

ROY A. ARMSTRONG

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EDUCATION

University of Puerto Rico
Department of Marine Sciences
Mayaguez, Puerto Rico
Ph.D., 1990
MS, 1982

Boston University
Boston, Massachusetts
BA, Biology Major, 1976

AWARDS AND DISTINCTIONS

2002-Present	Guest Investigator – Woods Hole Oceanographic Institution
2004	Visiting Scholar, Boston University
2000-2004	Member, Habitat Advisory Panel – CFMC/NMFS/NOAA
2000	Scholarly Productivity Award – Office of the President, Univ. of Puerto Rico
1994-1998	Ames Associate, NASA Ames Research Center Associate Program
1993	Contractor Certificate of Excellence, NASA Ames Research Center
1990-1992	Research Associateship (NRC Post-Doc) National Academy of Sciences
1986-1988	Research Fellowship, NASA's Graduate Student Researchers Program
1984	Research Fellowship, Mississippi-Alabama Sea Grant Consortium
1984	NASA Planetary Biology Internship Award

PROFESSIONAL EXPERIENCE

Present Position:	Professor and Associate Director, Department of Marine Sciences
Employer:	University of Puerto Rico
Description:	Teaching and research in bio-optical oceanography and remote sensing

Position:	Researcher
Date:	July 15, 1994 to June 30, 1996
Employer:	University of Puerto Rico

Position: Research Scientist
Date: July 16, 1992 to June 23, 1994
Employer: Johnson Controls World Services, Inc., NASA Ames Operations

Position: Research Associate (Postdoctoral Fellowship)
Date: July 15, 1990 to July 15, 1992
Employer: National Research Council/NASA Ames Research Center

CURRENT APPROVED PROPOSALS

NASA Ocean Biology and Biogeochemistry: Remote Sensing of Sargassum Accumulation and Impacts on Tropical Marine Ecosystems: A Multi-Scale Approach. PI: Roy Armstrong, Co-I: William Hernández, Emmanuel Arzuaga. (2021-2024), \$749,721.

NASA Ocean Community Engagement and Awareness using NASA Observations and Science (OCEANOS). Juan Torres (PI- NASA), Roy Armstrong (UPRM PI). January 2022 to December 2026. \$2,700,000.00 – Total Approved Budget, \$645,737.00 (UPRM Budget)

NOAA-EPP: CESSRST Year 5 renewal proposal. PI: Jonathan Munoz, CoPI: Roy Armstrong, Sept. 1, 2022 to August 31, 2027. \$1,734,900.00 (UPRM Budget)

PEER-REVIEWED PUBLICATIONS (68)

Ortiz-Rosa, S., R.A. Armstrong, W.J. Hernández, and S.M. Williams. *In review*. Remote Sensing of “Black Water Events” in Puerto Rican Oligotrophic Waters. Remote Sensing.

Perez-Perez J., R.A. Armstrong, and W. Hernandez. *In review*. Using High-Resolution Sentinel 2 Multispectral Images to Monitor Sargassum Accumulations in Coastal Areas of Southwestern Puerto Rico. Remote Sensing Letters.

Mejias-Rivera, C., R.A. Armstrong, S. Balint, E. García-Troche, R.A. McKinney, J. M. Morell, A. Oczkowski, T.A. Courtney. 2023. Localized inshore warming, acidification, and elevated particulate organic matter across a coupled mangrove, seagrass, and coral reef ecosystem in La Parguera, Puerto Rico. Coral Reefs 42:1313–1327.
<https://doi.org/10.1007/s00338-023-02435-y>

Lockwood, R., C.M. Bachmann, M. Chrisp, C. Smeaton, N. Pahlaven, E. Hochberg, M.J. Montes, Bo-Cai Gao, R. Frouin, A. Vodacek, C. Fichot, T.W. Bell, R.A. Armstrong, C. Li, L. Kennedy, S. Gillmer, L. Fuhrman, D. Brouhard, J. Wang, and K. Thome. 2023. Aquatic Ecosystems Science Using an Imaging Spectrometer. Proceedings, Society of Photo-Optical Instrumentation Engineers (SPIE).

Pawlik, J.R., Armstrong, R.A., Farrington, S., Reed, J. Rivero-Calle, S., Singh, H., Walker, B.K., White, J. 2022. Comparison of recent survey techniques for estimating benthic cover on

- Caribbean mesophotic reefs. *Marine Ecology Progress Series*, 686: 201-211.
https://www.int-res.com/articles/meps_oa/m686p201.pdf
- Mera, D.E., R.A. Rodríguez-Solís, L. Reyes, R.A. Armstrong, W. Hernandez, A. Guzmán-Morales. 2022. A Power and Performance Study of Compact L Band Total Power Radiometers for UAV Remote Sensing Based in the Processing on ZYNQ and ARM Architectures. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, Vol. 15, 2022
- Torres-Perez, J.L., C.E. Ramos-Scharrón, W.J. Hernandez, R.A. Armstrong, M. Barreto-Orta, J. Ortiz-Zayas, L.S. Guild and R. Viqueira. 2021. River streamflow, remotely-sensed water quality, and benthic composition of two previously undescribed nearshore coral reefs in northern Puerto Rico. *Front. Mar. Sci.* 8:720712. doi: 10.3389/fmars.2021.720712
- Hernández, W., J.M. Morell & R.A. Armstrong 2021. Using high-resolution satellite imagery to assess the impact of *Sargassum* inundation on coastal areas, *Remote Sensing Letters*, 13:1, 24-34, DOI: [10.1080/2150704X.2021.1981558](https://doi.org/10.1080/2150704X.2021.1981558)
- Geiger, E.F., S.F. Heron, W.J. Hernández, J. Caldwell, K. Falinski, T. Callender, A. Greene, G. Liu, J.L. De La Cour, R.A. Armstrong, M.J. Donahue, C.M. Eakin. 2021. Optimal Spatiotemporal Scales to Aggregate Satellite Ocean Color Data for Nearshore Reefs and Tropical Coastal Waters: Two Case Studies. *Frontiers in Marine Science*, section Coral Reef Research. <https://doi.org/10.3389/fmars.2021.643302>
- Ortiz-Rosa, Suhey, William J. Hernández, Stacey M. Williams, Roy A. Armstrong. 2020. Water Quality Anomalies following the 2017 Hurricanes in Southwestern Puerto Rico: Absorption of Colored Detrital and Dissolved Material. *Remote Sens.*, 12, 3596; doi:10.3390/rs12213596.
- León-Pérez, M., R.A. Armstrong, W.J. Hernández, and A. Aguilar-Perera. 2020. Seagrass Cover Expansion off Caja de Muertos Island, Puerto Rico, as determined by Long-term Analysis of Historical Aerial and Satellite Images (1950 – 2014). *Ecological Indicators*, 117:10656, DOI: [10.1016/j.ecolind.2020.106561](https://doi.org/10.1016/j.ecolind.2020.106561)
- Gomez, Andrea M.; McDonald, Kyle C.; Shein, Karsten; DeVries, Stephanie; Armstrong, Roy A.; Hernandez, William J.; Carlo, Milton. 2020. "Comparison of Satellite-Based Sea Surface Temperature to In Situ Observations Surrounding Coral Reefs in La Parguera, Puerto Rico." *J. Mar. Sci. Eng.* 8, no. 6: 453.
- Waters, S.M., Purdue, S.K., DeLeon, N., Armstrong, R.A., and Detres, Y. 2020. Metagenomic Investigation of African Dust Events in the Caribbean. *FEMS Microbiology Letters*. DOI: [10.1093/femsle/fnaa051](https://doi.org/10.1093/femsle/fnaa051)
- William J. Hernandez, Suhey Ortiz-Rosa, Roy A. Armstrong, Erick F. Geiger, C. Mark Eakin, Robert A. Warner. 2020. Quantifying the Effects of Hurricanes Irma and María on

Coastal Water Quality in Puerto Rico using Moderate Resolution Satellite Sensors. Remote Sens. 12(6), 964; <https://doi.org/10.3390/rs12060964>

- León-Pérez, M.C., Hernández, W.J., and Armstrong, R.A., 2019. Characterization and distribution of seagrass habitats in a Caribbean nature reserve using high-resolution satellite imagery and field sampling. *Journal of Coastal Research*, 35(5), 937–947. Coconut Creek (Florida), ISSN 0749-0208.
- Roman, M., Z. Wang, Q. Sun, V. Kalb, S.D. Miller, A.L. Molthan, L.A. Schultz, J.R. Bell, E. Stokes, K. Seto, B. Pandey, D.K. Hall, T. Oda, R.E. Wolfe, G. Lin, N. Golpayegani, S. Devadiga, C.C. Davidson, S. Sarkar, C. Praderas, J. Schmaltz, R.A. Boller, J. Stevens, O.M. Ramos, E. Padilla, J. Alonso, Y. Detres, R. Armstrong, I. Miranda, Y. Conte, N. Marrero, K. MacManus, T. Esch, E.J. Masuoka. 2018. NASA's Black Marble Standard Product Suite. *Remote Sensing of Environment* 210,113-143.
- Wei, J., Z. Lee, R. Garcia, L. Zoffoli, R.A. Armstrong, Z. Shang, P. Sheldon, and R. Chen. 2018. An assessment of Landsat 8 atmospheric correction schemes and remote sensing reflectance products in coral reefs and coastal turbid waters. *Remote Sensing of Environment* 215, 18-32.
- Hosannah, N., J. Gonzalez, R. Rodriguez, H. Parsiani, F. Moshary; L. Aponte, R. Armstrong, E. Harmsen, P. Ramamurthy, M. Angeles, L. Leon, N. Ramirez, D. Niyogi, and B. Bornstein. 2017. The Convection, Aerosol, and Synoptic-Effects in the Tropics (CAST) Experiment: Building an Understanding of Multi-Scale Impacts on Caribbean Weather via Field Campaigns. *Bulletin of the American Meteorological Society* 98(8), doi:10.1175/BAMS-D-16-0192.1
- Wei, J., Z. Lee, M. Ondrusek, A. Mannino, M. Tzortziou, and R. Armstrong. 2016. Spectral slopes of the absorption coefficient of colored dissolved and detrital material inverted from UV-visible remote sensing reflectance, *J. Geophys. Res. Oceans*, 121, doi:10.1002/2015JC011415.
- Perez-Hoyos, I.C., N.Y. Krakauer, R. Khanbilvardi, and R.A. Armstrong. 2016. A review of advances in the identification and characterization of groundwater dependent ecosystems using geospatial technologies. *Geosciences* 6, 17, doi:10.3390.
- Hernandez, W.J. and R.A. Armstrong. 2016. Deriving Bathymetry from Multispectral Remote Sensing Data. *Journal of Marine Sciences and Engineering* 4(1)8. <http://www.mdpi.com/2077-1312/4/1/8/html>
- Torres-Pérez JL, Guild LS, Armstrong RA, Corredor J, Zuluaga-Montero A, Polanco R (2015) Relative Pigment Composition (11): e0143709. doi:10.1371/journal.pone.0143709
- Uri ten Brink, Dwight Coleman, Jason Chaytor, Amanda Demopoulos, Roy Armstrong, Graciela Garcia-Molinero, Nicole Reineault, Brian Andrews, Roger Chastain, Katherine Rodriguez, and Mathieu Mercier-Gingras. 2014. Earthquake, landslide, and tsunami

hazards and benthic biology in the Greater Antilles. Oceanography Vol 27 (1) Supplement, pp.34-35.

Anderson, D.A., R.A. Armstrong, and E. Weil. 2013. Hyperspectral sensing of disease stress in the Caribbean reef-building coral, *Orbicella faveolata* - perspectives for the field of coral disease monitoring. PLoS ONE 8(12): e81478.

Torres-Pérez, J.L., L.S. Guild and R.A. Armstrong. 2012. Hyperspectral Distinction of Two Caribbean Shallow-Water Corals Based on Their Pigments and Corresponding Reflectance. Remote Sensing 4:3813-3832.

Torres J.L. and R.A. Armstrong. 2012. Effects of artificially-enhanced UV radiation on the growth, photosynthetic and photoprotective components, and reproduction of the Caribbean coral *Porites furcata*. Coral Reefs 31:1077-1091.

Locker S.D., R.A. Armstrong, T.A. Battista, J.J. Rooney, C. Sherman, and D.G. Zawada. 2010. Geomorphology of mesophotic coral ecosystems: current perspectives on morphology, distribution, and mapping strategies. Coral Reefs 29:329-345.

Jiménez-Vélez B., Y. Detrés, R.A. Armstrong, and A. Gioda. 2009. Characterization of African Dust (PM 2.5) across the Atlantic Ocean during AEROS 2004. Atmospheric Environment 43:2659–2664.

Armstrong, R.A., H. Singh, S. Rivero-Calle, and F. Gilbes. 2009. Monitoring Coral Reefs in Optically-Deep Waters. Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, July 2008: 593-597.

Rivero-Calle S, R.A. Armstrong, F.J. Soto-Santiago. 2009. Biological and physical characteristics of a mesophotic coral reef: Black Jack reef, Vieques, Puerto Rico. Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, July 2008: 567-571.

Guild, L., B. Lobitz, R.A. Armstrong, F. Gilbes, A. Gleason, J. Goodman, E. Hochberg, M. Monaco, R. Berthold, and J. Kerr. 2009. NASA Airborne AVIRIS and DCS Remote Sensing of Coral Reefs. Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, July 2008: 616-620

Lobitz, B., L. Guild, M. Montes, R.A. Armstrong, and J. Goodman. 2009. Pre-Processing of 2005 AVIRIS Data for Coral Reef Analysis. Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, July 2008: 637-641

Torres J.L., R.A. Armstrong, and E. Weil. 2008. Enhanced ultraviolet radiation can terminate sexual reproduction in the broadcasting coral species *Acropora cervicornis* Lamarck. Journal of Experimental Marine Biology and Ecology 358:39-45.

Armstrong, R.A. 2007. Deep zooxanthellate coral reefs of the Puerto Rico - U.S. Virgin Islands insular platform. Coral Reefs, 26(4):945.

- Suarez, E., J. Matta, M. Rolon, L. Maldonado, Y. Detrés, A. de la Motta, M. Gelado, J. Ramos, and R. Armstrong. 2008. Molecular identification of the bacterial burden in Sahara Dust Samples using a new method to improve the evidence for the effective management of public health measures during an SD event. *Journal of Environmental Health Research* 7(2):99-106.
- Torres J.L., R.A. Armstrong, J.E. Corredor, and F. Gilbes. 2007. Physiological responses of *Acropora cervicornis* to increased solar irradiance. *Photochemistry and Photobiology* 83:839-850.
- Morris, V., T.W. Yu, E. Joseph, R. Armstrong, R. Fitzgerald, R. Karim, X.Z. Liang, and Q. Min. 2007. The NOAA Center for Atmospheric Sciences (NCAS): Programs and Achievements. *Bulletin of the American Meteorological Society*, 88(2):141-145.
- Morris, V., T.W. Yu, E. Joseph, R. A. Armstrong, Y. Detres, R. Fitzgerald, R. Karim, X. Liang, and Q. Min. 2007. The NOAA Center for Atmospheric Sciences (NCAS): Its Mission, Current Status, and Significant Achievements from 2002-2005. *Bulletin of the American Meteorological Society (BAMS)* 88(2):141-145.
- Matta, J.L., J. M. Ramos, R.A. Armstrong, and H. D'Antoni. 2007. Response of Human Fibroblasts to Very Low Doses of Environmental UV Radiation. *Caribbean Journal of Dermatology and Therapeutics* 2:16-27.
- Morris, V., P. Clemente-Colon, N. Nalli, E. Joseph, R. Armstrong, Y. Detres, M. Goldberg, P. J. Minnett, R. Lumpkin. 2006. Measuring Trans-Atlantic Aerosol Transport From Africa. *EOS*, 565-566.
- Costa, C. S. B., R. Armstrong, Y. Detrés, E. W. Koch, M. Bertiller, A. Beeskow, L. S. Neves, G. M. Tourn, O. A. Bianciotto, L. B. Pinedo, A. Y. Blessio, and N. San Roman. 2006. Effect of Ultraviolet-B Radiation on Salt Marsh Vegetation: Trends of the Genus *Salicornia* along the Americas. *Photochemistry and Photobiology* 82: 878–886.
- Díaz, S., C. Camilion, G. Deferrari, H. Fuenzalida, R. Armstrong, C. Booth, A. Paladini, S. Cabrera, C. Casiccia, C. Lovengreen, J. Pedroni, A. Rosales, H. Zagarese, and M. Vernet. 2006. Ozone and UV Radiation over Southern South America: Climatology and Anomalies. *Photochemistry and Photobiology* 82: 834-843
- Armstrong, R.A., H. Singh, J. Torres, R. Nemeth, A. Can, C. Roman, R. Eustice, L. Riggs, and G. Garcia-Moliner. 2006. Characterizing the deep insular shelf coral reef habitat of the Hind Bank Marine Conservation District (US Virgin Islands) using the Seabed Autonomous Underwater Vehicle. *Continental Shelf Research* 26, 194-205.
- Díaz, S., C.R. Booth, R. Armstrong, C. Brunat, S. Cabrera, C. Camilion, C. Cassiccia, G. Deferrari, H. Fuenzalida, C. Lovengreen, A. Paladini, J. Pedroni, A. Rosales, H. Zagarese, and M. Vernet. 2005. Multi-channel radiometers calibration: A new approach. *Applied Optics* 44 (26): 5374-5380.

- Schweizer, D., R.A. Armstrong, and J. Posada. 2005. Remote sensing characterization of benthic habitats and submerged vegetation biomass in los Roques Archipelago National Park, Venezuela. *Intl. J. of Remote Sensing* 26(12): 2657-2667.
- Matta, J., J. Ramos, R. Armstrong, and H. D'Antoni. 2005. Environmental UVA and UVB Threshold Doses for Apoptosis and Necrosis in Human Fibroblasts. *Photochemistry and Photobiology* 81, 563-568.
- Ramos, J., Villa, J., Ruiz, A., Armstrong, R., and J. L. Matta. 2004. UV dose determines key characteristics of non-melanoma skin cancer. *Cancer Epidemiology, Biomarkers & Prevention* 13(12): 2006-2011.
- Armstrong, R.A., F. Gilbes, R. Guerrero, C. Lasta, and H. Miazán. 2004. Validation of SeaWiFS chlorophyll algorithm for the Rio de la Plata Estuary and adjacent waters. *Intl. J. of Remote Sensing* 25(7-8):1501-1505.
- Gilbes, F. and R.A. Armstrong. 2004. Phytoplankton dynamics in the eastern Caribbean Sea as detected by space remote sensing. *Intl. J. of Remote Sensing* 25(7-8):1449-1452.
- Corredor, J., J. Morell, J. López, J. Capella and R.A. Armstrong. 2004. Cyclonic Eddy Entrains Orinoco River Plume in Eastern Caribbean. *EOS Transactions, American Geophysical Union* 85(20):197, 201-202.
- Singh, H., R.A. Armstrong, R. Eustice, C. Roman, O. Pizarro, and J. Torres. 2004. Imaging Coral I: Imaging Coral Habitats with the SeaBED AUV. *Subsurface Sensing Technologies and Applications* 5(1):25-42.
- Corredor, J., J. Morell, J. López, R. Armstrong, A. Dieppa, C. Cabanillas, A. Cabrera and V. Hensley. 2003. Remote continental forcing of phytoplankton biogeochemistry: Observations across the "Caribbean-Atlantic front". *Geophysical Research Letters* 30(20):1-4.
- Armstrong, R.A., H. Singh, and F. Gilbes. 2002. Benthic Survey of Insular Slope Coral Reefs Using the SeaBED AUV. *Backscatter* 13(3): 22-25.
- Gilbes, F., R.A. Armstrong, R. Webb, and F. Muller-Karger. 2001. SeaWiFS Helps Assess Hurricane Impact in the Caribbean Sea. *EOS, Transactions, American Geophysical Union*, Vol. 82, No. 45, pages 529 and 533.
- Detrés, Y., R.A. Armstrong, and X. Connelly. 2001. Ultraviolet-induced responses in two species of climax tropical marine macrophytes. *Photochemistry and Photobiology* 62 (1-2):55-66.
- Armstrong, R.A., J. Lopez, and F. Gilbes. 2000. Apparent optical properties at the Caribbean Time Series Station. *Ocean Optics XV – CDROM Publication*.

- Gilbes, F., and R.A. Armstrong. 2000. Inherent optical properties at the Caribbean Time Series Station (CaTS). Ocean Optics XV – CDROM Publication.
- Corredor, J., A.W. Bruckner, F. Muszynski, R.A. Armstrong, and J.M. Morell. 2000. UV-absorbing compounds in three species of Caribbean zooxanthellate corals: depth distribution and spectral response. *Bulletin of Marine Science* 67:821-830.
- Navarro, A., J. Corredor, J. Morell, and R.A. Armstrong. 2000. Distribution of the cyanophyte *Trichodesmium* in the Eastern Caribbean Sea: Influence of the Orinoco River. *Intl. J. of Tropical Biology* 48(1).
- Muszynski, F., A. Bruckner, R.A. Armstrong, J.M. Morell, and J.E. Corredor. 1998. Within-colony variations of UV absorption in a reef building coral. *Bull. Mar. Sci.*, 63(3): 589-594.
- Matta, J.L., C.M. Nazario, R.A. Armstrong, and J. Navas. 1998. Epidemiological trends of melanoma in Puerto Rico from 1975 – 1991. *Boletín de la Asociación Médica de Puerto Rico* 90(1-3): 221-224.
- Stoner, A.W., P.A. Pitts, and R.A. Armstrong. 1996. The interaction of physical and biological factors in the large-scale distribution of queen conch populations in seagrass meadows. *Bull. Mar. Sci.*, 58(1): 217-233.
- Johnson, L., B. Lobitz, R. Armstrong, R. Baldy, E. Weber, J. DeBenedictis, and D. Bosch. 1996. Remotely sensed observations of phylloxera-infested vineyard in the Napa Valley. *California Agriculture* (50) 4:14-18.
- Armstrong, R.A. 1994. Oceanic fronts in the northeastern Caribbean revealed by satellite ocean color imaging. *International Journal of Remote Sensing* 15(6): 1169-1171.
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- Stoner, A.W., M.D. Hanisak, N.P. Smith, and R.A. Armstrong. 1994. Large-scale distribution of queen conch nursery habitats: Implications for stock enhancement. pp. 169-189 In: R.S. Appeldoorn and Q. Rodriguez (eds.) *Queen Conch Biology, Fisheries and Mariculture*. Fundación Científica Los Roques, Caracas, Venezuela.
- Armstrong, R.A. 1993. Remote sensing of submerged vegetation canopies for biomass estimation. *International Journal of Remote Sensing* 14(3): 621-627.

Goenaga, C., V.P. Vicente, and R.A. Armstrong. 1989. Bleaching induced mortalities in reef corals from La Parguera, Puerto Rico: A precursor of change in the community structure of coral reefs? *Carib. J. Sci.*, 25(1-2): 59-65.

BOOKS AND BOOK CHAPTERS

Armstrong, R.A., O. Pizarro, C. Roman. 2019. Underwater Robotic Technology for Imaging Mesophotic Coral Ecosystems. In: Loya, Y., Puglise, K. and Bridge T. (Eds.). *Mesophotic Coral Ecosystems of the World*. Springer.

Garcia-Moliner, G., R.A. Armstrong and M.J. Cerame Vivas. 2019. Essential Fish Habitats of the Deep – Puerto Rico and the U.S. Virgin Islands. Published by the Caribbean Fishery Management Council, NOAA. 195 pages.

Hooker, S.B., C. del Castillo, R.N. Lind, J.H. Morrow, C.R. Booth, J.W. Brown, R.M. Kudela, H.F. Houskeeper, K. Suzuki, and R.A. Armstrong, 2018: “The HARPOONS Vicarious Calibration Project.” In: Hooker, S.B., R.N. Lind, J.H. Morrow, J.W. Brown, R.M. Kudela, H.F. Houskeeper, K. Suzuki, 2018: *Advances in Above- and In-Water Radiometry*, Vol. 2: Autonomous Atmospheric and Oceanic Observing Systems. TP–2018–219033/Vol. 2, NASA Goddard Space Flight Center, Greenbelt, Maryland, 8–64.

Armstrong, R.A. 2016. “Landscape-level imaging of benthic environments in Optically-Deep Waters”. Chapter 10 In: C.W. Finkl, C. Makowski (eds.), *Seafloor Mapping along Continental Shelves*, Coastal Research Library 13, Springer International Publishing Switzerland.

Torres-Pérez, J.L., R.A. Armstrong, and Y. Detrés. 2014. Impacts of UV radiation on tropical marine organisms. In: Radosevich, J. (Ed.) *UV radiation: Application, Processes and Mechanisms*. NOVA Publishers.

Armstrong, R.A. and H. Singh. 2012. Mesophotic Coral Reefs of the Puerto Rico Shelf. Chapter 24 In “*Seafloor Geomorphology as Benthic Habitat: GeoHab Atlas of seafloor geomorphic features and benthic habitats*”, P.T. Harris and E.K. Baker (eds.), Elsevier Insights.

Ballantine, D.L.; Appeldoorn, R.S.; Yoshioka, P.; Weil, E.; Armstrong, R.; Garcia, J.R.; Otero, E.; Pagan, F.; Sherman, C.; Hernandez-Delgado, E.A.; et al. *Biology and Ecology of Puerto Rican Coral Reefs*. In *Coral Reefs of the USA*; Springer Science and Business Media LLC: Berlin/Heidelberg, Germany, 2008; Volume 1, pp. 375–406.

PRESENTATIONS, PUBLISHED ABSTRACTS, AND REPORTS

Dávila, D., R.A. Armstrong, and W.J. Hernández. 2024. Change Detection Analysis of Seagrass Benthic Cover in Areas of Accumulating *Sargassum* in Southwestern Puerto Rico. Poster presentation, Ocean Sciences Meeting, New Orleans, 18-23 February.

- Infante, R., H. Porras, D. Dávila, and M. Velázquez. 2023. Coastal water quality analysis using the Planet Scope satellite constellation. Oral Presentation, PRYSIG Annual Meeting, 3 November 2023, Mayaguez, PR.
- Torres-Pérez, JL, Suleimán, S, Barberena-Arias, MF, Maldonado, P, Rodríguez, A, Detrés, Y, Armstrong, R, Hernández, W, Beaudry, B, Guevara, J, Chirayath, V, Tárrano, A, Hirsch, H, Cusick, A, Mascioni, M, Ramos, Y, and Allende, R. 2023. OCEANOS: Engaging Hispanic/Latino students in STEM by integrating NASA Observations and Science with hands-on field experiences. Abstract, American Geophysical Union (AGU) Fall Meeting, San Francisco, CA.
- Lockwood, R., C.M. Bachmann, M. Chrisp, C. Smeaton, N. Pahlaven, E. Hochberg, M.J. Montes, Bo-Cai Gao, R. Frouin, A. Vodacek, C. Fichot, T.W. Bell, R.A. Armstrong, C. Li, L. Kennedy, S. Gillmer, L. Fuhrman, D. Brouhard, J. Wang, and K. Thome. 2023. Improving the Characterization of Aquatic Ecosystems with an Enhanced Imaging Spectrometer. Abstract, American Geophysical Union (AGU) Fall Meeting, San Francisco, CA.
- Armstrong, R.A. 2023. Remote Sensing of Sargassum Accumulation and Impacts on Tropical Marine Ecosystems. Invited Oral Presentation, NASA Carbon Cycle and Ecosystems Joint Sciences Meeting, May 8-12 2023, College Park, Maryland.
- Hernández, W.J., Armstrong, R.A., Nemeth, M., Griffin, S., Flynn, K., and Viqueira, R. 2022. Satellite and field observations of water quality parameters associated to coral reef high priority areas in Puerto Rico. Technical Report developed by Environmental Mapping Consultants LLC for the NOAA Coral Reef Conservation Program Grant #NA19NOS4820129.
- Hernandez, W., J. Morell, and R. A. Armstrong. 2020. High-Resolution Satellite Imagery to Assess Sargassum Inundation Impacts to Coastal Areas. Oral presentation at PRYSIG 18th Meeting, Mayaguez, PR, October 30.
- Ortiz Rosa, S., W.J. Hernández, R.A. Armstrong, and O. López. 2019. Water Quality Anomalies After Severe Weather Events in Southwestern Puerto Rico. Oral Presentation, PRYSIG Annual Conference, October 25, 2019, Mayaguez, Puerto Rico.
- León-Pérez, M., W.J. Hernández, R.A. Armstrong, and A. Aguilar-Perera. 2019. Analysis of Historical Aerial Photographs and Satellite Data Reveal an Increase in Seagrass Cover in Caja de Muertos Island Nature Reserve, Puerto Rico: 1950 – 2014. Presented at the 72nd Annual Conference of the Gulf and Caribbean Fisheries Institute, Punta Cana, Dominican Republic.
- Hernandez, W.J., R.A. Armstrong, S. Ortiz-Rosa, E.F. Geiger, C. Mark Eakin, R.A. Warner, R. Viqueira, A.E. Strong. 2019. Ocean Color Products for Water Quality and User Interactions for Puerto Rico, US Virgin Islands and West Maui, HI. Via webinar, OneNOAA Science Seminars, August 14, 2019.

- Ortiz-Rosa, S., W.J. Hernández, R.A. Armstrong. 2019. Water quality anomalies after severe weather events in southwestern Puerto Rico. Presented at the CoRP Science Symposium, University of Maryland, College Park, August 27-29.
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