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Education:

Ph.D., Physical Oceanography, University of North Carolina at Chapel Hill, Department of Marine Sciences, September 2008.

B.S. Physics with highest honors, minors in Mathematical Sciences and Spanish, University of North Carolina at Chapel Hill, May 1999.

Recent Work Experience:

Postdoctoral Scientist, Center for Ocean-Atmospheric Prediction Studies, Florida State University, May 2009 to present: joint modeling/observational studies of coastal dynamics in the Big Bend region, Eric P. Chassignet, advisor.

Research Scientist, Renaissance Computing Institute, University of North Carolina at Chapel Hill, Dec. 2008 to present: storm surge modeling coupling atmospheric, circulation, and waves models in a framework of joint probability risk assessment.

Oceanographer, Ocean Dynamics and Prediction Branch, Naval Research Laboratory, Stennis Space Center, MS, Aug. 1999 to Aug. 2003: finite element modeling and data assimilation, transitions of operational circulation models to the Naval Oceanographic Office, and the development of an automated finite element mesh generation utility for rapid environmental assessment.

Research assistant, Woods Hole Oceanographic Institution, Summer 1999: Arctic eddies in the Beaufort Gyre.

Research assistant, University of North Carolina at Chapel Hill, Aug. 1996 to May 1999: El Niño in the Southern California Bight.

Research assistant, Climate and Global Dynamics, National Center for Atmospheric Research, Summer 1998: convective instability in the Southern Ocean.

Research assistant, Scripps Institute of Oceanography, Summer 1997: coastally trapped wind reversals in the Southern California Bight.

Research Interests:

Physical oceanography of continental margins, nearshore and shelf-scale processes. Modeling and observing coastal tidal and wind-forced dynamics, and their interaction with topography and stratification. Coastal meteorology and air-sea interaction.

Publications:

Edwards, C.R., and H.E. Seim, Coastal ocean response to sea breeze/land breeze in the Georgia Bight: Structure and variability, *J. Physical Oceanogr.*, in review.

Edwards, C.R., and H.E. Seim, Coastal ocean response to sea breeze/land breeze in the Georgia Bight: Stratification and shear, *J. Physical Oceanogr.*, in review.

Edwards, C.R., and H.E. Seim, Sea breeze/land breeze near the resonant critical latitude in the Georgia Bight, *J. Geophys. Res.*, in revision.

Edwards, C.R., and H.E. Seim, Complex EOF analysis as a method to isolate internal structure in shallow water, *J. Atmos. Ocean. Tech.*, 25, 808-821, 2008.

Savidge, D.K., **C.R. Edwards**, and M. Santana, Baroclinic effects of tides on the Cape Hatteras continental shelf, *J. Geophys. Res.*, 112, C09016, doi:10.1029/2006/JC003832, 2007.

Seim, H.E., and **C.R. Edwards**, Comparison of buoy-mounted and bottom-moored ADCP performance at Gray's Reef, *J. Atmos. Ocean. Tech.*, 24(2), 270-284, 2007.

Allard, R.A. C.A. Blain, L.F. Smedstad, T. Keen, A.J. Wallcraft, C.N. Barren, J.D. Dykes, **C.R. Edwards**, B.D. Estrade, M. Bettencourt, G. Peggion, S. Howington, J. McKee Smith, W.E. McBride, and R.P. Signell, High fidelity simulation of littoral environments: applications and coupling of participating models, *Proc. DOD User Group Conf.*, 306-313, 2003.

Edwards, C.R., P. Hwang, and C.A. Blain, Application of non-stationary time series analysis techniques to Mississippi Sound data, *Proc. Mississippi Academy of Sciences*, 48(1), 2003.

Edwards, C.R., and C.A. Blain, Applications of the incremental approach to Yellow Sea modeling, *Proc. Estuarine and Coastal Modeling VII*, M. Spaulding et al. [eds.], ASCE, 447-466, 2002.

Blain, C.A., and **C.R. Edwards**, Development of a forecast capability for coastal embayments of the Mississippi Sound, *Proc. Marine Technology Society/Oceans*, 3, 1501-1508, 2002.

Edwards, C.R., and C.A. Blain, Operational evaluation of ADCIRC-2DDi as applied to the Western North Atlantic Ocean, NRL Formal Report NRL/FR/7320-0210005, 2002.

Edwards, C.R., and C.A. Blain, Evaluation of an application of adjoint methods to Yellow Sea modeling, NRL Formal Report NRL/RF/7320-019976, 2001.

Publications in prep. (manuscripts available by request):

Edwards, C.R., and H.E. Seim, Diurnal/inertial resonance in the ocean and atmosphere near the critical latitude in the Georgia Bight, in prep. for *Ocean Dyn.*

Seim, H.E., **C.R. Edwards**, T.J. Shay, and F.E. Werner, Identification and structure of baroclinic tides off the southeast coast of the United States, in prep. for *Ocean Dyn.*

Special Recognition, Awards:

Thomas S. and Caroline H. Royster Fellow, University of North Carolina, 2003-2008.

Selected to attend the Pan-American Advanced Studies Institute (PASI) on Estuarine Physics, Transport and Water Quality (NSF/DOE), Jul. 29-Aug. 14, 2007.

One of four non-faculty speakers chosen for the Carolina Speakers Bureau (UNC), 2003-present.

Recipient of a Special Act Award for real-time modeling as part of Navy support to the Spanish government for the Prestige Oil Tanker, Mar. 2003.

Selected to attend the Third Summer School on Inverse Methods and Data Assimilation, Oregon State University, Jul. 22-Aug. 2, 2002.

Recipient of AGU 2000 Scholar Fellowship, Jan. 2000.

Summer Student Fellow, Woods Hole Oceanographic Institution, Summer 1999.

Recipient of Science Opportunity Fellowship (NSF), May 1997-May 1999.

SOARS (Significant Opportunities in Atmospheric Research and Science) Fellow, National Center for Atmospheric Research, Summer 1998.

Grants:

Thomas S. and Caroline H. Royster Fellowship: \$109,500 over 2003-2008.

Gussenhoven Travel Grant (via UNC Dept. of Marine Sciences), \$800, 2008.

Graduate Opportunity Fund, the Graduate School, UNC, \$1064.

Gussenhoven Travel Grant, \$1000, 2006.

Presentations:

Edwards, C.R., H.E. Seim, and E.P. Chassignet, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, poster at Gordon Research Conference on Coastal Ocean Circulation, Jun. 7-12, 2009.

Edwards, C.R., Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Skidaway Institute of Oceanography, Apr. 13, 2009 (**invited**).

Edwards, C.R., and H.E. Seim, On diurnal/inertial resonance in the South Atlantic Bight, Workshop on Coupled Modeling in the South Atlantic Bight, Taylor Engineering Research Institute, Univ. of North Florida, Mar. 25 2009 (**invited**).

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Department of Oceanography, Florida State University, Jan. 21 2009 (**invited**).

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Coastal Dynamics and Prediction Branch, Naval Research Laboratory, Nov. 26 2008.

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, College of Marine and Earth Studies, University of Delaware, Nov. 14 2008 (**invited**).

Edwards, C.R., and H.E. Seim, Glider applications in the Georgia Bight, Workshop on Underwater Robotics, Autonomous Ocean Sampling Networks, and Applications to Ocean Sciences, Georgia Tech-Savannah, Oct. 30 2008.

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight: stratification and shear, Skidaway Institute of Oceanography, Oct. 27 2008 (**invited**).

Edwards, C.R., and H.E. Seim, Coastal dynamics in the Georgia Bight: Atmosphere and ocean near-resonance at the critical latitude, University of North Florida Taylor Engineering Research Institute, Oct 21 2008 (**invited**).

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Physical Oceanography Dissertation Symposium, Honolulu HI, Oct. 5-10 2008 (**invited**).

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight: stratification and shear, Physics of Estuaries and Coastal Seas (PECS), Liverpool UK, Aug. 24-29 2008.

Edwards, C.R., and H.E. Seim, Sea breeze/land breeze winds forcing the coastal ocean near the critical latitude in the Georgia Bight, Mentoring Physical Oceanography Women to Increase Retention (MPOWIR), Charleston SC, May 18-21 2008.

Edwards, C.R., and H.E. Seim, Near-resonant forcing of the coastal ocean by sea breeze/land

breeze near the critical latitude in the Georgia Bight, SouthEast Coastal Oceanography and Meteorology (SECOM) Conference, Columbia SC, May 12-13 2008.

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze near the critical latitude in the Georgia Bight, Ocean Sciences 2008, Orlando FL, Mar. 27 2008.

Edwards, C.R., and H.E. Seim, Sea breeze/land breeze forcing of the coastal ocean near the resonant critical latitude in the Georgia Bight, Skidaway Institute of Oceanography, Feb. 22, 2008 (**invited**).

Edwards, C.R., and H.E. Seim, Near-resonant response to sea breeze wind forcing near the critical latitude in the South Atlantic Bight, Mid-Atlantic Bight Physical Oceanography Meeting 2006, Oct. 30-31, 2006.

Edwards, C.R., and H.E. Seim, Mid-shelf observations of internal waves in the South Atlantic Bight, poster at AGU/Ocean Sciences, Feb. 20-24, 2006.

Edwards, C.R., and H.E. Seim, Towards characterizing internal wave activity in the South Atlantic Bight, poster at Gordon Research Conference, Coastal Ocean Circulation, Jun. 5-10, 2005.

Aretxabaleta, A., **C.R. Edwards**, H.E. Seim, and J.R. Nelson, Characterizing spring and summer Gulf Stream water intrusions in the mid-shelf of the South Atlantic Bight, poster at Gordon Research Conference, Coastal Ocean Circulation, Jun. 5-10, 2005.

Edwards, C.R., S.M. Haines, H.E. Seim, J.R. Nelson, and T. Moore, Seasonal and interannual variability on the Georgia Bight, poster at ASLO/TOS, Feb. 15-20, 2004.

Blain, C.A, **C.R. Edwards**, and B.D. Estrade, Issues in developing an operational forecast capability for coastal waters, poster at TOS, Jun. 4-6, 2003.

Blain, C.A., and **C.R. Edwards**, ADCIRC coastal circulation model support of AUV mission, poster at Fall AGU, Dec. 5-10, 2001.

Edwards, C.R., and A.J. Plueddemann, Identification and analysis of Arctic eddies in the Beaufort Gyre, poster, AGU/Ocean Sciences, Jan. 24-28, 2000 (**invited**).

Plueddemann, A.J., A.R. Krishfield, and **C.R. Edwards**, Eddies in the Beaufort Gyre, OAI All Hands Meeting, 1999.

Field Experience:

2009, R/V Savannah: 2 short (<1 week) cruises conducting transects/time series of turbulent microstructure, shelf CTD surveys, ADCP tripod deployment/recovery

2009, R/V Seminole: day cruises conducting shelf CTD transects in the Big Bend Region

2007, R/V Savannah: Jul. 15-20, ADCP tripod recovery, glider deployment

2006, R/V Savannah: Jul./Sep., glider deployment/recovery

2006, R/V SeaHawk: May 10/22, glider deployment/recovery in Onslow Bay

2005, R/V Savannah: 7 short (<1 week) cruises on the mid- to outer Georgia shelf (2 as Chief Scientist), glider deployment/recovery, ADCP tripod deployment, and instrument switch-out

2005, R/V SeaHawk: Jun. 24, glider deployment, recovery in Onslow Bay

2005, R/V Savannah: Mar. 15-18, CTD carousel/bottle sampling on Georgia shelf (PI: J. Nelson)

2004, CODAR work, May 24-28, relocated transmit/receive antennae, performed super-transponder run aboard private vessel

1999, R/V Asterias: Set up, monitored horizontal ADCP array in Massachusetts Bay (PI: S. Anderson)

1998, Piper Seneca III: deployment of AXBTs, data collection for El Niño project (PI: J. Bane)

1997, multiple missions aboard Piper Seneca III: deployment of AXBTs, data collection for coastally trapped wind reversals (PI: J. Bane)

Teaching and Mentoring:

Guest lecturer for “Introductory Oceanography”, 2004-2008.

Trained two Marine Sciences technicians to be Slocum glider pilots, 2007.

Mentored junior physical oceanography graduate students, 2005-2008.

TA for “Estuarine and Coastal Marine Science” (interdisciplinary upperlevel undergraduate course), Fall 2005.

Supervised undergraduate research assistant through summer and shorter-term projects for NRL, 2002-2003.

Professional Service and Outreach:

Reviewer for *J. Geophys. Res. (Oceans)*, *J. Atmos. Ocean. Tech.*.

Organized professional development series for Marine Sciences graduate students at UNC-Chapel Hill, 2008.

Invited speaker, “Under water: the ocean’s role in shaping our future”, Carolina Meadows University Speakers seminar series (via Carolina Speakers Bureau), Dec. 2008.

Co-organized and presented “Observing our Oceans - Using Cool Toys” for half day on-site outreach activity with local elementary schools, UNC Department of Marine Sciences, May 2008.

Invited speaker, Ocean Awareness Day Teacher Workshop on Integrating AUV Technology into the Classroom, Pine Knoll Shores Aquarium, Pine Knoll Shores, NC, Apr. 2008.

Invited speaker, “The ocean and climate change”, Peer Learning (via Carolina Speakers Bureau), Oct. 2006.

Interdisciplinary symposium organized for 10th anniversary of the UNC Royster Fellowship, Sep. 2006.

Invited speaker, “I want to be an oceanographer when I grow up”, Central North Carolina Mineral Society (via Carolina Speakers Bureau), Feb. 2006.

Sciences Career Day speaker, Culbreth Middle School, Chapel Hill, NC, Apr. 2005.

Career Day speaker, Academy of the Sacred Heart, New Orleans, LA, Mar. 2002.