

Travis Miles, Ph.D.  
Rutgers University  
Department of Marine and Coastal Sciences  
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### Professional Experience

Assistant Professor, Rutgers University	2018 – present
Assistant Research Professor, Rutgers University	2015 – 2018
Fulbright Scholar, University of Gothenburg Sweden	2017
Postdoctoral Research Associate, Rutgers University	2014 – 2015
Graduate Research Assistant, Rutgers University	2009 – 2014
Graduate Research Assistant, North Carolina State University	2007 – 2009

### Education

Ph.D., Rutgers University - Physical Oceanography	2009 – 2014
M.S., North Carolina State University (NCSU) - Physical Oceanography	2007 – 2009
B.S., North Carolina State University – Marine Sciences and Meteorology	2003 – 2007

### Honors

Marine Technology Society Young Professional Award	2018
Fulbright Scholar - University of Gothenburg Sweden	2017

### Selected Peer-Reviewed Publications

Gentil, M., Estournel, C., Durrieu de Madron, X., Many, G., **Miles, T.**, Marsaleix, P., et al. (2022). Sediment dynamics on the outer-shelf of the Gulf of Lions during a storm: An approach based on acoustic glider and numerical modeling. *Continental Shelf Research*, 240, 104721. <https://doi.org/10.1016/j.csr.2022.104721>

Wang, H., Gong, D., Friedrichs, M. A. M., Harris, C. K., **Miles, T.**, Yu, H.-C., & Zhang, Y. (2022). A Cycle of Wind-Driven Canyon Upwelling and Downwelling at Wilmington Canyon and the Evolution of Canyon-Upwelled Dense Water on the MAB Shelf. *Frontiers in Marine Science*, 9, 866075. <https://doi.org/10.3389/fmars.2022.866075>

Friedland, K., **T. Miles**, A.G. Goode, E.N. Powell, D.C. Brady (2022), The Middle Atlantic Bight Cold Pool is warming and shrinking: indices from in situ autumn seafloor temperatures, *Fisheries Oceanography*, (in press)

**Miles, T.**, S. Murphy, J. Kohut, S. Borsetti, and D. Munroe (2021), Offshore wind energy and the mid-Atlantic cold pool: A review of potential interactions, *Mar. Technol. Soc. J.*, 55(4), 72–87, doi:10.4031/MTSJ.55.4.8.

**Miles, T.**, W. Slade, and S. Glenn (2021), Sediment resuspension and transport from a glider integrated Laser In Situ Scattering and Transmissometry (LISSST) particle analyzer, *J. Atmos. Ocean. Technol.*, 38(8), 1325–1341, doi:10.1175/JTECH-D-20-0207.1.

\* Murphy, S. C., L. J. Nazzaro, J. Simkins, M. J. Oliver, J. Kohut, M. Crowley, and **T. N. Miles** (2021), Persistent upwelling in the Mid-Atlantic Bight detected using gap-filled, high-resolution satellite SST, *Remote Sens. Environ.*, 262, 112487, doi:10.1016/j.rse.2021.112487.

Optis, M., A. Kumler, J. Brodie, and **T. Miles**, (2021): Quantifying sensitivity in numerical weather prediction-modeled offshore wind speeds through an ensemble modeling approach. *Wind Energy*, <https://doi.org/10.1002/we.2611>.

Friedland, K. D., R. E. Morse, J. P. Manning, D. C. Melrose, **T. Miles**, A. G. Goode, D. C. Brady, J. T. Kohut, and E. N. Powell (2020), Trends and change points in surface and bottom thermal environments of the US Northeast Continental Shelf Ecosystem, *Fish. Oceanogr.*, 29(5), 396–414, doi:10.1111/fog.12485.

Xu, Y., **T. Miles**, and O. Schofield (2020), Physical processes controlling chlorophyll-a variability on the Mid-Atlantic Bight along northeast United States, *J. Mar. Syst.*, 103433, doi:10.1016/j.jmarsys.2020.103433.

Saba, G. K., E. Wright-Fairbanks, B. Chen, W.-J. Cai, A. H. Barnard, C. P. Jones, C. W. Branham, K. Wang, and **T. Miles** (2019), The Development and Validation of a Profiling Glider Deep ISFET-Based pH Sensor for High Resolution Observations of Coastal and Ocean Acidification, *Front. Mar. Sci.*, 6, 664.

Kobelt, J. N., W. C. Sharp, **T. N. Miles**, and C. J. Feehan (2019), Localized Impacts of Hurricane Irma on *Diadema antillarum* and Coral Reef Community Structure, *Estuaries and Coasts*, doi:10.1007/s12237-019-00665-4.

Parra, S. M., A. T. Greer, J. W. Book, A. L. Deary, I. M. Soto, C. Culpepper, F. J. Hernandez, and **T. N. Miles** (2019), Acoustic detection of zooplankton diel vertical migration behaviors on the northern Gulf of Mexico shelf, *Limnol. Oceanogr.*, (Lampert 1989), lno.11171, doi:10.1002/lno.11171.

Feehan, C. J., W. C. Sharp, **T. N. Miles**, M. S. Brown, and D. K. Adams (2019), Larval influx of *Diadema antillarum* to the Florida Keys linked to passage of a Tortugas Eddy, *Coral Reefs*, 38(2), 387–393, doi:10.1007/s00338-019-01786-9.

**Miles, T.**, G. Seroka, and S. Glenn (2017), Coastal ocean circulation during Hurricane Sandy, *J. Geophys. Res. Ocean.*, 122(9), 7095–7114, doi:10.1002/2017JC013031.

Seroka, G., **T. Miles**, Y. Xu, J. Kohut, O. Schofield, and S. Glenn (2017), Rapid shelf-wide cooling response of a stratified coastal ocean to hurricanes, *JGR-Oceans: Special Section "Oceanic Responses and Feedbacks to Tropical Cyclones"*, doi:10.1002/2017JC012756

Seroka G., **Miles T.**, Xu, Y., Kohut, J., Schofield, O., Glenn, S., (2016) Hurricane Irene Sensitivity to Stratified Coastal Ocean Cooling *Mon. Wea. Rev.*, 0, doi: 10.1175/MWR-D-15-0452.1.

Glenn, S., **Miles, T.**, Seroka, G.N., Xu, Y., Forney, R., Yu, F., Roarty, H., Schofield, O., Kohut, J., (2016) Stratified Coastal Ocean Interactions with Tropical Cyclones, *Nature Communications* 7.

**Miles, T.**, G. Seroka, J. Kohut, O. Schofield, and S. Glenn (2015), Glider observations and modeling of sediment transport in Hurricane Sandy, *J. Geophys. Res. Ocean.*, doi:10.1002/2014JC010474.

### **Current Funding**

**Title:** Glider based observations of upper ocean mixing under hurricanes

**Project Role:** PI

**Project Period:** 1/1/23 – 12/31/23

**Source:** NOAA OAR, CINAR

**Award Amount:** \$162,030

**PI effort committed to project:** 2 months/year

**Prime applicant:** Rutgers, The State University of New Jersey

**Title:** Glider based ecological and oceanographic surveys of the New York Bight

**Project Role:** Co-PI

**Project Period:** 4/1/23 – 3/31/25

**Source:** New York State Energy Research and Development Authority

**Award Amount:** \$338,709

**PI effort committed to project:** 1 months/year

**Prime applicant:** Rutgers, The State University of New Jersey, Josh Kohut PI

**Title:** Accelerate Improvements in Hurricane Intensity Forecasting Through Underwater Glider Field Campaigns: Mid Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) Hurricane Supplemental

**Project Role:** PI

**Project Period:** 9/1/22 – 8/31/24

**Source:** NOAA IOOS

**Award Amount:** \$338,709

**PI effort committed to project:** 1 months/year

**Prime applicant:** University of Delaware MARACOOS, PI Gerhard Kuska

**Title:** Partners in Science, Operations & Maintenance of the RU-WRF Model, and Expanded Research in Support of Offshore Wind

**Project Role:** Co-PI

**Project Period:** 7/1/22 – 6/30/23

**Award Amount:** \$500,580

**PI effort committed to project:** 1 months/year

**Prime applicant:** Rutgers, The State University of New Jersey

**Title:** Improving Loop Current Ocean Observations and Prediction

**Project Role:** Co-PI

**Project Period:** 3/1/22 – 2/28/27

**Source:** National Academies of Science (NAS)

**Award Amount:** \$690,003

**PI effort committed to project:** 1 months/year

**Prime applicant:** Texas A&M, Steve DiMarco PI

**Title:** Assessing the impact of rapidly cycled Argo floats on operational ocean models

**Project Role:** PI

**Project Period:** 3/1/22 – 2/28/23

**Source:** NOAA OAR, CINAR

**Award Amount:** \$16,048

**PI effort committed to project:** 0 months/year

**Prime applicant:** Rutgers, The State University of New Jersey

**Title:** Predictions of Acoustics with Smart Experimental Networks of Gliders (PASSENGERS)

**Project Role:** PI

**Project Period:** 5/1/21 – 4/30/24

**Source:** Office of Naval Research

**Award Amount:** \$336,241

**PI effort committed to project:** 1 month/year

**Prime applicant:** Rutgers, The State University of New Jersey

**Title:** Improving Forecasting of Hurricanes, Floods, and Wildfires

**Project Role:** Co-PI

**Project Period:** 7/1/20 – 6/30/23

**Source:** NOAA IOOS

**Award Amount:** \$799,437

**PI effort committed to project:** 1 month/year

**Prime applicant:** Rutgers, The State University of New Jersey, PI John Wilkin

**Title:** MARACOOS Data to Model Comparison

**Project Role:** PI

**Project Period:** 8/1/21 – 7/31/23

**Source:** NOAA IOOS

**Award Amount:** \$288,000

**PI effort committed to project:** 1 months/year

**Prime applicant:** University of Delaware MARACOOS, PI Gerhard Kuska

**Title:** Onboard Processing of Slocum Glider Velocity Profiles

**Project Role:** PI

**Project Period:** 7/1/20 – 09/30/23

**Source:** Office of Naval Research  
**Award Amount:** \$957,259  
**PI effort committed to project:** 1 month/year  
**Prime Applicant:** Rutgers, The State University of New Jersey

### **Pending Projects**

**Title:** AIRU-WRF: AI-powered Physics-based Tool for OSW Forecasting and Grid Integration  
**Project Role:** Co-PI  
**Project Period:** 7/1/23 – 12/31/24  
**Source:** Department of Energy  
**Award Amount:** \$ 361,000  
**PI effort committed to project:** 1 months/year  
**Prime applicant:** Rutgers, The State University of New Jersey, PI Azziz Ezzat

**Title:** An Investigation of Potential Impacts of Wind Turbines and Foundations on the Cold Pool  
**Project Role:** PI  
**Project Period:** 7/1/23 – 6/31/24  
**Source:** New Jersey Research and Monitoring Initiative  
**Award Amount:** \$ 90,822  
**PI effort committed to project:** 2 months/year  
**Prime applicant:** Rutgers, The State University of New Jersey, PI Travis Miles

### **Completed Projects**

**Title:** RUMFS Atlantic Shores Lidar Deployment  
**Project Role:** Co-PI  
**Project Period:** 2/21/20 – 6/30/22  
**Source:** EDF-Renewables, Inc.  
**Award Amount:** \$79,697  
**PI effort committed to project:** 0 months/year  
**Prime applicant:** Rutgers, The State University of New Jersey

**Title:** Mid Atlantic Glides Supporting Hurricane Intensity Forecasts  
**Project Role:** PI  
**Project Period:** 7/1/20 – 6/30/22  
**Source:** NOAA IOOS  
**Award Amount:** \$443,749  
**PI effort committed to project:** 1 month/year  
**Prime applicant:** University of Delaware, PI Gerhard Kuska

**Title:** ARPA-E: Computationally Efficient Atmospheric-Data Driven Control Co-Design Optimization  
**Project Role:** Collaborator  
**Project Period:** 11/3/19 – 1/31/22  
**Source:** US Department of Energy  
**Award Amount:** \$1,526,872  
**PI effort committed to project:** 0.5 months/year  
**Prime Applicant:** Rutgers, the State University of New Jersey, PI Onur Bilgen

**Title:** Operations & Maintenance of the RU-WRF Model, Stakeholder Engagement and Expanded Research in Support of Offshore Wind at the request of New Jersey Board of Public Utilities  
**Project Role:** Co-PI  
**Project Period:** 11/1/17 – 6/30/22  
**Source:** NJ Board of Public Utilities  
**Award Amount:** \$1,969,189  
**PI effort committed to project:** 1 months/year  
**Prime applicant:** Rutgers, the State University of New Jersey, PI Scott Glenn

**Title:** Developing a profiling glider pH sensor for high resolution coastal ocean acidification monitoring

**Project Role:** Co-PI

**Source:** National Science Foundation OTIC

**Award Amount:** \$865,419

**PI effort committed to project:** 1 month/year

**Prime applicant:** Rutgers, The State University of New Jersey, PI Grace Saba

**Title:** Sustained Ocean Observations with underwater gliders in support of hurricane intensity forecasts

**Project Role:** PI

**Project Period:** 1/1/19 – 6/30/21

**Source:** NOAA OAR/US IOOS

**Award Amount:** \$833,537

**Prime applicant:** University of Delaware, PI Gerhard Kuska

**Title:** Coupled Atmosphere-Ocean Modeling Framework for the Mid-Atlantic Bight: WRF and ROMS

**Project Role:** PI

**Project Period:** 5/1/19 – 4/30/21

**Source:** NOAA IOOS

**Award Amount:** \$351,218

**Prime applicant:** Rutgers, The State University of New Jersey, PI Travis Miles

**Title:** Slocum Glider Integrated LISST Sensors for Particle Characterization Beneath Storms

**Project Role:** PI

**Project Period:** 7/15/16 – 7/14/17

**Source:** Office of Naval Research

**Award Amount:** \$500,000

**Prime applicant:** Rutgers, The State University of New Jersey, PI Travis Miles

## Curriculum Vitae

### LUIS FERNANDO PAREJA-ROMAN

Research Associate. Center for Ocean Observing Leadership (COOL)

Department of Marine and Coastal Sciences, Rutgers University

Office 111B. 71 Dudley Rd, New Brunswick, NJ. 08904

E-mail: [pareja@marine.rutgers.edu](mailto:pareja@marine.rutgers.edu)

<https://rucool.marine.rutgers.edu/people/fernando-pareja/>

### RESEARCH INTERESTS

Coastal Physical Oceanography and Marine Meteorology, Offshore Wind, Coupled Atmosphere-Wave-Circulation Modeling

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### EDUCATION

Ph.D. Physical Oceanography, Rutgers University	2019
M.S. Meteorology (Marine), Universidad Nacional de Colombia	2013
B.S. Environmental Engineering, Universidad de los Andes, Colombia (ABET Accredited)	2010

### PROFESSIONAL EXPERIENCE

2022-Present	Research Associate, Rutgers University
2021-2022	Postdoctoral Associate, Rutgers University
2019-2021	Postdoctoral Researcher, Ocean Engineering, Stevens Institute of Technology
2014-2019	Graduate Assistant, Marine and Coastal Sciences, Rutgers University
2012-2013	Graduate Fellow, Universidad Nacional de Colombia, Bogota, Colombia
2010	Environmental Engineer, Hidrocaribe Ltd, Cartagena, Colombia.

### PUBLICATIONS

1. **Pareja-Roman, L. F.**, Orton, P.M., Talke, S.A. (2023) Impact of Urbanization on Tides and Nuisance Flooding in a Coastal Lagoon; Journal of Geophysical Research: Oceans. In Press.
2. Chant, R.J; & **Pareja-Roman, L.F.** (2023) Book: Climate Change Effects on Estuaries; (Chapter 13; Sea-level rise effects on Estuarine Circulation). Editorial: Taylor and Francis.
3. Li, L., Wang, C., **Pareja-Roman, L. F.**, Zhu, J., Chant, R. J., & Wang, G. (2022). Effects of Typhoon on Saltwater Intrusion in a High Discharge Estuary [<https://doi.org/10.1029/2021JC018206>]. Journal of Geophysical Research: Oceans, 127(8), e2021JC018206.
4. Li, L., Zhu, J., & **Pareja-Roman, L. F.** (2021). Calculating salinity variance fluxes using isohaline coordinates. Estuarine, Coastal and Shelf Science, 254, 107311. <https://doi.org/10.1016/j.ecss.2021.107311>
5. Li, L., Zhu, J., Chant, R. J., Wang, C., & **Pareja-Roman, L. F.** (2020). Effect of Dikes on Saltwater Intrusion Under Various Wind Conditions in the Changjiang Estuary. Journal of Geophysical Research: Oceans, 125(7), e2019JC015685. <https://doi.org/10.1029/2019JC015685>
6. **Pareja-Roman, L. F.**, Chant, R. J., & Sommerfield, C. K. (2020). Impact of Historical Channel Deepening on Tidal Hydraulics in the Delaware. Journal of Geophysical Research: Oceans, 125(12), e2020JC016256. <https://doi.org/10.1029/2020JC016256>

7. **Pareja-Roman, L. F.**, Chant, R. J., & Ralston, D. K. (2019). Effects of Locally Generated Wind Waves on the Momentum Budget and Subtidal Exchange in a Coastal Plain Estuary. *Journal of Geophysical Research: Oceans*, 124(2), 1005-1028. <https://doi.org/10.1029/2018JC014585>
8. **Pareja-Roman, L. F.**, Diaz-Guevara, D. C., Rodriguez-Tobar, A. T., Villegas, N. L., & Perez-Santos, I. (2013). Análisis del transporte y bombeo de Ekman en el Caribe Colombiano entre 1999 y 2009. *Boletín Científico CIOH*, 31, 3-12. <https://doi.org/10.26640/22159045.248>

## CONFERENCE PRESENTATIONS

- 2020 **Pareja-Roman, LF.**, Orton, PM.; Talke, SA. Impact of Urbanization on Tide and Flood Dynamics in Jamaica Bay, New York: Realistic and Analytical Modeling [Talk]. American Geophysical Union (AGU) Fall Meeting, USA.
- 2020 Orton, PM.; Chan, S.; **Pareja-Roman, LF.**; Massey, C., Trueba, L.; Sanderson, E. Can anthropogenic barrier island and shelf modifications alter estuary storm tides? American Shore and Beach Preservation Association (ASBPA) National Coastal Conference. [Talk] October 13-16, USA.
- 2018 **Pareja-Roman, LF.**; Chant, RJ. Shifts in tidal and salt dynamics in Delaware Bay. Physics of Estuaries and Coastal Seas Conference (PECS). Galveston, Texas. USA.
- 2017 **Pareja-Roman LF.**, and Chant, R. Tidal variability of the wave energy budget in Delaware Bay [Poster]. 24th Biennial Conference of the Coastal and Estuarine Research Federation (CERF). Providence, RI. USA.
- 2017 **Pareja-Roman LF.**, and Chant, R. Modeling the wind and wave-driven circulation in Delaware Bay [Poster]. Gordon Research Conference, Coastal Ocean Dynamics. Biddeford, ME. USA.
- 2016 **Pareja-Roman, LF.** Energy Fluxes and Water Level in a Tidal Estuary [Talk]. International Symposium of Environmental Hydraulics (ISEH). International Association for Hydro-Environment Engineering Research (IAHR). University of Notre Dame, IN, USA.
- 2016 **Pareja-Roman LF.**, and Chant, RJ. Delaware Bay- hydrodynamics in the presence of wind waves: insight from a coupled wave-current numerical model [Poster]. Physics of Estuaries and Coastal Seas Conference (PECS) Scheveningen, Netherlands.
- 2015 Chant, RJ.; **Pareja-Roman LF.**; Geyer, WR., Ralston, DK, Sommerfield, CK, and Quirk, T. The wave climate in a highly engineered estuarine basin [Poster]. 23rd Biennial Conference of the Coastal and Estuarine Research Federation. Portland, OR.
- 2013 **Pareja-Roman LF.** Spatiotemporal variability of air-sea heat and momentum fluxes in the Colombian Caribbean basin [Talk]. CICESE Wave Research Group Seminar. Department of Physical Oceanography. Ensenada, Mexico.
- 2013 Díaz, D.; **Pareja-Roman LF.**; Rodríguez, A., Villegas, N. Sensible and Latent Flux variability in the Colombian Pacific Basin – Panama Bight Region [Poster]. XV Latin-American Congress of Marine Sciences (COLACMAR). Punta del Este, Uruguay.

- 2013 **Pareja-Roman LF.**; Villegas, N; Díaz, D; Rodríguez, A. Analysis of Ekman Transport and Pumping in the Colombian Basin, 1999 to 2009 [Poster]. XVI National Seminar of Marine Science and Technology. Cartagena, Colombia.
- 2012 **Pareja-Roman LF.** Momentum flux variability in the Colombian Basin, Caribbean Sea [Talk]. Marine Biology Seminar. Universidad Jorge Tadeo Lozano. Bogota, Colombia.

## **PARTICIPATION IN RESEARCH PROJECTS**

### **United States Geological Survey (USGS) and Rutgers University**

#### ***Advancing a coupled ocean-wave modeling system to predict coastal storm impacts***

Sponsors work at Rutgers University, 2022-present.

PIs: John Warner (USGS) and John Wilkin.

### **NSF Physical Oceanography**

#### ***River Plume-Cape Interaction and Fresh Water Retention (\$327,611.00)***

Sponsored Postdoctoral work at Rutgers University, 2021-present.

PIs: Piero Mazzini (VIMS), Kelly Cole (U Maine), Robert Chant (Rutgers)

### **NSF PREEVENTS**

#### ***Geomorphic and Climatic Drivers of Coastal Flood Risk (\$379,913.00)***

Sponsored Postdoctoral work at Stevens Institute of Technology, 2019-2012

PIs: Philip Orton (Stevens), Stefan Talke (Cal Poly), Thomas Wahl (UCF), and James Booth (CCNY).

### **NSF Coastal SEES**

#### ***Towards Estuarine Sustainability in the Anthropocene (\$1,366,124.00)***

Sponsored Graduate work at Rutgers University, 2014-2019

PIs: W. Rockwell Geyer, David Ralston, Porter Hoagland (WHOI), Christopher Sommerfield (U Delaware), Robert Chant (Rutgers), Tracy Quirk (LSU).

## **FIELD EXPERIENCE**

- |          |  |
|----------|--|
| Mar 2022 | RV Rachel Carson 'NSF Physical Oceanography'. Rutgers University. River plume-cape interaction: Plume separation from the coastal wall, vorticity generation and freshwater retention. Physical Oceanographer; assisted in deployment of moorings and Remotely Operated Vehicles (ROVs). Drake Bay and Cape Reyes, CA, USA, 2 weeks. |
| Jul 2020 | DCV Howard, 'New York Harbor Inspection', U.S. Army Corps of Engineers. Participant; Inspection of coastal structures and discussion of current research and development needs. Hudson-Raritan Estuary, USA, 1 day.  |
| Jun 2017 | R/V Rutgers, 'Research Experience for Undergraduates' Program. Rutgers University. Physical Oceanographer: advised summer intern, deployed surface drifters for analysis of surface layer mixing. Raritan Bay, USA, 1 day.   |
| Jun 2016 | R/V Sharp. 'NSF Coastal SEES' Project: Survey of Estuarine Frontogenesis. Rutgers University. Physical Oceanographer: assisted in the deployment of CTD sensors (tow-yo) for a full tidal cycle survey. Assisted in sediment core sampling and processing. Newark Bay, USA, 1 day.   |



Jun 2015	R/V N.A. (Small Craft). 'NSF Coastal SEES' Project. Rutgers University. Physical Oceanography: assisted with sidescan survey and mooring recovery. Delaware Bay, USA, 1 day.
Jun 2015	R/V Caleta. 'Jamaica Bay Observing System: Groundwork for LTER'. Rutgers University. Physical Oceanographer: assisted with mooring recovery (ADV and Oxygen/Nutrient sensors). Jamaica Bay, USA, 1 day.
May 2015	R/V Arabella, 'NSF Circulation and Mixing in a Coastally Trapped River Plume' Project Cruise. Physical Oceanographer; assisted in the deployment and recovery of moorings, Rapid Vertical Profilers and Autonomous Underwater Vehicles. Chesapeake River Plume. Virginia Beach, USA. 4 days.
Oct 2014	R/V Sharp, 'NSF Coastal SEES' Project Cruise. Physical Oceanographer; assisted in the deployment and recovery of moorings, Delaware Bay, USA, 4 days.
Sep 2014	R/V Daiber 'NSF Sediment sources, Transport Mechanisms, and Fluxes in a Coastal plain estuary' Project. Rutgers University. Delaware Bay, USA, 1 day.
Jun 2012	R/V N.A. (Small Craft) 'Extreme Oceanic Events' Project. Universidad Nacional de Colombia. Marine Meteorologist: assisted in oceanographic surveys and reconnaissance field work. Rosary Archipelago, Caribbean Sea, 5 days.
Jul 2010	R/V Centaurus II. 'Baltic Floating University' Program. Russian State Hydrometeorological University. Marine Meteorologist: conducted marine weather surveys, worked with operational synoptic weather charts, assisted with weather balloon sounding, 2 days