

BRIAN O. BLANTON

Senior Scientist/Oceanographer
Director of Environmental Initiatives
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PROFESSIONAL PREPARATION

Armstrong State College	Mathematical Sciences	B.S. (1991)
University of North Carolina at Chapel Hill	Marine Sciences	Ph.D. (2003)
University of North Carolina at Chapel Hill	Marine Sciences	Post-Doc (2004)

APPOINTMENTS

Director of Environmental Initiatives, Renaissance Computing Institute, University of North Carolina at Chapel Hill (06/2015 – present)
Senior Scientist, Renaissance Computing Institute, University of North Carolina at Chapel Hill (06/2007 – present)
Oceanographer, Science Applications International Corporation (05/2006 – 05/2007)
Research Assistant Professor, Department of Marine Sciences, University of North Carolina at Chapel Hill (01/2005-05/2006)

RELEVANT PUBLICATIONS AND PRODUCTS

- Yang, K., R. Davidson, L. Nozick, **B. Blanton**, B. Colle, Scenario-based hazard trees for depicting resolution of hurricane uncertainty over time, *Nat Hazard Review*, in press.
- **Blanton, B.**, J. McGee, J. Fleming, C. Kaiser, H. Kaiser, H. Lander, R. Luettich, K. Dresback, and R. Kolar, 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.**, Storm Surge Computations for the North Carolina Sea Level Rise Risk Management Study, Technical Report TR-12-04, Renaissance Computing Institute, The University of North Carolina at Chapel Hill, 2012. <http://www.renci.org/publications/techreports/TR-12-04-small.pdf>
- **Blanton, B.**, R. Luettich, P. Vickery, J. Hanson, K. Slover, and T. Langan. North Carolina Floodplain Mapping Program: Coastal Flood Insurance Study - Production Simulations and Statistical Analyses. Technical Report TR-12-03, Renaissance Computing Institute, The University of North Carolina at Chapel Hill, 2012. <http://www.renci.org/publications/techreports/TR-12-03-small.pdf>
- Apivatanagul, P., R. Davidson, **B. Blanton**, and L. Nozick, Long-term regional hurricane hazard analysis for wind and storm surge, *Coastal Engineering*, 58(6), 499 – 509, 2011.
- Atkinson, J., T. Wamsley, J. Westerink, M. Cialone, C. Dietrich, K. Dresback, R. Kolar, D. Resio, C. Bender, **B. Blanton**, S. Bunya, W. de Jong, B. Ebersole, A. Grzegorzewski, B. Jensen, H. Pourtaheri, J. Ratcliff, H. Roberts, J. Smith, and C. Szpilka, Hurricane storm surge and wave modeling in southern Louisiana: A brief overview, *Estuarine and Coastal Modeling, ASCE*, pp. 467-506, doi:10.1061/40990(324)28, 2008.
- Aretxabaleta, A., **B. Blanton**, H. Seim, F. Werner, J. Nelson, E. Chassignet, Cold event in the South Atlantic Bight during summer of 2003: Model simulations and implications, *J. Geophys. Res.*, 112, C05022, 3264, doi:10.1029/2006JC003903, 2007.
- Edwards, K., J. Hare, F. Werner, and **B. Blanton**, Lagrangian circulation on the Southeast US Continental Shelf: Implications for larval dispersal and retention. *Cont. Shelf Res.*, 26, 1375-1394, 2006.
- Edwards, K., F. Werner, and **B. Blanton**, Comparison of Observed and Modeled Drifter Trajectories in Coastal Regions: An Improvement through adjustments for observed drifter slip and errors in wind fields, *J. Ocean. Atmos. Tech.*, 23(11), pp. 1614-1620, 2006.
- **Blanton, B.**, F. Werner, H. Seim, R. Luettich, D. Lynch, K. Smith, G. Voulgaris, F. Bingham, and F. Way, Barotropic tides in the South Atlantic Bight, *J. Geophys. Res.*, 109, C12024, 3264, doi:10.1029/2004JC002455, 2004.

- Lynch, D., K. Smith, **B. Blanton**, F. Werner and R. Luettich, Forecasting the coastal ocean: Resolution, tide and operational data in the South Atlantic Bight, *J. Ocean. Atmos. Tech.*, 21(7), pp. 1074-1085, 2004.
- **Blanton, B.**, A. Aretxabaleta, F. Werner, and H. Seim, Monthly climatology of the continental shelf waters of the South Atlantic Bight, *J. Geophys. Res.*, 108(C8), 3264, doi:10.1029/2002JC001609, 2003.

RELATED PROJECTS AND ACTIVITIES

- **Risk-based evacuation routing (Jun 2013 - present):** An NSF Hazards-SEES project developing a risk-based approach to evacuation and sheltering models for hurricane threatened areas. A state-of-the-art suite of models for meteorology (WRF), hydrology (CREST), and coastal ocean (ADCIRC/unSWAN) are used to develop probabilistic water level and wind field assessments to drive evacuation and sheltering optimization models.
- **Rapid statistical forecasting with Response Surface Methods (Jan 2014 - present):** DHS-funded project to implement a response surface method to rapidly predict water levels and waves for the North Carolina coast. The underlying data is from the existing high-resolution database of ADCIRC/unSWAN simulations from the recent NC coastal flood insurance study. Web-based interfaces are being developed to deliver model capabilities to end-users and decision-makers.
- **AdcircViz (Sep 2013 - Mar 2016):** NOAA-funded (Joint Hurricane Testbed, 2013) project to develop a MATLAB application to enable consistent data access, visualization and analysis of storm surge simulations.
- **FEMA Region 3 Coastal Flood Insurance Study (2013-2015):** FEMA-funded development of water level and wave field statistics for updating of the region's coastal flood insurance rate maps. With the USACE/ERDC as the lead, RENCi implemented the computational system on HPC assets.
- **North Carolina Renewable Ocean Energy (2011-2013):** This project computed a 30-year hindcast of wind waves for the North Carolina coast, to help assess wave energy extraction potential. The unstructured version of the SWAN wave model was used, with wind forcing from the USAVE Wave Information System wind analyses. (<http://ncwaves.org>).
- **North Carolina Sea Level Rise Risk Management Study (2011-2013):** An extension of the North Carolina coastal flood insurance study, this project calculated the storm surge risks under increasing sea level stands. FEMA-funded, it uses the same techniques as in the flood insurance study, recomputing the statistical flood levels for up to 1 meter of sea level increase for the North Carolina coast.
- **Coastal Flood Hazard Analysis (2007-2012):** Lead investigator at UNC-Chapel Hill for FEMA-funded coastal flood insurance studies in North Carolina (part of FEMA's Region 4) and FEMA Region 3 (Chesapeake and Delaware Bays). Developed state-of-the-art numerical model systems for storm surge and wind waves, and statistical analyses for computing statistical flood hazards for use in FEMA flood insurance rate maps. Both project teams include academic, federal, state, and industry participants.
- **Louisiana Coastal Protection and Restoration/US Army of Corps of Engineers (2006-2008):** Member of expert team applying advanced numerical models for storm surge and wind waves for the US Army Corps of Engineers' Louisiana Coastal Protection and Restoration (LACPR) project, that investigated a full range of flood control and hurricane protection strategies for the New Orleans and surrounding coastal Louisiana region. Developed a simulation management strategy and software to compute coastal storm surge for hundreds of hypothetical hurricanes in a consistent software framework on high-performance supercomputers.
- **Interagency Performance Evaluation Task Force (IPET) (2006-2007):** Provided expertise for use of flood hazard statistics storm surge modeling system in the IPET risk-based decision-making model. This included evaluation of the risk model performance and skill assessment.

AWARDS

- **Department of Homeland Security, Science and Technology Impact Award, November 2012.** Given for ADCIRC storm surge and wave forecasting ahead of Hurricane Irene in 2011, as part of the DHS Center of Excellence on Coastal Hazards at the University of North Carolina at Chapel Hill.
- **Department of the Army, Commander's Award for Public Service, August 2007.** Given for commitment to the US Army Corps of Engineers Interagency Performance Evaluation Taskforce (IPET) Engineering and Operational Risk and Reliability Analysis project, investigating inherent risk of the Louisiana Hurricane Protection system.