santa Fe, NM.
- 1996 Tidal Science 1996, London, England.
- 1996 3<sup>rd</sup> Asian-Pacific Conf. on Computational Mechanics, Seoul, Korea. (Invited)
- 1996 AMS 15<sup>th</sup> Conf. On Weather Analysis and Forecasting, Norfolk, VA.
- 1996 XI International Conf. Computational Methods in Water Resources, Cancun, Mexico. (Invited).
- 1996 7<sup>th</sup> Pacific Congress on Marine Science and Technology, Honolulu, HI.
- 1995 4<sup>th</sup> International Conf. on Estuarine and Coastal Modeling, San Diego, CA.
- 1995 Coastal 95, Cancun, Mexico.
- 1995 Next Generation Environmental Models, Computational Methods, Bay City, MI.
- 1995 SIAM Conf. on Math. & Computational Issues in Geosciences, San Antonio, TX. (Invited).
- 1994 JONSMOD'94, Brussels, Belgium (Invited).
- 1994 X International Conf. on Computational Methods in Water Resources, Heidelberg, Germany.
- 1993 3<sup>rd</sup> International Conf. on Estuarine and Coastal Modeling, Chicago, IL.
- 1993 SIAM Conf. on Mathematical & Computational Issues in Geoscience, Houston, TX. (Invited).
- 1992 JONSMOD'92, Copenhagen, Denmark (Invited).
- 1992 IX International Conf. on Computational Methods in Water Resources, Denver, CO.
- 1992 6<sup>th</sup> National Conf. on Undergraduate Research, Univ. Minnesota, Minneapolis, MN.
- 1991 2<sup>nd</sup> Conf. on Estuarine and Coastal Modeling, Tampa, FL.
- 1991 1st US National Congress on Computational Mechanics, Chicago, IL.
- 1991 25<sup>th</sup> Canadian Meteorological & Oceanographic Soc. Congress, Winnipeg, Canada
- 1991 Nearshore and Estuarine Cohesive Sediment Transport Workshop, St. Petersburg, FL, (Invited)
- 1990 American Geophysical Union, Fall Meeting, San Francisco, CA.
- 1989 American Geophysical Union, Fall Meeting, San Francisco, CA.
- 1987 Symp on Sedimentation & Erosion, Agricultural Univ of Wageningen, The Netherlands (Invited)
- 1986 American Society of Civil Engineers, Water Forum 86, Long Beach, CA.

**US GOVERNMENT BRIEFINGS:**

- 2020 Coastal Resilience Panel sponsored by the Coastal Universities Coalition, US House Science Committee staff
- 2014 R. Luettich, G. Baecher, “Reducing Coastal Risk on the US East and Gulf Coasts”, **led** briefings sponsored by the National Academies National Research Council for: US Army Corps of Engineers; US Council on Environmental Quality, US Office of Management and Budget; FEMA; EPA; NOAA; US House Transportation and Infrastructure Subcommittee on Water Resources and the Environment.

- 2010-2019 multiple briefings with US Congressional staffers regarding the Department of Homeland Security Centers of Excellence.
- 2010 H. Cullen, R. Luettich, G. Holland, R. Douglas, "Hurricanes and Oil Will Mix: Managing Risk Now", June, 30, 2010 - 2 briefings sponsored by the American Geophysical Union, the Congressional Hazards Caucus Alliance, the National Science Foundation, the Pew Center on Global Climate Change, the University Corporation for Atmospheric Research, and the Weather Coalition for: US House Committee on Science and Technology and the US Senate Subcommittee on Disaster Recovery of the Committee on Homeland Security and Governmental Affairs
- 2009 R. Dalrymple, R. Luettich, J. Boland, "Final Report from the NRC Committee on the Review of the Louisiana Coastal Protection and Restoration (LACPR) Program", participated in 3 briefings sponsored by the National Academies National Research Council for: US Senator Mary Landrieu's office; US House Transportation and Infrastructure Subcommittee on Water Resources and the Environment; US Senate Committee on Environment and Public Works
- 2009 R. Luettich, D. Moreau, T. O'Rourke, S. Parker, "The New Orleans Hurricane Protection System: Assessing pre-Katrina Vulnerability and Improving Mitigation and Preparedness", led 3 briefings sponsored by the National Academies National Research Council for: Secretary of the Army, Pete Geren and staff; US House Transportation and Infrastructure Subcommittee on Water Resources and the Environment; US Senate Committee on Environment and Public Works

#### **PATENTS:**

2014 Report of Invention; 2015 Provisional Patent, 2016 Second Stage Patent: *Intelligent winch for vertical profiling*

#### **BOOKS:**

R. Luettich, 2018, "Coastal Hazards Related to Storm Surge", MDPI, 250 p., DOI:doi.org/10.3390/books978-3-03842-712-4

#### **MANUSCRIPTS IN REVIEW/REVISION: (0)**

#### **REFEREED PUBLICATIONS: (117 total)**

- 2022 Bilskie, M.V., T.G. Asher, P.W. Miller, J.G. Fleming, S.C. Hagen, R.A. Luettich Jr., "Real-time simulated storm surge predictions during Hurricane Michael (2018)", *Weather and Forecasting*, published-online: 16 Jun 2022, DOI: 10.1175/WAF-D-21-0132.1
- 2022 Thomas, A., J.C. Dietrich, C. Dawson, R. A. Luettich, "Effects of Model Resolution and Coverage on Storm-Driven Flooding Predictions", *Journal of Waterway, Port, Coastal, and Ocean Engineering*, 2022, 148(1):04021046; DOI: 10.1061/(ASCE)WW.1943-5460.0000687
- 2021 Aikaterini P.K., A.A. Taflanidis, M. Plumlee, T.G. Asher, E. Spiller, R.A. Luettich Jr, B.O. Blanton, T.L. Kijewski-Correa, A. Kennedy, L. Schmied, "Improvements in storm surge surrogate modeling for synthetic storm parameterization, node condition classification and implementation to small size databases", *Natural Hazards*, DOI: 10.1007/s11069-021-04881-9.
- 2021 Rucker, C.A., N. Tull, J.C. Dietrich, T.E. Langan, H. Mitasova, B.O. Blanton, J.G. Fleming, R.A. Luettich, "Downscaling of Real-Time Coastal Flooding Predictions for Decision Support", *Natural Hazards*, DOI: 10.1007/s11069-021-04634-8
- 2020 Paerl, H.W., N.S. Hall, A.G. Hounshell, K.L. Rossignol, M.A. Barnard, R.A. Luettich, Jr., J.C. Rudolph, C.L. Osburn, J. Bales, Recent increases in rainfall and flooding from tropical cyclones (TC) in North Carolina (USA): implications for organic matter and nutrient cycling in coastal watersheds. *Biogeochemistry*. <https://doi.org/10.1007/s10533-020-00693-4>
- 2020 Luettich, R.A. and D.R. Corbett, "Sea Level Rise and Coastal Water Levels", chapter 4 in Kunkel, K.E., D.R. Easterling, A. Ballinger, S. Bililign, S.M. Champion, D.R. Corbett, K. Dello,

- J. Dissen, G.M. Lackman, R.A. Luettich, Jr., L.B. Perry, W.A. Robinson, L.E. Stevens, B.C. Stewart, A.J. Terando, 2020: *North Carolina Climate Science Report*. North Carolina Institute for Climate Studies, 232 pp. <https://ncics.org/nccsr>.
- 2020 Straub, J.A., A.B. Rodriguez, R.A. Luettich, L.J. Moore, M. Itzkin, J.T. Ridge, A.C. Seymour, D.W. Johnston, E.J. Theuerkauf, “The role of beach state and the timing of pre-storm surveys in determining the accuracy of storm impact assessments”, *Marine Geology* 425(2020), <https://doi.org/10.1016/j.margeo.2020.106201>.
- 2020 Gharagozlou, A., J.C. Dietrich, A. Karanci, R. Luettich, M.F. Overton, “Storm-Driven Erosion and Inundation of Barrier Islands from Dune- to Region-Scales”, *Coastal Engineering*, 158(2020), <https://doi.org/10.1016/j.coastaleng.2020.103674>.
- 2019 Asher, T.G., R.A. Luettich Jr., J. Fleming, B.O. Blanton, “Low frequency water level correction in storm surge models using data assimilation”, *Ocean Modelling*, 144(2019): 101483. <https://doi.org/10.1016/j.ocemod.2019.10148>
- 2019 Paerl, H.W., N.S. Hall, A.G. Hounshell, R.A. Luettich, Jr., K.L. Rossignol, C.L. Osburn, J. Bales, “Recent increase in catastrophic tropical cyclone flooding in coastal North Carolina, USA: Long-term observations suggest a regime shift”, *Nature Scientific Reports*, (2019) 9:10620, <https://doi.org/10.1038/s41598-019-46928-9>
- 2019 Thomas, A., J.C. Dietrich, T.G. Asher, M. Bell, B.O. Blanton, J.H. Copeland, A.T. Cox, C.N. Dawson, J.G. Fleming, R.A. Luettich, “Influence of Storm Timing and Forward Speed on Tides and Storm Surge during Hurricane Matthew”, *Ocean Modeling*, v137, May 2019:1-19, [doi.org/10.1016/j.ocemod.2019.03.004](https://doi.org/10.1016/j.ocemod.2019.03.004).
- 2018 Todd, R.E., T.G. Asher, J. Heiderich, J.M. Bane, R.A. Luettich, “Transient Response of the Gulf Stream to Multiple Hurricanes in 2017”, *Geophysical Research Letters*, September 2018, doi: 10.1029/2018GL079180
- 2018 Whipple, A.C., R.A. Luettich, Jr., J.V. Reynolds-Fleming, R.H. Neve, “Spatial differences in wind-driven sediment resuspension in a shallow, coastal estuary”, *Estuarine and Continental Shelf Science*, 213(2018): 49-60, DOI: 10.1016/j.ecss.2018.08.005
- 2018 Cyriac, R., J.C. Dietrich, J.G. Fleming, B.O. Blanton, C. Kaiser, C.N. Dawson, R.A. Luettich. “Variability in Coastal Flooding Predictions due to Forecast Errors during Hurricane Arthur (2014)”, *Coastal Engineering*, 137(2018):59-78, DOI: [doi.org/10.1016/j.coastaleng.2018.02.008](https://doi.org/10.1016/j.coastaleng.2018.02.008).
- 2018 Dietrich, J.C., A. Muhammad, M. Curcic, A. Fathi, C.N. Dawson, S.S. Chen, R.A. Luettich, Jr., “Sensitivity of Storm Surge Predictions to Atmospheric Forcing during Hurricane Isaac”, *Journal of Waterway, Port, Coastal and Ocean Engineering*, 2018, 144(1): 04017035, DOI: 10.1061/(ASCE)WW.1943-5460.0000419
- 2017 Akbar, M., R.A. Luettich Jr., J. Fleming, S. Aliabadi, “CaMEL and ADCIRC Storm Surge Models – A Comparative Study”, *Journal of Marine Science and Engineering*, 5:35, DOI:10.3390/jmse5030035.
- 2017 Luettich, R.A., Jr., L.D. Wright, C.R. Nichols, R. Baltés, M.A.M. Friedrichs, A. Kurapov, A.J. van der Westhuysen, K. Fennel and E. Howlett, “A Testbed for Coastal and Ocean Modeling”, *EOS*, 98, DOI:10.1029/2017EO078243, 8/4/2017.
- 2015 Quintrell, J., R. Luettich, B. Baltés, B. Kirkpatrick, R.P. Stumpf, D.J. Schwab, J. Read, J. Kohut, J. Manderson, M. McCammon, R. Callender, M. Tomlinson, G.J. Kirkpatrick, H. Kerkering, E.J. Anderson. “The Importance of Federal and Regional Partnerships in Coastal Observing”, Chapter 3 in *Coastal Ocean Observing Systems*, Y. Liu, H. Kerkering, R. Weisberg [eds], pp. 26-39, Academic Press, DOI: 10.1016/B978-0-12-802022-7.00003-1
- 2014 Committee on U.S. Army Corps of Engineers Water Resources Science, Engineering, and Planning: Coastal Risk Reduction, “Reducing Coastal Risk on the East and Gulf Coasts”, Water

- Science and Technology Board, National Academy of Engineering and National Research Council, 167p (R. Luettich, Committee Chair).
- 2014 Theuerkauf, E.J., A.B. Rodriguez, S.R. Fegley, and R.A. Luettich, Jr., Sea-level anomalies exacerbate beach erosion, *Geophysical Research Letters*, DOI: 10.1002/2014GL060544
- 2014 Puckett, B.J., D.B. Eggleston, P.C. Kerr, R.A. Luettich, Jr., “Larval dispersal and population connectivity among a network of marine reserves” *Fisheries Oceanography*, 23:4, 342–361, DOI:10.1111/fog.12067
- 2013 Luettich, R.A., Jr., L.D. Wright, R. Signell, C. Friedrichs, M. Friedrichs, J. Harding, K. Fennel, E. Howlett, S. Graves, E. Smith, G. Crane, R. Baltas, “The U.S. IOOS Coastal Ocean Modeling Testbed”, *J. Geophysical Research, Oceans*, 118, DOI: 10.1002/2013JC008939
- 2013 Dresback, K.M., J.G. Fleming, B.O. Blanton, C. Kaiser, J.J. Gourley, E.M. Tromble, R.A. Luettich, Jr., R.L. Kolar, Y. Hong, S. Van Cooten, H.J. Vergara, Z.L. Flamig, H.M. Lander, K.E. Kelleher, K.L. Neumann-Monroe, “Skill Assessment of a Real-Time Forecast System Utilizing a Coupled Hydrologic and Coastal Hydrodynamic Modeling During Hurricane Irene (2011)”, *Continental Shelf Research*, 71(2013):78-94, DOI: 10.1016/j.csr.2013.10.007.
- 2013 JC Dietrich, CN Dawson, JM Proft, MT Howard, G Wells, JG Fleming, RA Luettich Jr, JJ Westerink, Z Cobell, M Vitse, H Lander, BO Blanton, CM Szpilka, JH Atkinson (2013). “Real-Time Forecasting and Visualization of Hurricane Waves and Storm Surge Using SWAN+ADCIRC and FigureGen.” *Computational Challenges in the Geosciences, The IMA Volumes in Mathematics and its Applications*, 156:49-70, DOI: 10.1007/978-1-4614-7434-0\_3.
- 2013 Changsheng, C., R.C. Beardsley, R.A. Luettich Jr, J.J. Westerink, H. Wang, W. Perrie, Q. Xu, A.S. Donahue, J. Qi, H. Lin, L. Zhao, P.C. Kerr, Y. Meng, B. Toulany, “Extratropical Storm Inundation Testbed: Intermodel Comparisons in Scituate, Massachusetts”, *J. Geophysical Research, Oceans*, 118,. DOI: 10.1002/jgrc.20397
- 2013 Kerr, P.C., A.S. Donahue, J.J. Westerink, R.A. Luettich Jr., L.Y. Zheng, R.H. Weisberg, Y. Huang, H.V. Wang, Y. Teng, D.R. Forrest, A. Roland, A.T. Haase, A.W. Kramer, A.A. Taylor, J.R. Rhome, J.C. Feyen, R.P. Signell, J.L. Hanson, M.E. Hope, R.M. Estes, R.A. Dominguez, R.P. Dunbar, L.N. Semeraro, H.J. Westerink, A.B. Kennedy, J.M. Smith, M.D. Powell, V.J. Cardone, A.T. Cox, “U.S. IOOS Coastal and Ocean Modeling Testbed: Inter-model Evaluation of Tides, Waves, and Hurricane Surge in the Gulf of Mexico”, *J. Geophysical Research, Oceans*, 118,. DOI: 10.1002/jgrc.20376
- 2013 Zheng, L., R.H. Weisberg, Y. Huang, R.A. Luettich, Jr., J.J. Westerink, P.C. Kerr, A.S. Donahue, G. Crane, L. Akli, “Implications from the Comparisons Between Two- and Three-dimensional Model Simulations of the Hurricane Ike Storm Surge”, *J. Geophysical Research, Oceans*, 118,. DOI: 10.1002/jgrc.20248
- 2013 Hope, M.E., J.J. Westerink, A.B. Kennedy, P.C. Kerr, J.C. Dietrich, C. Dawson, C.J. Bender, J.M. Smith, R.E. Jensen, M. Zijlema, L.H. Holthuijsen, R.A. Luettich Jr., M.D. Powell, V.J. Cardone, A.T. Cox, H. Pourtaheri, H.J. Roberts, J.H. Atkinson, S. Tanaka, H.J. Westerink, L.G. Westerink Hindcast and Validation of Hurricane Ike (2008) Waves, Forerunner, and Storm Surge, *J. Geophysical Research, Oceans*, 118,. DOI: 10.1002/jgrc.20314
- 2013 Kerr, P.C., R.S. Martyr, A.S. Donahue, M.E., Hope, JJ. Westerink, R.A. Luettich, Jr., J.C. Dietrich, C. Dawson, H.J. Westerink. “U.S. IOOS Coastal and Ocean Modeling Testbed: Evaluation of Tide, Wave, and Hurricane Surge Response Sensitivities to Mesh Resolution and Friction in the Gulf of Mexico, *J. Geophysical Research, Oceans*, 118,. DOI: 10.1002/jgrc.20305
- 2013 Reynolds-Fleming, J.V., R.A. Luettich, J.G. Fleming, “Comparative hydrodynamics during events along a barrier island: explanation for overwash”, *Estuaries and Coasts*, 36 (2): DOI: 10.1007/s12237-012-9578-8

- 2012 Tromble, E., R. Kolar, K. Dresback, R. Luettich, “River Flux Boundary Conditions in a Coupled Hydrologic-Hydrodynamic Modeling System”, *Estuarine and Coastal Modeling XII*, M. Spaulding [ed], ASCE, pg. 510-527.
- 2012 Sheng, Y.P., J.R. Davis, R. Figueiredo, B. Liu, H. Liu, R. Luettich, V.A. Paramygin, R. Weaver, R. Weisberg, L. Xie, L. Zheng, “A Regional Testbed for Storm Surge and Coastal Inundation Models – An Overview”, *Estuarine and Coastal Modeling XII*, M. Spaulding [ed], pgs 476-495.
- 2012 Dresback, K.M., E.M., Tromble, D.G. Reid, R.L. Kolar, T.C.G. Kibbey, C.A. Blain, R.A. Luettich, Jr., C.M. Szpilka, “Evaluation of Baroclinic ADCIRC Using a Process-Oriented Test Along a Slope”, *Estuarine and Coastal Modeling XII*, M. Spaulding [ed], ASCE, pg. 86-98.
- 2012 Blanton, B., J. McGee, J. Fleming, C. Kaiser, H. Kaiser, H. Lander, R. Luettich, K. Dresback, R. Kolar, 2012, “Urgent computing of storm surge for North Carolina’s coast”, *Proceedings Computer Science* 9 (2012) 1677-1686.
- 2012 Dietrich, J.C., C.J. Trahan, M.T. Howard, J.G. Fleming, R.J. Weaver, S. Tanaka, L. Yu, R.A. Luettich Jr, C.N. Dawson, J.J. Westerink, G. Wells, A. Lu, K. Vega, A. Kubach, K.M. Dresback, R.L. Kolar, C. Kaiser, R.R. Twilley., “Surface Trajectories of Oil Transport along the Northern Coastline of the Gulf of Mexico.” *Continental Shelf Research*, 41(1), 17-47, DOI:10.1016/j.csr.2012.03.015.
- 2012 Haase, A., D.B. Eggleston, R. Luettich, R.L. Weaver, B.J. Puckett, “Estuarine Circulation and Predicted Oyster Larval Dispersal Among a Network of Reserves”, *Estuarine Coastal and Shelf Science*, 101(2012):33-43, DOI 10.1016/j.ecss.2012.02.011
- 2012 Dietrich, J.C., S. Tanaka, J.J. Westerink, C.N. Dawson, R.A. Luettich Jr., M. Zijlema, L.H. Holthuijsen, J.M. Smith, L.G. Westerink, H.J. Westerink, “Performance of the Unstructured-Mesh, SWAN+ADCIRC Model in Computing Hurricane Waves and Surge”, *Journal of Scientific Computing*, 52(2012):468-497, DOI 10.1007/s10915-011-9555-6.
- 2011 Peterson, C.H., F.C. Coleman, J.B.C. Jackson, R.E. Turner, G.T. Rowe, R.T. Barber, K.A. Bjorndal, R.S. Carney, R.K. Cowen, J.M. Hoekstra, J.T. Hollibaugh, S.B. Laska, R.A. Luettich Jr., C.W. Osenberg, S.E. Roedy, S. Senner, J.M. Teal and P. Wang, “A Once and Future Gulf of Mexico Ecosystem: Restoration Recommendations of an Expert Working Group”, Pew Environment Group. Washington, DC. 112 pp.
- 2011 Van Cooten, S, K.E. Kelleher, K. Howard, J. Zhang, J.J. Gourley, J.S. Kain, K. Nemunaitis-Monroe, Z. Flamig, H. Moser, A. Arthur, C. Langston, R. Kolar, Y. Hong, K. Dresback, E. Tromble, H. Vergara, R.A. Luettich, Jr., B. Blanton, H. Lander, K. Galuppi, J.P. Losego, C.A. Blain, J. Thigpen, K. Mosher, D. Figursky, M. Moneypenny, J. Blaes, J. Orrock, R. Bandy, C. Goodall, J.G. Kelley, J. Greenlaw, M. Wengren, D. Eslinger, J. Payne, G. Olmi, J. Feldt, J. Schmidt, T. Hamill, R. Bacon, R. Stickney, L. Spence, “The CI-FLOW Project: Tracking Precipitation from the Sky to the Summit to the Sea”, *Bulletin of the American Meteorological Society*, November 2011:1427-1442, DOI: 10.1175/2011BAMS3150.1
- 2011 J.C. Dietrich, J.J. Westerink, A.B. Kennedy, J.M. Smith, R.E. Jensen, M. Zijlema, L.H. Holthuijsen, C. Dawson, R.A. Luettich Jr., M.D. Powell, V.J. Cardone, A.T. Cox, G.W. Stone, H. Pourtaheri, M.E. Hope, S. Tanaka, L.G. Westerink, H.J. Westerink, Z. Cobell, “Hurricane Gustav (2008) Waves and Storm Surge: Hindcast, Synoptic Analysis and Validation in Southern Louisiana”, *Monthly Weather Review*, 139:2488-2522, DOI: 10.1175/2011MWR3611.1
- 2011 Tanaka, S., S. Bunya, J.J. Westerink, C. Dawson, R.A. Luettich, Jr. “Scalability of an Unstructured Grid Continuous Galerkin Based Hurricane Storm Surge Model” *Journal of Scientific Computing*, 46(2011):329-358, DOI: 10.1007/s10915-010-9402-1.
- 2011 Kennedy, A.B., U.Gravois, B. Zachry, J.J. Westerink, M. Hope, J. Dietrich, M.D. Powell, A.T. Cox, R.A. Luettich, Jr., R.G. Dean, “Origin of the Hurricane Ike Forerunner Surge”, *Geophysical Research Letters*, 38, L08608, DOI:10.1029/2011GL047090.



- 2010 Becker, M.L., R.A. Luetlich, Jr., M.A. Mallin, "Hydrodynamic Behavior of the Cape Fear River and Estuarine System: an Observational Synthesis", *Estuarine, Coastal and Shelf Science*, 88(2010):407-418.
- 2010 Forbes, C., R.A. Luetlich, Jr., C. Mattocks, J.J. Westerink, "A Retrospective Evaluation of the Storm Surge Produced by Hurricane Gustav (2008): Forecast and Hindcast Results". *Weather and Forecasting*, 25(December): 1577-1602, DOI: 10.1175/2010WAF2222416.1.
- 2010 Dietrich, J.C., M. Zijlema, J.J. Westerink, L.H. Holthuijsen, C. Dawson, R.A. Luetlich, Jr., R. Jensen, J.M. Smith, G.S. Stelling, " Modeling Hurricane Waves and Storm Surge using Integrally-Coupled, Scalable Computations", *Journal of Coastal Engineering*, DOI: 10.1016/j.coastaleng.2010.08.001
- 2010 Weaver, R.J., R.A. Luetlich, Jr., "2D vs. 3D Storm Surge Sensitivity in ADCIRC: Case Study of Hurricane Isabel", *Estuarine and Coastal Modeling XI*, M. Spaulding [ed], ASCE, pg .762-779, DOI:10.1061/41121(388)44.
- 2010 Tromble, E., R. Kolar, K. Dresback, Y. Hong, B. Vieux, R. Luetlich, J. Gourley, K. Kelleher, S. Van Cooten, "Aspects of Coupled Hydrologic-Hydrodynamic Modeling for Coastal Flood Inundation", *Estuarine and Coastal Modeling XI*, M. Spaulding [ed], ASCE, pg .724-743, DOI:10.1061/41121(388)42.
- 2010 Forbes, C., R. Luetlich, C. Mattocks, "Storm Surge Simulations of Hurricane Ike (2008): Its Impact in Louisiana and Texas", *Estuarine and Coastal Modeling XI*, M. Spaulding [ed], ASCE, pg .704-723, DOI:10.1061/41121(388)41.
- 2010 Dresback, K.M., R.L. Kolar, C.A. Blain, C.M. Szpilka, A.M. Szpilka, R.A. Luetlich, T. Shay, "Development and Application of the Coupled HYCOM and ADCIRC System", *Estuarine and Coastal Modeling XI*, M. Spaulding [ed], ASCE, pg .259-277, DOI:10.1061/41121(388)16.
- 2010 Kennedy, A.B., U.Gravois, B. Zachry, R.A. Luetlich, Jr., Q.J. Chen, R. Avissar, A. Whipple, R. Weaver, J. Fleming, Rapidly Installed Temporary Gauging for Waves and Surge during Hurricane Gustav" *Continental Shelf Research*, 30 (2010) :1743-1752.
- 2010 Dietrich, J.C., S. Bunya, J.J. Westerink, B.A. Ebersole, J.M. Smith, J.H. Atkinson, R. Jensen, D.T. Resio, R.A. Luetlich, C. Dawson, V.J. Cardone, A.T. Cox, M.D. Powell, H.J. Westerink, H.J. Roberts, "A High-Resolution Coupled Riverine Flow, Tide, Wind, Wind Wave and Storm Surge Model for Southern Louisiana and Mississippi: Part II - Synoptic Description and Analysis of Hurricanes Katrina and Rita", *Monthly Weather Review*, 138(2):378-404, DOI: 10.1175/2009MWR2907.1
- 2010 Bunya, S., J.C. Dietrich, J.J. Westerink, B.A. Ebersole, J.M. Smith, J.H. Atkinson, R. Jensen, D.T. Resio, R.A. Luetlich, C. Dawson, V.J. Cardone, A.T. Cox, M.D. Powell, H.J. Westerink, H.J. Roberts, "A High-Resolution Coupled Riverine Flow, Tide, Wind, Wind Wave and Storm Surge Model for Southern Louisiana and Mississippi: Part I - Model Development and Validation", *Monthly Weather Review*, 138(2):345-377, DOI: 10.1175/2009MWR2906.1 .
- 2009 Committee on the Review of Louisiana Coastal Protection and Restoration (LACPR) Program, "Final Report from the NRC Committee on the Review of the Louisiana Coastal Protection and Restoration (LACPR) Program", Final Report, Water Science and Technology Board, National Academy of Engineering and National Research Council, 50p.
- 2009 Whipple, A.C., R.A. Luetlich, Jr., "A comparison of acoustic turbulence profiling techniques in the presence of waves" *Ocean Dynamics*, DOI: 10.1007/s10236-009-0208-3
- 2009 Committee on New Orleans Regional Hurricane Protection Projects, "The New Orleans Hurricane Protection System: Assessing pre-Katrina Vulnerability and Improving Mitigation and Preparedness", Final Report, Water Science and Technology Board, National Academy of Engineering and National Research Council, 53p.

- 2009 Becker, M.L., R.A. Luettich, Jr., H.E. Seim, "Effects of intra-tidal and tidal-range variability on circulation and salinity structure in the Cape Fear River Estuary, North Carolina", *J. Geophysical Research*, 114, C04006, DOI:10.1029/2008JC004972.
- 2008 Forbes, C., J. Fleming, C. Mattocks, C. Fulcher, R. Luettich, J. Westerink, S. Bunya, "New Developments in the ADCIRC Community Model", *Estuarine and Coastal Modeling X*, M. Spaulding [ed], ASCE, pg 373-392.
- 2008 Fleming, J.G., C.W. Fulcher, R.A. Luettich, B.D. Estrade, G.D. Allen, H.S. Winer, "A Real Time Storm Surge Forecasting System using ADCIRC", *Estuarine and Coastal Modeling X*, M. Spaulding [ed], ASCE, pg 893-912.
- 2008 Westerink, J.J., R.A. Luettich, Jr., J.C. Feyen, J.H. Atkinson, C. Dawson, M.D. Powell, J.P. Dunion, H.J. Roberts, E.J. Kubatko, H. Pourtaheri, "A Basin- to Channel- Scale Unstructured Grid Hurricane Storm Surge Model as Implemented for Southern Louisiana", *Monthly Weather Review*, 136:833-864, DOI: 10.1175/2007MWR1946.1
- 2007 Reynolds, N.B., D.B. Eggleston, R.A. Luettich, Jr., "Dispersal dynamics of postlarval blue crabs, *Callinectes sapidus*, within a wind-driven estuary", *Fisheries Oceanography*, 16:3, 257-272.
- 2006 Paerl, H.W., B.L. Peierls, L.M. Valdes, A.R. Joyner, C.P. Buzzelli, M.F. Piehler, S.R. Riggs, R.R. Christian, J.S. Ramus, E.J. Clesceri, L.A. Eby, L.W. Crowder, R.A. Luettich, Jr., "Ecological impacts of a recent increase in frequency of Atlantic hurricanes in the Pamlico Sound System, NC: Implications for Assessment and Management of Large Estuaries", *Estuaries and Coasts*, 29(6a): 1033-1045.
- 2006 Reynolds, N.B., D.B. Eggleston, R.A. Luettich, Jr., "Secondary dispersal of early juvenile blue crabs within a wind-driven estuary", *Limnology and Oceanography*, 51(5): 1982-1995
- 2006 Dresback, K.M., R.L. Kolar and R.A. Luettich, Jr., "On the form of the momentum equation and lateral stress closure law in shallow water modeling", *Estuarine and Coastal Modeling IX*, M. Spaulding [ed], ASCE, 399-418.
- 2006 Whipple, A.C., R.A. Luettich, Jr., H.E. Seim, "Measurements of Reynolds stress in a Wind Driven Lagoonal Estuary", *Ocean Dynamics*, DOI 10.1007/s10236-005-0038-x
- 2005 Carr, S.D., J.L. Hench, R.A. Luettich, Jr., R.B. Forward, Jr., R.A. Tankersley, "Spatial patterns in the ovigerous *Callinectes sapidus* spawning migration: results from a coupled behavioral-physical model", *Marine Ecology Progress Series*, 294:213-226.
- 2004 Blanton, B.O., F.E. Werner, H.E. Seim, R.A. Luettich, Jr., D.R. Lynch, K.W. Smith, G. Voulgaris, F. Bingham, F. Way, "Barotropic tides in the South Atlantic Bight", *Journal of Geophysical Research*, 109(C12): C12024
- 2004 Spargo, Emily, Joannes Westerink, Rick Luettich and Dave Mark, "Developing a Tidal Constituent Database for the Eastern North Pacific Ocean", *Estuarine and Coastal Modeling VIII*, M. Spaulding [ed], ASCE, 217-235.
- 2004 Atkinson, J.H., J.J. Westerink and R.A. Luettich, Jr., "Two-dimensional dispersion analysis of finite element approximations to the shallow water equations", *International Journal for Numerical Methods in Fluids*, 45:715-749.
- 2004 Hench, James L., Richard B. Forward, Jr., Sarah D. Carr, Daniel Rittschof, and Richard A. Luettich, Jr., "Testing a selective tidal-stream transport model: Observations of female blue crab (*Callinectes sapidus*) vertical migration during the spawning season", *Limnology and Oceanography*, 49: 1857-1870.
- 2004 Carr, S.D., R.A. Tankersley, J.L. Hench, R.B. Forward, Jr., R.A. Luettich, Jr., "Movement patterns and trajectories of ovigerous blue crabs *Callinectes sapidus* during the spawning migration", *Estuarine, Coastal and Shelf Science*, 60(4):567-579.

- 2004 Lynch, D.R., Smith, K., Blanton, B.O., R.A. Luettich, Jr., F.E. Werner, "Forecasting the coastal ocean: resolution, tide, and operational data in the South Atlantic Bight", *Journal of Atmospheric and Oceanic Technology*, 21(7):1074-1085.
- 2004 Reynolds-Fleming, J.V. and R.A. Luettich, Jr., "Wind-driven lateral variability in a partially mixed estuary", *Estuarine, Coastal and Shelf Science*, 60(3):395-407.
- 2004 Peterson, C.H., R.A. Luettich, Jr., F. Micheli and G.A. Skilleter, "Attenuation of water flow inside seagrass canopies of differing structure", *Marine Ecology Progress Series*, 268:81-92.
- 2003 Hench, J.L. and R.A. Luettich, Jr., "Transient tidal circulation and momentum balances at shallow inlets", *Journal of Physical Oceanography*, 33(April):913-932.
- 2002 Hench, J.L., B.O. Blanton, and R.A. Luettich, Jr., "Lateral dynamic analysis and classification of barotropic tidal inlets", *Continental Shelf Research*, 22(2002):2615-2631.
- 2002 Luettich, R.A., Jr., J.C. Muccino, M.G.G. Foreman, "Considerations in the calculation of vertical velocity in three-dimensional circulation models", *Journal of Atmospheric and Oceanic Technology*, 19(12):2063-2076.
- 2002 Luettich, R.A., Jr., S.D. Carr, J.V. Reynold-Fleming, C.W. Fulcher and J.E. McNinch, "Semi-diurnal seiching in a shallow, micro-tidal lagoonal estuary", *Continental Shelf Research*, 22:1669-1681.
- 2002 Reynolds-Fleming, J.V., Fleming, J.G., and R.A. Luettich, Jr., "Portable autonomous vertical profiler for estuarine applications", *Estuaries*, 25(1):142-147.
- 2002 Buzzelli, C.P., R.A. Luettich, Jr., S.P. Powers, C.H. Peterson, J.E. McNinch, J.L. Pinckney, H.W. Paerl, "Estimating the spatial extent of bottom-water hypoxia and benthic habitat degradation in a shallow estuary", *Marine Ecology Progress Series*, 230:103-112.
- 2001 Borsuk, M., C. Stowe, R.A. Luettich, Jr., H. Paerl, J. Pinckney, "Modeling oxygen dynamics in an intermittently stratified estuary: estimation of process rates using field data", *Estuarine, Coastal and Shelf Science*, 52(1):33-49.
- 2001 Lynch, D.R., C.E. Naimie, J.T. Ip, C.V. Lewis, F.E. Werner, R.A. Luettich, Jr., B.O. Blanton, J. Quinlan, D.J. McGillicuddy, Jr., J.R. Ledwell, J. Churchill, V. Kosnyrev, C.S. Davis, S.M. Gallagher, C.J. Ashjian, R.G. Lough, J. Manning, C.N. Flagg, C.G. Hannah, R. Groman, "Real-time data assimilative modeling on Georges Bank", *Oceanography*, 14(1):65-77.
- 2000 McNinch, J.E. and R.A. Luettich, Jr. "Physical processes around a cusped foreland: implications to the evolution and long-term maintenance of a cape-associated shoal", *Continental Shelf Research*, 20(17), 2367-2389.
- 2000 Luettich, R.A., Jr., J.E., McNinch, H.W. Paerl, C.H. Peterson, J.T. Wells, M. Alperin, C.S. Martens, and J.L. Pinckney, "Neuse River Estuary modeling and monitoring project stage 1: hydrography and circulation, water column nutrients and productivity, sedimentary processes and benthic-pelagic coupling", Report UNC-WRRI-2000-325B, Water Resources Research Institute of the University of North Carolina, Raleigh, NC, 172p.
- 2000 Hench, J.L., J.T. Bircher, and R.A. Luettich, Jr., "A Portable Retractable ADCP boom-mount for small boats", *Estuaries*, 23(3), 392-399.
- 2000 Hench, J.L. and R.A. Luettich, Jr., "Tidal inlet circulation: observations, model skill and momentum balances", *Estuarine and Coastal Modeling VI*, M. Spaulding et al. [eds.], ASCE, 811-826.
- 1999 Werner, F.E., B.O. Blanton, J.A. Quinlan and R.A. Luettich, Jr., "Physical oceanography of the North Carolina continental shelf during the fall and winter seasons: implications to the transport of larval menhaden", *Fisheries Oceanography*, 8(Suppl. 2), 7-21.

- 1999 Luettich, Jr., R.A., J.L. Hench, C.W. Fulcher, F.E. Werner, B.O. Blanton and J.H. Churchill, "Barotropic tidal and wind driven larval transport in the vicinity of a barrier island inlet", *Fisheries Oceanography*, 8(Suppl. 2), 190-209.
- 1999 Churchill, J.H., R.B. Forward, R.A. Luettich, Jr., J.L. Hench, W.F. Hettler, L.B. Crowder and J.O. Blanton, "Circulation and larval fish transport within a tidally dominated estuary", *Fisheries Oceanography*, 8(Suppl. 2), 173-189.
- 1999 Blanton, J.O., J. Amft, R.A. Luettich, Jr., J.L. Hench, and J.H. Churchill, "Tidal and sub-tidal fluctuations in temperature, salinity and pressure for the winter 1996 larval ingress experiment - Beaufort Inlet, NC", *Fisheries Oceanography*, 8(Suppl. 2), 134-152.
- 1999 Churchill, J.H., J.O. Blanton, J.L. Hench, R.A. Luettich, Jr., F.E. Werner, "Flood tide circulation near Beaufort Inlet, North Carolina: implications for larval recruitment", *Estuaries*, 22(4):1057-1070.
- 1998 Luettich, R.A., Jr., J.L. Hench, C.D. Williams, B.O. Blanton, F.E. Werner, "Tidal circulation and larval transport through a barrier island inlet", *Estuarine and Coastal Modeling V*, M. Spaulding et al. [eds.], ASCE, pp. 849-863.
- 1998 Hench, J.L. and R.A. Luettich, Jr., "Analysis and application of Eulerian finite element methods for the transport equation", *Estuarine and Coastal Modeling V*, M. Spaulding et al. [eds.], ASCE, pp. 138-152.
- 1998 Fortunato, A.B., A.M. Baptista and R.A. Luettich, Jr., "A Three-Dimensional Model of Tidal Currents at the Mouth of the Tagus Estuary", *Continental Shelf Research*, 17(14):1689-1714.
- 1998 Blain, C.A., J.J. Westerink and R.A. Luettich, Jr., "Grid Convergence Studies for the Prediction of Hurricane Storm Surge", *International Journal for Numerical Methods in Fluids*, 26:1-33.
- 1997 Werner, F.E., J.A. Quinlan, B.O. Blanton and R.A. Luettich, Jr., "The Role of Hydrodynamics in Explaining Variability in Fish Populations", *Journal of Sea Research*, 37:195-212.
- 1996 Grenier, R.R., Jr. and R.A. Luettich, Jr., "The Influence of Turbulence Closure Strategy on Numerical Modeling of Shallow Water Tides", *Estuarine and Coastal Modeling IV*, M. Spaulding et al. [eds.], ASCE, pp. 143-155.
- 1996 Peterson, C.H., H.C. Summerson and R.A. Luettich, Jr., "Response of Bay Scallops to Spawner Transplants: A Test of Recruitment Limitation", *Marine Ecology Progress Series*, 132:93-107.
- 1995 Grenier, R.R., Jr., R.A. Luettich, Jr., and J.J. Westerink, "A Comparison of the Nonlinear Frictional Characteristics of Two-Dimensional and Three-Dimensional Tidal Models", *Journal of Geophysical Research*, 100(C):13,719-13,735.
- 1995 Luettich, R.A., Jr., and J.J. Westerink, "Continental Shelf Scale Convergence Studies with a Barotropic Tidal Model", *Quantitative Skill Assessment for Coastal Ocean Models*, D. Lynch and A. Davies [eds.], Coastal and Estuarine Studies series, vol. 48, pp. 349-371, American Geophysical Union press, Washington, D.C.
- 1994 Blain, C.A., J.J. Westerink and R.A. Luettich, Jr., "The Influence of Domain Size on the Response Characteristics of a Hurricane Storm Surge Model", *Journal of Geophysical Research*, 99(C9):18,467-18,479.
- 1994 Luettich, R.A., Jr., S. Hu, and J.J. Westerink, "Development of the Direct Stress Solution Technique for Three-Dimensional Hydrodynamic Models using Finite Elements", *International Journal for Numerical Methods in Fluids*, 19:295-319.
- 1994 Cantekin, M.E., J.J. Westerink and R.A. Luettich, Jr., "Low and Moderate Reynolds Number Transient Flow Simulations using Space Filtered Navier-Stokes Equations", *Numerical Methods for Partial Differential Equations*, 10:491-524.

- 1994 Westerink, J.J., R.A. Luettich, Jr., J.K. Wu, and R.L. Kolar, "The Influence of Normal Flow Boundary Conditions on Spurious Modes in Finite Element Solutions to the Shallow Water Equations", *International Journal for Numerical Methods in Fluids*, 18:1021-1060.
- 1994 Grenier, R.R., Jr., R.A. Luettich, Jr. and J.J. Westerink, "Comparison of 2D and 3D Models for Computing Shallow Water Tides in a Friction-Dominated Tidal Embayment", Estuarine and Coastal Modeling III, M. Spaulding et al. [eds.], ASCE, pp. 58-70.
- 1994 DeVries, M.C, R.A. Tankersley, R.B. Forward, Jr., W.W. Kirby-Smith and R.A. Luettich, Jr., "The Abundance of Estuarine Crab Larvae is Associated with Tidal Hydrologic Variables", *Marine Biology*, 118:403-413.
- 1994 Westerink, J.J., R.A. Luettich, Jr. and J. Muccino, "Modeling Tides in the Western North Atlantic Using Unstructured Graded Grids", *Tellus*, 46a(2):178-199.
- 1994 Kolar, R.L., W.G. Gray, J.J. Westerink and R.A. Luettich, Jr., "Shallow Water Modeling in Spherical Coordinates: Equation Formulation, Numerical Implementation and Application", *Journal of Hydraulic Research*, 32(1):3-24.
- 1993 Luettich, R.A., Jr., W.W. Kirby-Smith and W. Hunnings, "PSWIMS, a Profiling Instrument System for Remote Physical and Chemical Measurements in Shallow Water Systems", *Estuaries*, 16(2):190-197.
- 1993 Luettich, R.A., Jr., J.T. Wells and S.-Y. Kim, "In Situ Variability of Large Aggregates: Preliminary Results on the Effects of Shear", Near Shore and Estuarine Cohesive Sediment Dynamics, A. Mehta [ed.], Coastal and Estuarine Studies series, vol. 42, pp. 447-466, American Geophysical Union press.
- 1992 Westerink, J.J., R.A. Luettich, Jr., A.M. Baptista, N.W. Scheffner and P. Farrar, "Tide and Storm Surge Predictions Using a Finite Element Model", *Journal of Hydraulic Engineering*, ASCE, 118(10):1373-1390.
- 1992 Westerink, J.J., J.C. Muccino and R.A. Luettich, Jr., "Tidal and Hurricane Storm Surge Computations for the Western North Atlantic and Gulf of Mexico", Estuarine and Coastal Modeling II, M. Spaulding [ed.], ASCE, pp. 538-550.
- 1992 Luettich, R.A., Jr., S. Hu, J.J. Westerink and N.W. Scheffner, "Modeling 3-D Circulation Using the DSS Technique", Estuarine and Coastal Modeling II, M. Spaulding [ed.], ASCE, pp. 632-643
- 1991 Luettich, R.A. Jr. and J.J. Westerink, "A Solution for the Vertical Variation of Stress, Rather than Velocity, in a 3-Dimensional Circulation Model", *International Journal for Numerical Methods in Fluids*, 12:911-928.
- 1991 Shanahan, P., R.A. Luettich, Jr. and D.R.F. Harleman, "Water Quality Modeling: Application to Lakes and Reservoirs: Case Study of Lake Balaton, Hungary", Water Quality Modeling Volume IV, Decision Support Techniques for Lakes and Reservoirs, B. Henderson-Sellers [ed.], CRC Press, pp. 69-114.
- 1990 Luettich, R.A., Jr., D.R.F. Harleman, and L. Somlyody, "Dynamic Behavior of Suspended Sediment Concentrations in a Shallow Lake Perturbed by Episodic Wind Events", *Limnology and Oceanography*, 35(5):1046-1063.
- 1990 Luettich, R.A., Jr., and D.R.F. Harleman, "A Comparison Between Measured Wave Properties and Simple Wave Hindcasting Models in Shallow Water", *Journal of Hydraulic Research*, 28(3):299-308.
- 1989 Luettich, R.A. Jr. and T.W. Sturm, "Thermally-Induced Density Currents in Non-Rectangular Channels", *Journal of Hydraulic Engineering*, ASCE, 115(10):1332-1351,
- 1986 Luettich, R.A. Jr. and D.R.F. Harleman, "A Comparison of Water Quality Models and Load Reduction Predictions", Chapter 13 in Modeling and Managing Shallow Lake Eutrophication, L. Somlyody and G.van Straten [ed.], Springer-Verlag., pp. 323-340.

### **MANUSCRIPTS IN PREPARATION: (3)**

- Gao, J., R.A. Luettich, Jr., J. Fleming, B. Blanton, “A generalized parametric Holland tropical cyclone wind model for forecast applications, in preparation for . . .
- Shay, T.J., B.O. Blanton, R.A. Luettich Jr., “Effects of sea-level rise on tides and storm surge in coastal North Carolina”, In preparation for
- Weaver, R.J., R.A. Luettich Jr., J.J. Westerink, “Evaluating differences in modeled storm surge response between 2D and 3D constructs with focus on bottom stress and simulating the wave-enhanced layer”, in preparation for

### **OTHER PUBLICATIONS AND REPORTS: (56 total)**

- 2021 Luettich, R. and R. Whalen, “Diversifying The Homeland Security Enterprise”, Coastal Resilience Center of Excellence, 26p.
- 2021 Sebastian, A. and R. Luettich, “NC Flood Resilience Study: Final Report to the North Carolina Policy Collaboratory”, prepared for the NC Policy Collaboratory, 5/1/2021, 31p.
- 2020 Blanton, B.O., R. Luettich, “Storm Surge and Wind Wave Simulations for Travelers Insurance”, prepared for Travelers Indemnity Corporation, 6/30/2020, ??p.
- 2019 Luettich, R., T. Whipple, H. Seim, M. Gilchrest, “UNC Nutrient Management Study – In Situ Observational Study of Jordan Lake Final Report”, prepared for the NC Policy Collaboratory, 7/31/2019, 145p.
- 2012 Blanton, B., McGee, J., Fleming, J., Kaiser, C., Kaiser, H., Lander, H., Luettich, R., Dresback, K., and Kolar, R. Urgent computing of storm surge for North Carolina’s coast. *Procedia Computer Science*, 9(0):1677–1686. Proceedings of the International Conference on Computational Science, ICCS 2012.
- 2012 Blanton, B., P. Vickery, R. Luettich, J. Hanson, K. Slover, North Carolina Floodplain Mapping Program Coastal Flood Insurance Study, Submittal Number 3: Production Simulations and Statistical Synthesis,
- 2010 Blanton, B., R. Luettich, P. Vickery, J. Hanson, 2010, “North Carolina Floodplain Mapping Program, Intermediate Data Submission Number Two, Draft Report on Tidal and Storm Validation Studies”, March 26, 2010, 183p.
- 2010 Seim, H.E., D. Hernandez, D. Porter, R.A. Luettich, Jr. A regional coastal ocean observing system of the US Integrated Ocean Observing System (IOOS®) and its support of coastal managers, IEEE, Argentina
- 2009 Schwab, A., R. Luettich and G. Smith, Coastal Hazards Colloquium: Final Report, Department of Homeland Security, September 2009, 27p.
- 2008 Blanton, B., S. Madry, K. Galluppi, K. Gamiel, H. Lander, M. Reed, L. Stillwell, M. Blanchard-Montgomery, R. Luettich, C. Mattocks, C. Fulcher, P. Vickery, J. Hanson, E. Devaliere, J. McCormick, Report for the State of North Carolina Floodplain Mapping Project: Coastal Flood Analysis System, Submittal No. 1.
- 2007 Devaliere, E., J. Hanson and R. Luettich, Evaluation of wave model performance in a North Carolina Test Bed, Proceedings 10th International Wave Hindcasting and Forecasting Workshop, North Shore, HI.
- 2006 Ramakrishnan, L., B. Blanton, H. Lander, R. Luettich, Jr, D. Reed, S. Thorpe: Real-time storm surge ensemble modeling in a grid environment. 2nd Intl. Workshop on Grid Computing Environments (GCE), Workshop at SC|06, Tampa, FL. <http://www.renci.org/wp-content/pub/scoop/presentations/SCOOPPaper-GCEFinal.pdf>
- 2006 Gabrielle Allen, Philip Bogden , Richard A. Luettich, Jr., Edward Seidel, and Robert Twilley, Designing a Dynamic Data Driven Application System for Coastal and Environmental Modeling, Proceedings of WoCo9, 2006, P. Gaffney (ed.), IFIP series, Springer-Verlag, Berlin.

- 2006 AGU Conference of Experts, "Hurricanes and the U.S. Gulf Coast: Science and Sustainable Rebuilding", June 2006, 29p.
- 2006 Boesch, D.F., L. Shabman, L.G. Antle, J.W. Day, R.G. Dean, G.E. Galloway, C.G. Groat, S.B. Laska, R.A. Luettich, Jr., W.J. Mitsch, N.N. Rabalais, D.J. Reed, C.A. Simenstad, B.J. Streever, R.B. Taylor, R.R. Twilley, C.C. Watson, J.T. Wells, D.F. Whigham, "A New Framework for Planning the Future of Coastal Louisiana after the Hurricanes of 2005", Integration and Application Network, Univ. MD Center for Environmental Sci., January 26, 2006, 48p.
- 2004 Luettich, R. and Westerink, J., "Formulation and Numerical Implementation of the 2D/3D ADCIRC Finite Element Model Version 44.XX", 74p, <http://adcirc.org>
- 2004 Dietrich, J.C., R.L. Kolar, R.A. Luettich, "Assessment of ADCIRC's Wetting and Drying Algorithm", Computational Methods in Water Resources, Proceedings of the XVth International Conference Volume 2, C. T. Miller et al. (eds.) Elsevier, Amsterdam. [https://doi.org/10.1016/S0167-5648\(04\)80183-7](https://doi.org/10.1016/S0167-5648(04)80183-7).
- 2002 Wright, C. W., E. J. Walsh, W. B. Krabill, D. Vandemark, A. W. Garcia, P. G. Black, F. D. Marks, Jr., R. A. Luettich, Jr., 2002. "Realtime Storm Surge Measurement with a Scanning Radar Altimeter", Proceedings of the IEEE Geoscience and Remote Sensing Symposium, IGARSS'02, June 24-28, Toronto, Canada.
- 2002 Mukai, A.Y., J.J. Westerink, and R.A. Luettich Jr., "Guidelines for Using the Eastcoast 2001 Database of Tidal Constituents within the Western North Atlantic Ocean, Gulf of Mexico and Caribbean Sea" Coastal and Hydraulic Engineering Technical Note (IV-XX), 24p.
- 2002 Mukai A.Y., J.J. Westerink, R.A. Luettich Jr., and D. Mark, "Eastcoast 2001: a tidal constituent database for the western North Atlantic, Gulf of Mexico and Caribbean Sea," US Army Engineer Research and Development Center, Coastal and Hydraulics Laboratory, Technical Report, ERDC/CHL TR-02-24, September 2002, 201p.
- 2001 Buzzelli, C.P., R.A. Luettich, Jr., H.W. Paerl, J. Fear, J. Reynolds-Fleming, L. Twomey, B. Peierls, E. Clesceri, M.J. Alperin, C.S. Martens, "Neuse River Estuary Modeling and Monitoring Project Phase 2: Monitoring of Hydrography and Water Quality, Circulation, Phytoplankton Physiology and Sediment-Water Coupling", Water Resources Research Institute of the University of North Carolina, Raleigh, NC, 84p.
- 2001 Gica, E., Teng, M.H., Luettich Jr., R.A., Cheung, K.F., Blain, C.A., Wu, C.S. and Scheffner, N., "Numerical Modelling of Storm Surge Generated by Hurricane Iniki in Hawaii", Proceedings of The Fourth International Symposium on Ocean Wave Measurement and Analysis (WAVES 2001), Vol. 2, pp. 1555-1564, September 2-6, 2001, San Francisco, California.
- 2001 Paerl, H.W., C.P. Buzzelli, M. Go, B.L. Peierls, R.A. Luettich Jr., T.L. Richardson, J.S. Ramus, L.E. Eby, L.B. Crowder, L.W. Ausley, J. Overton and J.D. Bales. "Water quality and fisheries habitat changes in the Pamlico Sound after three hurricanes: A short-term and long-term perspective". Pp. 255-263, In, J.R. Maiolo, J.C. Whitehead, M. McGee, L. King, J. Johnson and H. Stone (Eds.), Facing Our Future: Hurricane Floyd and Recovery in the Coastal Plain. Coastal Carolina Press, Wilmington, NC.
- 2001 Westerink, J.J., R.A. Luettich and A. Militello, "Leaky Internal-Barrier Normal-Flow Boundaries in the ADCIRC Coastal Hydrodynamics Code", Coastal Engineering Technical Note ERDC/CHL CHETN-IV-32, Department of the Army, U.S. Army Engineer Research and Development Center, Vicksburg, MS., 28p.
- 2001 Becker, M.L., R. Luettich and J. Westerink, "A Reconnaissance Modeling Study of Two-dimensional Tidal Circulation and Sediment Bed Change in the Vicinity of the Cape Fear River Navigation Channel, NC", Contractors Report, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., March 15, 2001, 15p.

- 1999 Luettich, R.A., Jr. and J.J. Westerink, "Implementation of Bridge Pilings in the ADCIRC Hydrodynamic Model: Upgrade and Documentation for ADCIRC Version 34.19", Contractors Report, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., November 1999, 8 p.
- 1999 Luettich, R.A., Jr. and J.J. Westerink, "Elemental Wetting and Drying in the ADCIRC Hydrodynamic Model: Upgrades and Documentation for ADCIRC Version 34.XX", Contractors Report, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., March 1999, 8 p. 1999
- 1997 Luettich, Rick and Crystal Williams, "A Modeling Study of Circulation and Sedimentation in the Newport River Estuary, North Carolina", report to the Carteret County Marine Fisheries Advisory Council, January 16, 1997, 50 p.
- 1996 Westerink, J.J. and Luettich, R.A., Jr., 1996, "ADCIRC - version 30.02: Methodologies and input/output requirements for enhanced provisions for specified non-zero normal flow boundaries, external barrier normal flow boundaries and internal barrier normal flow boundaries," Contract Report, prepared for the U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- 1996 Luettich, R.A., Jr., J. Hudgins and C. Goodall, "Initial Results from a Combined Tide and Storm Surge Forecast Model of the U.S. East Coast, Gulf of Mexico and Caribbean Sea", Proceedings of the 15 Conference on Weather Analysis and Forecasting, American Meteorological Society, Norfolk, VA., August 1996, pp. 547-550.
- 1996 Scheffner, N.W., D.J. Mark, J.J. Westerink and R.A. Luettich, Jr., "Generation and Use of Tidal Constituent Data Bases for Surface Elevation Forecasting over Large Computational Domains", report to the U.S. Naval Oceanographic Office, Stennis Space Center, MS, July 4, 1996, 162 p.
- 1995 Blain, C.A., J.J. Westerink and R.A. Luettich, "Application of a Domain Size and Gridding Strategy in the Prediction of Hurricane Storm Surge", Computer Modeling of Seas and Coastal Regions II, C.A. Brebbia et al. [eds.], pp. 327-334, Computational Mechanics Publications, Southampton, UK.
- 1995 Scheffner, N.W., J.J. Westerink and R.A. Luettich, "Applications of a Long-Wave Hydrodynamic Model to Generate Tropical and Extratropical Storm Surge Databases", Computer Modeling of Seas and Coastal Regions II, C.A. Brebbia et al. [eds.], pp. 327-334, Computational Mechanics Publications, Southampton, UK.
- 1995 Hench, J.L., R.A. Luettich, Jr., J.J. Westerink and N.W. Scheffner, "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts and Estuaries, Report 6: Development of a Tidal Constituent Data Base for the Eastern North Pacific", DRP Technical Report DRP-92-6, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., 60 p.
- 1995 Luettich, R.A., Jr. and J.J. Westerink, "Implementation and Testing of Elemental Flooding and Drying in the ADCIRC Hydrodynamic Model", Contractors Report, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., July 14, 1995, 83 p.
- 1995 Luettich, R.A., Jr. and J.J. Westerink, "An Assessment of Flooding and Drying Techniques for Use in the ADCIRC Hydrodynamic Model: Implementation and Performance in One-Dimensional Flows", Contractors Report, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., January 30, 1995, 53 p.
- 1995 Westerink, J.J., R.A. Luettich, Jr., C.A. Blain and S.C. Hagen, "Surface Elevation and Circulation in Continental Margin Waters", Finite Element Modeling of Environmental Problems, G.F. Carey [ed.], pp39-59, John Wiley & Sons, New York, NY.



- 1994 Peterson, C.H., H.C. Summerson, R.A. Luettich, Jr., "Response of Bay Scallops to Spawner Transplants: A Test of Recruitment Limitation", report to the EPA Albemarle-Pamlico Estuary Study Program, 40p.
- 1994 Westerink, J.J., R.A. Luettich, Jr., and S.C. Hagen, "Meshing Requirements for Large Scale Coastal Ocean Tidal Models", Proceedings of the X International Conference on Water Resources, A. Peters, et. al. [eds.], Heidelberg, Germany, July 1994.
- 1994 Blain, C.A., J.J. Westerink, and R.A. Luettich, Jr., "Domains and Grid Sensitivity Studies for Hurricane Storm Surge Predictions", Proceedings of the X International Conference on Water Resources, A. Peters, et. al. [eds.], Heidelberg, Germany, July 1994.
- 1994 Scheffner, N.W., D.J. Mark, C.A. Blain, J.J. Westerink and R.A. Luettich, Jr., "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts and Estuaries, Report 5: A Tropical Storm Data Base for the East and Gulf of Mexico Coasts of the United States", DRP Technical Report DRP-92-6, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., August 1994, 298 p.
- 1994 Blain, C.A., J.J. Westerink, R.A. Luettich, Jr. and N.W. Scheffner, "Hurricane Storm Surge Modeling Using Large Domains", Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., August 1994, 55 p.
- 1994 Westerink, J.J., R.A. Luettich, Jr. and N.W. Scheffner, "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts and Estuaries, Report 2: Users Manual for ADCIRC-2DDI", DRP Technical Report DRP-92-6, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., January 1994, 156p.
- 1993 Blain, C.A., J.J. Westerink, R.A. Luettich, Jr. and N.W. Scheffner, "Generation of a Storm Surge Data Base from the Hindcast of 153 Historical Hurricane Events", final report to US Army Engineer Waterways Experiment Station, Vicksburg, MS.
- 1993 Westerink, J.J., R.A. Luettich, Jr. and N.W. Scheffner, "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts and Estuaries, Report 3: Development of a Tidal Constituent Data Base for the Western North Atlantic and Gulf of Mexico", DRP Technical Report DRP-92-6, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., June 1993, 154p.
- 1993 Luettich, R. and R. Grenier, "AutoBasiC Simplifies Data Visualization in AutoCAD", *AutoCAD World*, 2(6):7-10.
- 1993 Luettich, R.A. Jr., D.R.F. Harleman, L. Somlyody and L. Koncsos, "Wind-induced Sediment Resuspension and its Impact on Algal Growth for Lake Balaton", Research Report RR-93-3, International Institute for Applied Systems Analysis, Laxenburg, Austria, 38p.
- 1992 Luettich, R.A. Jr., J.J. Westerink and N.W. Scheffner, "ADCIRC: An Advanced Three-Dimensional Circulation Model for Shelves, Coasts and Estuaries, Report 1: Theory and Methodology of ADCIRC-2DDI and ADCIRC-3DL", DRP Technical Report DRP-92-6, Department of the Army, US Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS., November 1992, 137p.
- 1992 Westerink, J.J., J.C. Muccino and R.A. Luettich, Jr., "Modeling Tides and Hurricane Storm Surge in the Western Atlantic", Computational Methods in Water Resources IX, Vol. 2: Mathematical Modeling in Water Resources, T.F. Russell, R.E. Ewing, C.A. Brebbia, W.G. Gray, G.F. Pinder [eds.], Computational Mechanics Publications, Southampton and Elsevier Applied Science, London, pp. 667-674.
- 1992 Luettich, R.A. Jr., and J.J. Westerink, "A Three-Dimensional Model Using a Direct Stress Solution over the Vertical", Computational Methods in Water Resources IX, Vol. 2: Mathematical Modeling in Water Resources, T.F. Russell, R.E. Ewing, C.A. Brebbia, W.G. Gray,

- G.F. Pinder [eds.], Computational Mechanics Publications, Southampton and Elsevier Applied Science, London, pp. 529-536.
- 1992 Birkhahn, R. and R. Luettich, "The Application of ADCIRC-2DDI on Masonboro Inlet, NC", proceedings of the 6th National Conference on Undergraduate Research, R.D. Yearout [ed.], vol. II, pp. 707-714.
- 1992 Kirby-Smith, W.W., S.J. Eisenreich, J.T. Howe and R.A. Luettich, Jr. "Agrochemical Runoff into Estuarine Systems: Fates and Effects of Herbicides and Pesticides", final report to US EPA Environmental Research Lab., Gulf Breeze, FL.
- 1991 Westerink, J.J. and R.A. Luettich, Jr., "Tide and Storm Surge Predictions in the Gulf of Mexico Using Model ADCIRC-2DDI", final report to US Army Engineer Waterways Experiment Station, Contract DACW-39-86-D-0004/0001 and DACW-39-90-M-2965, 112p.
- 1991 Luettich, R.A. Jr., R.H. Birkhahn and J.J. Westerink, "Application of ADCIRC-2DDI to Masonboro Inlet, North Carolina: A Brief Numerical Modeling Study", final report to US Army Engineer Waterways Experiment Station, Contract #DACW39-86-D-0004-0002, 101p.
- 1989 Westerink, J.J. and R.A. Luettich, Jr. "Review of Numerical Modeling Strategies for Predicting the Long Term Hydrodynamic Circulation for Estimating the Fate of Disposed Dredged Materials", Report No. COE-340, Ocean Engineering Program, Texas A&M University, 77p.
- 1987 Luettich, R.A., Jr., "Sediment Resuspension in a Shallow Lake", Sc.D. Thesis, MIT, Cambridge, Ma., 311p.
- 1986 Luettich, R.A. Jr., L. Somlyody, D.R.F. Harleman and L. Koncsos, "Water Quality and Hydrodynamics in a Shallow Lake", Water Forum '86: World Water Issues in Evolution, ASCE, 1:1590-1597.
- 1981 Luettich, R.A. Jr., "An Investigation of the Effects of a Nonrectangular Cross-Section on Density Induced Gravitational Circulation in a Dead End Channel", M.S. Thesis, Georgia Institute of Technology.