

Ajit Subramaniam

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Ajit Subramaniam is a biological oceanographer who uses remote sensing, bio-optics, Geographical Information Systems, to better understand how the marine ecosystem works and can be managed. Specifically, he works on understanding the diversity and productivity of phytoplankton: why does a particular phytoplankton species bloom where it does, the factors that lead to its demise, the consequences of such blooms, and how these might change in the future as a consequence of anthropogenic activity and climate change. Dr. Subramaniam has worked with remote sensing data for more than 20 years and has developed algorithms for detection of cyanobacterial blooms. Subramaniam has taught at the Austral Summer Institute, Universidad de Concepción in 2004, 07, and 10 and was awarded a Fulbright Specialist Award in 2010 for this. He has extensive sea-going experience and been chief scientist on major oceanographic cruises. He served as Program Director at NSF and the Gordon and Betty Moore Foundation and has managed teams of scientists.

(a) Professional Preparation

The American College	Madurai, India	Physics	B.Sc.	May 1984
SUNY@Stony Brook,	Stony Brook, NY.	Marine Environmental Science.	M.S.	Aug. 1989
SUNY @ Stony Brook,	Stony Brook, NY.	Coastal Oceanography	Ph.D.	Dec. 1995

(b) Appointments

2015 to Present: Lamont Research Professor, LDEO, Columbia University, New York.
2012 to 2014: Program Director, Marine Microbiology Initiative, GBMF, Palo Alto.
2010 to 2014: Lamont Associate Research Professor, LDEO, Columbia University, New York
2008 to 2010: Associate Program Director, Biological Oceanography Program, National Science Foundation.
2004 to 2010: Doherty Associate Research Scientist, LDEO, Columbia University, New York.
2000 to 2004: Assistant Research Professor, Dept. of Biological Sciences, USC, Los Angeles.
2000 to 2004: Assistant Research Scientist, Earth Systems Science Interdisciplinary Center, University of Maryland, College Park.
1997 to 2000: Assistant Research Scientist, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD.
1995 to 1997: Senior Bio-optical Scientist, TPMC, NOAA Coastal Services Center, Charleston, SC.

(c) Products (* indicates product with Undergrad coauthor mentored by Subramaniam)

Cardona, Y., A. Bracco, T. A. Villareal, **A. Subramaniam**, S. C. Weber and J. P. Montoya (2016). Highly variable nutrient concentrations in the Northern Gulf of Mexico. *Deep Sea Research Part II: Topical Studies in Oceanography* 129: 20-30.

*D'souza N.A., **A. Subramaniam**, A.R. Juhl, M. Hafez, A. Chekalyuk, S Phan, B. Yan, I.R. MacDonald, S.C. Weber, J.P. Montoya (2016). Elevated surface chlorophyll associated with natural oil seeps in the Gulf of Mexico. *Nature Geoscience*. (DOI:10.1038/ngeo2631)

Grimes, D.J., T.E Ford, R.R Colwell, C Baker-Austin, J Martinez-Urtaza, **A Subramaniam**, DG Capone (2014) Viewing Marine Bacteria, Their Activity and Response to Environmental Drivers from Orbit.

Microbial Ecology. DOI 10.1007/s00248-013-0363-4

- A. Subramaniam**, C. Mahaffey, W. Johns, and N. Mahowald (2013) Equatorial upwelling enhances nitrogen fixation in the Atlantic Ocean. *Geophysical Research Letters*, **40**, 1–6, doi:10.1002/grl.50250
- Paris, C.B., M. Le Hénaff, Z.M. Aman, **A. Subramaniam**, J. Helgers, D-P. Wang, V.H. Kourafalou, and A. Srinivasan (2012). Evolution of the Macondo Well Blowout: Simulating the Effects of the Circulation and Synthetic Dispersants on the Subsea Oil Transport. *Environ. Sci. Technol.* **46**, 13293–13302. dx.doi.org/10.1021/es303197h

Five Other Products

- Andrew, A.A., R. Del Vecchio, **A. Subramaniam**, NV. Blough (2013). Chromophoric dissolved organic matter (CDOM) in the Equatorial Atlantic Ocean: Optical properties and their relation to CDOM structure and source. *Marine Chemistry*. **148**, 33-43.
- Sohm, J.A, **A. Subramaniam**, T. Gunderson, E.J. Carpenter, and D.G. Capone (2011). Nitrogen fixation by *Trichodesmium* spp. and unicellular diazotrophs in the North Pacific Subtropical Gyre. *Journal of Geophysical Research-Biogeoscience*. Vol. 116 doi:10.1029/2010JG001513
- Dippner, J.W., L. Nguyen-Ngoc, H. Doan-Nhu, **A. Subramaniam** (2011) A model for the prediction of harmful algae blooms in the Vietnamese upwelling area. *Harmful Algae*. doi:10.1016/j.hal.2011.04.012.
- Foster, R.A., **A. Subramaniam**, Z.P. Zehr. (2009). Distribution and activity of diazotrophy in the Eastern Equatorial Atlantic (Gulf of Guinea). *Environmental Microbiology*, **11**(4) 741-750, doi:10.1111/j.1462-2920.2008.01796.x.
- Subramaniam, A.**, PL. Yager, E.J. Carpenter, C. Mahaffey, K. Björkman, S. Cooley, AB. Kustka, JP. Montoya, SA. Sañudo-Wilhelmy, R. Shipe, & DG. Capone. (2008) Amazon River enhances diazotrophy and carbon sequestration in the tropical North Atlantic Ocean. *Proceedings of the National Academy of Sciences*. **105**:10460-10465.

(d) Synergistic Activities

- I served as the program director for the Marine Microbiology Initiative at the Gordon and Betty Moore Foundation (2012-2014) and as a program director in the Biological Oceanography Program at the U.S. National Science Foundation (2008-2010).
- I was invited by the Environmental Law Institute to make presentations to local communities and NGOs in Louisiana and Mississippi on our current understanding of the state of science studying the Deepwater Horizon Accident.
- I have served as guest editor for a special issue of the *International Journal of Remote Sensing*, *Frontiers in Microbiology*, and on various review panels for NASA, NSF, and AAAS.
- I have taught classes in oceanography and remote sensing in non-traditional settings. These include 1) an undergraduate class in field oceanography – Oceanographic Field Survey of the Atlantic Ocean – that was taught on board the research vessel *R/V Oceanus* during a deadhead transit from Woods Hole, MA to Fortaleza, Brazil. 2) UNESCO sponsored international course “Use of Remote Sensing and Geographical Information Systems for Coastal Water Quality Monitoring” for students from all over Latin America at the University of Concepcion, Chile (2004, 2007, 2010). I was awarded a Fulbright Senior Specialist Grant in 2010 for this. 3) Earth2Class Teacher Training Workshop for K-12 Earth Science Teachers conducted at LDEO since 2004 and have worked with teachers to prepare lesson plans that include material about oceanography and remote sensing.