

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 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) Nat'l 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
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

OTHER APPOINTMENTS

Position: Director, Bio-optical Oceanography Laboratory
Date: 1996 to present

Position: Director, NOAA Center for Atmospheric Sciences at UPRM
Date: September 1, 2002 to present

Position: Deputy Director, Cooperative Remote Sensing Science and Technology Center at UPRM
Date: December 2014 to present

Position: Member, Habitat Advisory Panel – CFMC/NMFS/NOAA
Date: 2000-2004

EDITORIAL BOARDS AND REVIEW PANELS

- Associate Editor of the International Journal of Water
- Member of Editorial Board of the Journal of Marine Science and Engineering
- Regular reviewer for numerous journals including Remote Sensing of Environment, Remote Sensing, Journal of Coastal Research, Continental Shelf Research, etc.
- Review Panel Member for NASA and the Consortium of Ocean Leadership

PEER-REVIEWED PUBLICATIONS (50)

Pérez Hoyos, I., N.Y. Krakauer, R. Khanbilvardi, and R.A. Armstrong. In Review.
A review of advances in the identification and characterization of groundwater dependent ecosystems using geospatial technologies. Geosciences.

Wei, J., Z. Lee, M. Ondrusek, A. Mannino, M. Tzortziou, and R. Armstrong. In Press.
Spectral slopes of the absorption coefficient of colored dissolved and detrital material inverted from UV-visible remote sensing reflectance. Journal of Geophysical Research.

Hernandez, W.J., and R.A. Armstrong. 2016. Deriving bathymetry from multispectral remote sensing data. J. Mar. Sci. Eng. 4,8; doi:10.3390

Hosannah, N., J. González, R. Rodríguez-Soli, H. Parsiani, F. Moshary, L. Aponte, R. Armstrong, E. Harmsen, P. Ramamurthy, M. Angeles, L. León, B. Bornstein, N. Ramírez, R. Davis, W. Peña, and D. Niyogi. In Press. The Convective, Aerosol, and

Synoptic-1 Effects in the Tropics (CAST) Experiment. Bulletin of the American Meteorological Society.

Hosannah, N., J. González, H. Parsiani, D. Comarazamy, and R. Armstrong. In Review. Effects of Aerosol PSD Data Assimilation on Precipitation Prediction in Western Puerto Rico using a Cloud-Resolving Atmospheric Model. Weather and Forecasting Journal.

Torres-Pérez, J.L., L.S. Guild, R.A. Armstrong, J.E. Corredor, A. Zuluaga-Montero, and R. Polanco. 2015. Relative pigment composition and remote sensing reflectance of Caribbean shallow-water corals. PLoS ONE. 10(11): e0143709. doi:10.1371/journal.pone.0143709.

Wei, J., Z. Lee, M. Lewis, N. Pahlevan, M. Ondrusek, and R. Armstrong. (2015) Radiance transmittance measured at the ocean surface. Optics Express 23(9): 11826-11837.

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 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 AEROSE 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(4):839-851.

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.

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.R. Nalli, E. Joseph, R.A. Armstrong, Y. Detrés, M.D. Goldberg, P.J. Minnett, and R. Lumpkin. 2006. AEROSE Science Team Conducts Ongoing Investigations of Downwind Transport from Saharan and Sub-Saharan Africa in the Tropical Atlantic. EOS Transactions, American Geophysical Union 87(50):565,571.

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.
- D'Antoni, H., R. Armstrong, J. Coughlan, J. Skiles, and G. Daleo. 1994. Effects of stratospheric ozone depletions and increased levels of ultraviolet radiation on subantartic forests and western patagonian steppe: A research project. *In: Stratospheric Ozone Depletion/UV Radiation in the Biosphere*, R.H. Biggs and M. Joyner (eds.), NATO ASI Series, Vol I 18, Springer-Verlag, Berlin.

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. In Press. "Landscape-level imaging of benthic environments in Optically-Deep Waters". In: C.W. Finkl, C. Makowski (eds.), *Seafloor Mapping along Continental Shelves*, Coastal Research Library 13, Springer International Publishing Switzerland.

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

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.), pp 365-374. Elsevier Insights.

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.

PRESENTATIONS AND PUBLISHED ABSTRACTS

Torres-Pérez, J.L., M. Barreto-Orta, J. Ortiz, L. Santiago, S.G. Setegn, L. Guild, C. Ramos-Scharrón and R. Armstrong. 2015. Human Impacts to Coastal Ecosystems in Puerto Rico (HICE-PR): present condition of coral reefs associated with the Guánica and Manatí watersheds in Puerto Rico. AGU Fall Meeting. San Francisco, CA.

Torres-Pérez, J.L., M. Barreto-Orta, J. Ortiz, L. Santiago, S.G. Setegn, L. Guild, C. Ramos-Scharrón, R. Armstrong, and Y. Detrés. 2014. Human Impacts to Coastal Ecosystems in Puerto Rico (HICE-PR): A long-term remote sensing, hydrologic, ecologic, and socio-economic assessment with management implications. AGU Fall Meeting. San Francisco, CA.

Hosannah, N., H. Parsiani, J. Gonzalez, D. Comarazamy, and R.A. Armstrong. 2014. Effects of Aerosol PSD Data Assimilation on Precipitation Prediction in Western Puerto Rico using

a Cloud-Resolving Atmospheric Model. Abstract submitted to the 95th Annual Meeting of the American Meteorological Society.

Hosannah, N., J. Gonzalez, H. Parsiani, N. Ramirez, and R.A. Armstrong. A Radiosonde Campaign on the West Coast of Puerto Rico During Saharan Dust Season. Abstract submitted to the 95th Annual Meeting of the American Meteorological Society.

Detres, Y., and R.A. Armstrong. 2014. Contribution of Northern Africa geographical dust sources to dust episodes reaching the Island of Puerto Rico during the summer of 2011. Poster presentation at the 7th Biennial NOAA EPP Forum, October 26-30, Eastern Shores, Maryland.

Hernandez, W., and R.A. Armstrong. 2014. Benthic habitat mapping and bio-optical characterization for La Parguera Marine Reserve using passive and active remote sensing data. Oral presentation at the 7th Biennial NOAA EPP Forum, October 26-30, Eastern Shores, Maryland.

Cardona, M., and R.A. Armstrong. 2014. First stage in a collaborative effort to develop a forecasting product that integrates both temperature and light stress. Oral presentation at the 7th Biennial NOAA EPP Forum, October 26-30, Eastern Shores, Maryland.

Santiago, M., and R.A. Armstrong. 2014. Hurricane forcing of phytoplankton biomass in the Sargasso Sea: New insights from 2000-2010 Hurricane Season. Poster presentation at the 7th Biennial NOAA EPP Forum, October 26-30, Eastern Shores, Maryland.

Ramos, F., Y. Detres and R.A. Armstrong. 2014. Identifying Soufrière Hills volcanic ash particles and Saharan dust using Aerosol Robotic Network (AERONET) sun photometer, satellite imagery and trajectory models. Poster presentation at the 7th Biennial NOAA EPP Forum, October 26-30, Eastern Shores, Maryland.

Cánovas Molina, A., M. Montefalcone, M. Canessa, S. Coppo, G. Diviacco, C. Morri, M. Ferrari, C. Cerrano, R. Armstrong, C.N. Bianchi, and G. Bavestrello. 2014. Coralligenous reefs in Liguria: distribution and characterization. 2nd Mediterranean Symposium on the Conservation of Coralligenous and other Calcareous Bio-concretions, Portoroz, Slovenia, 29-30 October 2014.

Armstrong, R.A. 2013. Hyperspectral Remote Sensing of Tropical Coastal Environments: the use of HICO data to derive water quality parameters in southwestern Puerto Rico. Oral Presentation at the 8th Annual NOAA CREST Symposium, CUNY, New York, June 5-6.

Torres-Pérez, J.L., L.S. Guild, R.A. Armstrong, JE Corredor, R Polanco, and A Zuluaga-Montero. 2013. Field spectroscopy and spectral analysis of Caribbean Scleractinian reef corals and related benthic biota. AGU Meeting of the Americas. Cancún, Mexico.

- Armstrong, R.A. and F. Gilbes. 2012. Temporal and spatial trends in water optical properties at shallow coral reefs in Southwestern Puerto Rico. Poster presentation, Ocean Optics Conference, 7-12 October 2012, Glasgow, Scotland.
- Torres-Pérez, J.L., L.S. Guild and R.A. Armstrong. 2012. Distinction between Two Caribbean Shallow-Water Corals based on their Respective Pigments Composition: A Complementary Tool for Remote Sensing Studies. Poster presentation, Ocean Optics Conference, 7-12 October, 2012, Glasgow, Scotland.
- Garcia Moliner, G. and R.A. Armstrong. 2012. Satellite remote sensing characterization of Caribbean fish spawning aggregation sites. Presented at the 12th International Coral Reef Symposium, 9-13 July 2012, Cairns, Queensland, Australia.
- Santiago, M.J., and Armstrong, R.A. Hurricane forcing of phytoplankton biomass in the Sargasso Sea. NOAA-EPP Sixth Education and Science Forum “Developing STEM Talent: Increasing Innovation and National Competitiveness”. Florida A&M University, Tallahassee, FL. March 26-28, 2012.
- Detrés, Y. and Armstrong, R.A. Contribution of the Puerto Rico Weather Camp to the Recruitment of Underrepresented Students in STEM Careers. NOAA-EPP Sixth Education and Science Forum “Developing STEM Talent: Increasing Innovation and National Competitiveness”. Florida A&M University, Tallahassee, FL. March 26-28, 2012.
- Flores, L. Detrés, Y. and Armstrong, R. A. Monitoring of African Dust Intrusions to the Eastern Caribbean During the Summer of 2011. NOAA-EPP Sixth Education and Science Forum “Developing STEM Talent: Increasing Innovation and National Competitiveness”. Florida A&M University, Tallahassee, FL. March 26-28, 2012.
- Reddy, R. S. Lu, D. White, L. Armstrong, R. and Morris, V. Impacts of Sharon Dust on Atlantic Hurricanes and Climate Change. NOAA-EPP Sixth Education and Science Forum “Developing STEM Talent: Increasing Innovation and National Competitiveness”. Florida A&M University, Tallahassee, FL. March 26-28, 2012.
- Coronado, J. Detrés, Y. and Armstrong, R. A. Source Frequency of African Dust Storms Reaching the Island of Puerto Rico. NOAA-EPP Sixth Education and Science Forum “Developing STEM Talent: Increasing Innovation and National Competitiveness”. Florida A&M University, Tallahassee, FL. March 26-28, 2012.
- Hernández, W. J. and Armstrong, R. A. Benthic Habitat Mapping for La Parguera Marine Reserve, Southwest Puerto Rico, using Passive and Active Remote Sensing Data. NOAA-EPP Sixth Education and Science Forum “Developing STEM Talent: Increasing Innovation and National Competitiveness”. Florida A&M University, Tallahassee, FL. March 26-28, 2012.
- Torres-Pérez, J.L., R.A. Armstrong and L.S. Guild. 2011. Influence of pigment composition on the remote sensing reflectance of Caribbean shallow-water coral species: A first approach. HypSPiRI Science Workshop, Washington DC.

- Armstrong, RA and Y. Detres. 2010. Remote sensing of episodic rainfall events impacting coastal areas in Puerto Rico. Poster presented at the Oceans from Space Meeting, 26-30 April, Venice, Italy.
- Armstrong, RA. 2010. Research Programs at the Bio-optical Oceanography Laboratory. Oral presentation at the Joint Research Center of the European Union, Ispra, Italy, May 4.
- Armstrong, R. A. 2009. Applications of advanced underwater robotics and imaging sensors in coral reef research. Oral presentation, NOAA-EPP (Educational Partnership Program), Howard University, Washington, DC. 12-14 November.
- Armstrong, R. 2009. Mesophotic Coral Ecosystems. Invited Oral Presentation to the Steering Committee of the U.S. Coral Reef Task Force, November 2, San Juan, Puerto Rico.
- Armstrong, R., L. Guild, B. Lobitz, J. Goodman, R. Berthold, and J. Kerr. 2009. Coral Reef Bleaching and Threats to Biodiversity in Puerto Rico. Oral Presentation at the NASA Biodiversity and Ecological Forecasting Team Meeting, May 6-8, New York, New York.
- Guild, L., J. Goodman, B. Lobitz, R. Armstrong, F. Gilbes, R. Berthold, and J. Kerr. 2009. Imaging Spectroscopy and Spectral Analysis in Support of Coral Reef Ecosystem Biodiversity Research, 33rd Intl. Remote Sensing of Environment, May 4-8, Stresa, Italy.
- Armstrong, R. 2009. Variability of bio-optical properties in southwestern Puerto Rico: the link to coral reef community structure. Invited Oral Presentation at the UPRM-CRES Symposium, February 11-13, La Parguera, Puerto Rico.
- Torres, J., and R.A. Armstrong. 2008. Different Pigment Composition Can Influence the Remote Sensing Reflectance of Caribbean Shallow-Water Coral Species. Poster presentation, 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, 7-11 July.
- Torres, J., R.A. Armstrong, and E. Weil. 2008. Effects of UV Radiation on the Sexual Reproduction of the Threatened *Acropora cervicornis*. Poster Presentation, 11th International Coral Reef Symposium, July 7-11, Ft. Lauderdale, FL.
- Armstrong, R. 2008. Impacts of Saharan Dust Events in the Tropical Western Atlantic. Oral Presentation, Calentamiento Global y Fenómenos Atmosféricos, 2^{do} Curso de Verano, June 1-6, San Juan, Puerto Rico.
- Armstrong, R. 2008. Mesophotic Coral Reefs: Reservoirs of Biodiversity in Times of Climate Change? Oral Presentation, Calentamiento Global y Fenómenos Atmosféricos, 2^{do} Curso de Verano, June 1-6, San Juan, Puerto Rico.
- Armstrong, R. 2008. Hyperspectral remote sensing of benthic marine communities in La Parguera. Oral Presentation at the Sixth Annual NOAA-CREST Remote Sensing Symposium, February 20-24, Mayaguez, Puerto Rico.

- Rivero, S., and R.A. Armstrong. 2007. Use of the Seabed Autonomous Underwater Vehicle for Characterizing the Deep Zooxanthellate Coral Reefs of Puerto Rico. 33rd Scientific Meeting of the Association of Marine Laboratories of the Caribbean. St. Thomas, USVI, June 4-8.
- Armstrong, R. A., L. Guild, B. Lobitz, F. Gilbes, and Y. Detres. 2007. Atmospheric and Water Column Corrections of AVIRIS Data for Hyperspectral Characterization of Benthic Marine Communities in Puerto Rico. Proceedings, 5th EARSeL (European Association of Remote Sensing Laboratories), 23-25 April, Bruges, Belgium
- Armstrong, R. A., and H. Singh. 2006. Remote Sensing of Deep Coral Reefs in Puerto Rico and the U.S. Virgin Islands Using the Seabed Autonomous Underwater Vehicle. SPIE Europe Remote Sensing Conference Proceedings #6360-10, Stockholm, Sweden, September 11-14.
- Goodman, J., M. Velez-Reyes, and R. A. Armstrong. 2006. Development of a Field Test Environment for the Validation of Coastal Remote Sensing Algorithms: Enrique Reef, Puerto Rico. SPIE Europe Remote Sensing Conference Proceedings #6360-11, Stockholm, Sweden, September 11-14.
- Vélez-Reyes, M., J. Goodman, L. O. Jimenez-Rodriguez, R. A. Armstrong, and S. D. Hunt, 2006. Benthic Habitat Mapping using Hyperspectral Remote Sensing. SPIE Europe Remote Sensing Conference Proceedings #6360-12, Stockholm, Sweden, September 11-14.
- Kaeli, J.W., h. Singh, and R.A. Armstrong. 2006. An Automated Morphological Image Processing Based Methodology for Quantifying Deep Water Coral Cover. Oceans 2006 MTS/IEEE Conference, September 18-22, Boston, MA.
- Gilbes, F., R.A. Armstrong, J. Goodman, M. Velez, S. Hunt. 2006. CenSSIS Seabed: Diverse Approaches for Imaging Shallow and Deep Coral Reefs. Proceedings Ocean Optics XVIII Conference, October 9-13, Montreal, Quebec.
- Guild, L., R. Armstrong, F. Gilbes, J. Goodman, A. Gleason, E. Hochberg, R. Berthold, J. Torres, and M. Johnston. 2006. Airborne Hyperspectral Remote Sensing of Coral Reefs of Puerto Rico, Florida Keys, and Oahu, Eos Trans. AGU, 87(36), Abstract OS13L-06, Ocean Sciences Meeting, Honolulu, HI.
- Armstrong, R.A., J.R. García, G. García-Moliner, and H. Singh. 2006. The Deep Hermatypic (Zooxanthellate) Coral Reef Habitat of the US Caribbean: Addressing the Needs of Ecosystem-Based Management. Oral Presentation at ASLO Summer Meeting, June 4-9, Victoria, Canada.
- Detres, Y., R.A. Armstrong, E. Otero, and R. Garcia. 2006. Remote Sensing of Episodic Rainfall Events Impacting Coral Reef Areas. Oral Presentation at ASLO Summer Meeting, June 4-9, Victoria, Canada.
- Bejarano, I., R. H. Appeldoorn, R. A. Armstrong. 2006. Relationship between Reef Fish Communities, Water and Habitat Quality on Coral Reefs. Poster Presentation at ASLO Summer Meeting, June 4-9, Victoria, Canada.

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