Dr. David Mark Fratantoni

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Citizenship: USA | Prior Security Clearance: Secret

Education:

B.S., Ocean Engineering, Virginia Tech, 1990. Minor: Mathematics

Ph.D., Meteorology and Physical Oceanography, University of Miami, 1996
Thesis: *On the pathways and mechanisms of upper-ocean mass transport in the tropical Atlantic Ocean*

Short Course in Underwater Acoustics and Signal Processing, Penn State University, 2006
Graduate, Advanced Management Program, MIT/Sloan School of Management, 2015
Advanced Certificate for Executives in Management, Innovation, and Technology, MIT/Sloan, 2015
Executive Certificate in Strategy and Innovation, MIT/Sloan, 2015

Experience:

Chief Executive Officer, Neil Brown Ocean Sensors, Inc., 2022-present
SVP Research and Development, Seatrec, Inc., 2020-2021
Chief Operating Officer and Chief Science Officer, Seatrec, Inc., 2016-2020
President and Owner, 43Squid LLC, 2015-present
Chief Scientist, Nortek, 2015
Chief Technology Officer, Horizon Marine, Inc., 2013-2015
Associate Scientist with Tenure, Woods Hole Oceanographic Institution, 2006-2013; retired 2014.
Associate Scientist, Woods Hole Oceanographic Institution, 2002-2006
Founder and Principal Investigator, WHOI Autonomous Systems Laboratory, 2006-2013
Assistant Scientist, Woods Hole Oceanographic Institution, 1998-2002
Postdoctoral Scholar and Investigator, Woods Hole Oceanographic Institution, 1996-1998
Graduate Research Assistant, Meteorology and Physical Oceanography, University of Miami, 1990-1996
Undergraduate Research Assistant, Aerospace and Ocean Engineering, Virginia Tech, 1988-1990

Recipient of complete and continuous funding via competitive research awards from NSF, ONR, NOAA, NASA, and various private individuals and foundations, 1998-2013. Continued engagement with federal and private research organizations, 2015-present.

Honors and Awards:

Gilbert and Lucille Seay Engineering Scholarship, College of Engineering, Virginia Tech (1988)
Global Change Graduate Fellowship, U.S. Department of Energy Global Change Program (1992-1995)
Koczy Fellowship (Outstanding Ph.D. student in final year of study), University of Miami (1995-1996)
F. G. Walton Smith Prize (Outstanding doctoral thesis), University of Miami (1997)

Patents:

Environmental Thermal Energy Conversion (US Patent No. 10,443,581, 2019)
Environmental Thermal Energy Conversion (US Patent No. 10,989,178, 2021)
Environmental Thermal Energy Conversion (AUS Patent No. AU2017355404, 2022)
Apparatus and Method for Making Internally-Finned Pressure Vessel (US Patent No. 11,549,644, 2023)

Research Interests:

Exploratory oceanography emphasizing observational studies of mesoscale ocean circulation and the relationships between ocean physics and biology on various scales. Development of autonomous platforms, sensors, and observing systems.

Capabilities and Accomplishments

USCG Licensed Captain, 25-Ton Master with Auxiliary Sail Endorsement
FAA Certified Private Pilot (single engine land, instrument)
FAA Certified Remote Pilot (Part 107 Small Unmanned Aircraft Systems)
2nd Lt, Civil Air Patrol, United States Air Force Auxiliary (Squadron Safety Officer)
Member USCG Auxiliary (Vessel Examiner; Boat Crew)
Experienced offshore sailor and dinghy racer
Certified Scuba Diver (PADI Divemaster)

Successful, hands-on leader who takes care of the team first.

Experienced maintainer/deployer/operator of autonomous oceanographic platforms including the Slocum Glider, Spray Glider, APEX and Navis profiling floats, Oceanserver IVER2/Ecomapper AUV, Liquid Robotics Wave Glider.

Pioneer in the use of underwater glider fleets for physical, biological, and acoustical oceanographic investigations including several substantial multi-vehicle operations in support of Navy, NASA, and NOAA science programs.

Conceived and led development of the Submerged Autonomous Launch Platform (SALP) – a platform facilitating unattended, environmentally-adaptive deployment of RAFOS floats, profiling floats, and surface drifters from oceanographic moorings.

Conceived and led development of the Autonomous Expendable Instrument System (AXIS) – a self-contained, Iridium-linked robotic launch system for automated deployment of Sippican expendable probes (XBT, XCTD, etc.) from vessels-of-opportunity. AXIS systems are currently operational in the subtropical and subpolar North Atlantic and the system is being assessed for commercialization.

Demonstrated leadership experience including the founding and operation a self-directed, federally-funded research laboratory at WHOI including supervision of multiple employees, conception and execution of many externally-funded research programs as Principal Investigator, and successful completion of numerous field expeditions as Chief Scientist.

Principal investigator / program manager for several major Navy and DARPA-sponsored programs at Seatrec related to renewable energy, autonomous platforms, and national defense.

Recipient of specific training in leadership, management, innovation, and technology via completion of the Advanced Management Program at the MIT Sloan School of Management.

Professional Affiliations:

Member American Geophysical Union
Member Marine Technology Society
Senior Member IEEE

Contributions to Education:

Advisor/mentor to Seatrec, Inc. undergraduate summer interns 2016, 2017, 2018
Supervised visiting graduate student Saskia Esselborn (IFM/Hamburg), 1999
Supervised visiting graduate student Peter Kelly (SUNY/Stony Brook), 1999
Supervised visiting undergraduate student Katarzyna Niewiadomska (SUNY/Stony Brook), 2000
Supervised visiting undergraduate student Oliver Zenk (Kiel, Germany), 2000
Supervised MIT/WHOI JP student Markus Jochum's participation on NBC rings cruise, Feb 2000
Supervised visiting student Deb Slater's (Southampton) participation in glider field trials, Sep 2000
Supervised MIT/WHOI JP student David Sutherland's participation in glider field trials, Jan 2003
Supervised visiting graduate student Matthias Lankhorst (IFM-GEOMAR), 2004
Supervised undergraduate summer intern Stephanie Petillo (U. Maryland), 2006
Supervised Summer Student Fellow Michele Dufault (Yale), Summer 2010
Supervised MIT/WHOI Joint Program Ph.D. student Nick Woods, 2008-2013

Postdocs: Ben Hodges (Currently Research Associate III, WHOI); Anthony Kirincich (Currently Associate Scientist, WHOI); Nick Woods (Currently at Center for Naval Analyses, Japan).
Graduate Students: Nick Woods (principal advisor; MIT/WHOI Joint Program, Ph.D. granted 6/2013)

Instructor, College Physics II (SM-2222), Massachusetts Maritime Academy, Fall 2016
Instructor, College Physics II Lab (SM-2222L), Massachusetts Maritime Academy, Fall 2016

Editorial Service:

Editor, *Journal of Atmospheric and Oceanic Technology - Oceans,* 2010-2015
Associate Editor, *Journal of Atmospheric and Oceanic Technology – Oceans*, 2006-2010
Guest Editor, *Deep-Sea Research II* volume on Subtropical Mode Water in the Atlantic, 2010-2013.
Guest Editor, *Deep-Sea Research II* volume on AOSN-II, 2005-2008;

Reviewer for NSF, NOAA, *Journal of Geophysical Research*, *Journal of Physical Oceanography*, *Marine Biology*, *Marine Ecology Progress Series*, *Deep-Sea Research I*, *Deep-Sea Research II*, *Geophysical Research Letters*, *Journal of Atmospheric and Oceanic Technology, IEEE Journal of Ocean Engineering, Dynamics of Atmospheres and Oceans, Limnology and Oceanography: Methods, Coral Reefs,* various books.

Selected WHOI Service:
Elected Member, WHOI Scientific Staff Executive Committee, 2009-2012
WHOI Ocean Life Institute Advisory Board Member, 2011-2013
Advisory Committee, Office of Applied Oceanography, 2006-2008
Marine Operations Committee, 2000-2006
PO Department representative on ad-hoc committee to revise WHOI mentorship program, 2000
Trustees Partnership Program, 2001-2013
Working group on intellectual property issues, 2005
PO Department Space Committee (Chair), 2008-2010
PO Department Postdoctoral Mentoring Working Group, 2009
PO Department Strategic Plan Working Group, 2009

Selected Community Service:

Session Chair, AGU Fall Meeting, San Francisco, 2002
NSF OCE panelist, 2002, 2006, 2010
Steering Committee, NSF Young Investigator's Workshop on Future of Ocean Science, 2003

Session Chair, AGU Ocean Sciences Meeting, Portland, 2004
Executive committee, AOSN-II / Monterey Bay Predictive Skill Experiment, 2003-2006
Participant, NSF Autonomous and Lagrangian Platforms and Sensors (ALPS) workshop, 2004
Member of ONR working group on facilitating transition of glider technologies, 2004-2009
Featured Speaker, NSF OOI Cyberinfrastructure Workshop, 2008
Session Chair, AGU Ocean Sciences Meeting, Portland, 2010
Invited Lecturer, Shenyang Institute of Automation, Chinese National Academy of Sciences, 2010
Technical Lead, OOI/CGSN Glider Piloting Proposal Review Panel, 2013
Science Board Member, Liquid Robotics, Inc. PacX Challenge, 2011-2013
Member, CSC Advisory Board for NOAA/NDBC Technical Contract, 2013
Subject Matter Expert (Gliders), NSF OOI/CGSN, 2013
Invited Speaker, Liquid Robotics, Inc. Annual Sales Conference, 2014
Invited Speaker, Shenyang Institute of Automation, Chinese National Academy of Sciences, 2016

Selected Outreach and Development Activities:

Interviewed for print and/or television news stories by the *New York Times, San Francisco Chronicle, Discovery Channel, National Geographic, Newsweek, U.S. News and World Report, Science News, Outside Magazine*, *BBC World Service*, *NPR*, and various local papers.

Briefing of Adm. Richard West, Oceanographer of the Navy, 2000
Presentation to Naval Command College, 2000
Briefing of Adm. Jay Cohen, Chief of Naval Research, 2000
Presentation at Constitution Museum, Boston: *Robotics in Oceanography*, 2000
Presentation at DARPA Ocean Access workshop, WHOI, 2000
Briefing of Shell Oil Company executives, Boston, 2002
Presentation to Naval War College fellows, 2002
Presentation to WHOI Science Journalism fellows, 2002
Briefing of Chief of Naval Research, 2002
Presentation to WHOI Science Journalism fellows, 2003
Briefing of Jane Alexander (Head, ONR Science and Technology), 2003
Briefing of Admiral West (CORE President), 2003
Briefing of Admiral Wilson (Oceanographer of the Navy), 2003
Presentation to the President's Circle of the National Academies of Science, 2003
Briefing of Donald Schregardus (Deputy Assistant Secretary of the Navy, Environment), 2004
Briefing of Fred Hiatt (Editorial page editor, Washington Post), 2004
Briefing of Frank Press (Former President of National Academy of Science), 2004
Briefing of Dan Golden (Former Head of NASA), 2004
Briefing of Adm. Tim McGee (Chief, Naval Meteorology and Oceanography), 2005
Briefing of SDVT-1, COMSUBPAC, Pearl Harbor, 2005
Presentation at ONR Equipment Expo, Scripps Institution of Oceanography, 2005
Briefing of visiting DARPA program managers, 2006
Briefing of Eng Soon Chan, Tropical Marine Science Institute, Singapore, 2007
Briefing of Richard Simmons, Director Code N9, U.S. Navy, 2007
Briefing of Adm. Patrick Brady (Commanding Officer, NUWC), 2007
Presentation to staffers of House Armed Services Committee, 2008
Briefing of Adm. David Gove (Oceanographer of the Navy), 2008

Host of an uncountable number of additional lab visits for groups including NSF/OOI, Navy, Coast Guard, DHS, DARPA, NOAA Fisheries, and various private donors and foundations, 2008-2013.

Participation at Sea in Major Field Programs:

Year	*Vessel*	*Region*	*Program/Research Topic*
1988	*Moana Wave*	Western Pacific	Western Pacific Ocean Circulation Study (WEPOCS III)
1989	*Calanus*	Bahamas	Wind wave generation in the Bight of Abaco
1990	*M. Baldrige*	W. Atlantic	Western Atlantic Thermohaline Transport Study (WATTS)
1991	*C. Iselin*	Caribbean	Ventilation of the abyssal Caribbean (CaribVent I)
1992	*C. Iselin*	Caribbean	Ventilation of the abyssal Caribbean (CaribVent II)
1992	*M. Baldrige*	Atlantic	Hydrographic observations along 24N (TRIDENT)
1993	*M. Baldrige*	W. Atlantic	Hydrographic observations (ACCP)
1993	*HMBS Trident*	Caribbean	Windward Islands Passages Program (WIPP)
1994	*M. Baldrige*	Caribbean	Windward Islands Passages Program (WIPP)
1995	*M. Baldrige*	E. Indian	Ocean-Atmosphere Carbon Exchange (OACES) and WOCE
1997	*S. Johnson*	South Atlantic	Benguela Current Experiment
1998	*S. Johnson*	Trop. Atlantic	North Brazil Current Rings Experiment
1999	*S. Johnson*	Trop. Atlantic	North Brazil Current Rings Experiment (Chief Scientist)
2000	*S. Johnson*	Trop. Atlantic	North Brazil Current Rings Experiment (Chief Scientist)
2000	*Endeavor*	W. Atlantic	Glider prototype sea trials (Chief Scientist)
2001	*Knorr*	Gulf of Aden	Red Sea Outflow Experiment (REDSOX)
2002	*Asterias*	Buzzards Bay	Glider field trials and system development (Chief Scientist)
2003	*Walton Smith*	Bahamas	Thermal glider development trials (Chief Scientist)
2003	*Asterias*	Buzzards Bay	Glider field trials and system development (Chief Scientist)
2003	*Weatherbird II*	Bermuda	SALP mooring recovery (Chief Scientist)
2003	Various	Monterey Bay	AOSN-II glider operations
2005	*Tioga*	Buzzards Bay	Sensor development (Chief Scientist)
2005	*Tioga*	Gulf of Maine	Right Whale ecology studies (Chief Scientist)
2005	Various	Monterey Bay	LOCO glider operations
2005	*Oceanus*	W. Atlantic	CLIMODE mooring installation (co-Chief Scientist)
2006	*Atlantis*	W. Atlantic	CLIMODE bobber deployments
2006	*Tioga*	Gulf of Maine	Right Whale ecology studies (Chief Scientist)
2006	*Thompson*	Monterey Bay	LOCO glider operations and hydrography
2006	Various	Santa Cruz	LOCO and ASAP glider operations
2007	*Knorr*	W. Atlantic	CLIMODE hydrography and bobber deployment
2008	*Oceanus*	W. Atlantic	CLIMODE mooring recovery (Chief Scientist)
2008	Various	St. Thomas	Deep glider trials and sustained transport measurements
2008	Various	N.E. Shelf	New England Shelf Transects (NEST) glider operations
2008	*Oceanus*	NE Caribbean	KAUST high-res surveys (Chief Scientist)
2009	*Connecticut*	Gulf of Maine	Right Whale ecology studies (Chief Scientist)
2010	*Tioga*	Gulf of Maine	Right Whale ecology studies (Chief Scientist)
2011	*Auk*	Gulf of Maine	Right Whale ecology studies (Chief Scientist)
2011	*Sproul*	SCOR Range	Autonomous Detection of Beaked Whales from Gliders
2012	*Knorr*	Trop. Atlantic	Salinity Processes in the Upper Ocean (SPURS-1)
2013	*Endeavor*	Trop. Atlantic	SPURS-1 (Chief Scientist)
2016	*Shana Rae*	Monterey Bay	Keck Institute for Space Studies Mobile Autonomy
2017	*Shana Rae*	Monterey Bay	Keck Institute for Space Studies Mobile Autonomy
2017	*Shana Rae*	Monterey Bay	NASA SWOT Cal/Val Glider Pilot Study (Chief Scientist)
2019	*Kai Holo Pono*	Kona, Hawaii	Seatrec/Sea-Bird Navis-SL1 Field Trials (Chief Scientist)
2020	*Hazel Quinn*	Kona, Hawaii	Seatrec Navis-SL1 Field Trials (Chief Scientist)

Refereed Publications:

1. Johns, W. E., D. M. Fratantoni, and R. J. Zantopp, 1993. Deep western boundary current variability off northeastern Brazil. *Deep-Sea Research I*, **40**(2), 293–310.

2. Fratantoni, D. M., W. E. Johns, and T. L. Townsend, 1995. Rings of the North Brazil Current: Their structure and behavior inferred from observations and a numerical simulation. *Journal of Geophysical Research*, **100**(C6), 10,633–10,654.

3. Fratantoni, D. M., and W. E. Johns, 1996. A deep-towed ADCP-CTD instrument package for abyssal overflow measurements in the northeastern Caribbean Sea. *Journal of Atmospheric and Oceanic Technology*, **13**(3), 680–687.

4. Fratantoni, D. M., R. J. Zantopp, W. E. Johns, and J. L. Miller, 1997. Updated bathymetry of the Anegada–Jungfern Passage complex and implications for Atlantic inflow to the abyssal eastern Caribbean Sea. *Journal of Marine Research*, **55**(5), 847–860.

5. Fratantoni, D. M., and P. L. Richardson, 1999. SOFAR Float observations of an intermediate-depth eastern boundary current and mesoscale variability in the eastern tropical Atlantic Ocean. *Journal of Physical Oceanography*, **29**(6), 1265–1278.

6. Garzoli, S. L., P. L. Richardson, C. M. Duncombe-Rae, D. M. Fratantoni, G. J. Goñi, and A. J. Roubicek, 1999. Three Agulhas Rings observed during the Benguela Current Experiment. *Journal of Geophysical Research*, **104**(C9), 20,971–20,986.

7. MacCready, P., W. E. Johns, C. G. Rooth, D. M. Fratantoni, and R. A. Watlington, 1999. Overflow into the deep Caribbean: Effects of plume variability. *Journal of Geophysical Research*, **104**(C11), 25,913–25,936.

8. Richardson, P. L., and D. M. Fratantoni, 1999. Float trajectories in the Deep Western Boundary Current and deep equatorial jets of the tropical Atlantic. *Deep-Sea Research II*, **46**(1-2), 305–333.

9. Fratantoni, D. M., W. E. Johns, T. L. Townsend, and H. E. Hurlburt, 2000. Low-latitude circulation and mass transport pathways in a model of the tropical Atlantic Ocean. *Journal of Physical Oceanography*, **30**(8), 1944–1966.

10. Fratantoni, D. M., 2001. North Atlantic surface circulation during the 1990's observed with satellite-tracked drifters. *Journal of Geophysical Research*, **106**(C10), 22,067–22,093.

11. Bower, A. S., D. M. Fratantoni, W. E. Johns, and H. Peters, 2002. Gulf of Aden eddies and their impact on Red Sea Water. *Geophysical Research Letters*, **29**, 2025, doi: 10.1029/2002 GL015342.

12. Fratantoni, D. M., and D. A. Glickson, 2002. North Brazil Current ring generation and evolution observed with SeaWiFS. *Journal of Physical Oceanography*, **32**, 1058–1074.

13. Johns, W. E., T. L. Townsend, D. M. Fratantoni, and W. D. Wilson, 2002. On the Atlantic inflow to the Caribbean Sea. *Deep-Sea Research*, **49**, 211–243.

14. Rudnick, D. L., R. E. Davis, C. C. Eriksen, D. M. Fratantoni, and M. J. Perry, 2004. Underwater Gliders for Ocean Research. *Journal of Marine Technology Society*, **38**(1), 48–59.

15. Bower, A. S., W. E. Johns, D. M. Fratantoni, and H. Peters, 2005. Equilibration and circulation of Red Sea Outflow Water in the western Gulf of Aden. *Journal of Physical Oceanography*, **35**, 1963−1985.

16. Cenedese, C., C. Adduce, and D. M. Fratantoni, 2005. Laboratory experiments on mesoscale vortices interacting with two islands. *Journal of Geophysical Research – Oceans,* **110**, C0923, doi: 10.1029/2005JC002734.

17. Fiorelli, E., N. E. Leonard, P. Bhatta, D. Paley, R. Bachmayer, and D. M. Fratantoni, 2005. Multi-AUV control and adaptive sampling in Monterey Bay. *IEEE Journal of Oceanic Engineering*, **31**(4), 935−948.

18. Peters, H., W. E. Johns, A. S. Bower, and D. M. Fratantoni, 2005. Mixing and entrainment in the Red Sea outflow plume, I: Plume structure. *Journal of Physical Oceanography*, **35**(5), 569−583.

19. Fratantoni, D. M., A. S. Bower, W. E. Johns, and H. Peters, 2006. Somali Current rings in the eastern Gulf of Aden. *Journal of Geophysical Research - Oceans*, **111**, C09039, doi:10.1029/2005JC003338.

20. Fratantoni, D. M., and P. L. Richardson, 2006. The evolution and demise of North Brazil Current Rings. *Journal of Physical Oceanography*, **36**, 1241−1264.

21. Ollitrault, M., M. Lankhorst, D. Fratantoni, P. Richardson, and W. Zenk, 2006. Zonal intermediate currents in the equatorial Atlantic Ocean. *Geophysical Research Letters*, 33, L05605, doi:10.1029/2005GL025368.

22. Leonard, N. E., D. Paley, F. Lekien, R. Sepulchre, D. M. Fratantoni, and R. Davis, 2007. Collective motion, sensor networks and ocean sampling. *Proceedings of the IEEE*, **95**(1), 1−27.

23. Zhang, F., D. M. Fratantoni, D. Paley, N. E. Leonard, and J. M. Lund, 2007. Control of coordinated patterns for ocean sampling. *International Journal of Control*, special issue on Navigation, Guidance and Control of Uninhabited Underwater Vehicles, Vol. 80, No. 7, July 2007, pp. 1186-1199

24. Baumgartner, M. F., and D. M. Fratantoni, 2008. Diel periodicity in both sei whale vocalization rates and the vertical migration of their copepod pray observed from ocean gliders. *Limnology and Oceanography* special issue on Autonomous and Lagrangian Platforms and Sensors. *Limnol. Oceanogr*., **53**(5, part 2), 2008, 2197-2209.

25. Chao, Y., Z. Li, J. Farrara, J. C. McWilliams, J. Bellingham, X. Capet, F. Chavez, J.-K. Choi, R. Davis, J. Doyle, D. Fratantoni, P. Li, P. Marchesiello, M. A. Moline, J. Paduan, and S. Ramp, 2008. Development, implementation, and evaluation of a data-assimilative ocean forecasting system off the central California coast. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2008.08.011.

26. Davis, R. E., N. Leonard, and D. M. Fratantoni, 2008. Routing strategies for underwater gliders. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2008.08.005.

27. Fratantoni, D. M., and S. H. D. Haddock, 2008. Introduction to the Autonomous Ocean Sampling Network (AOSN) program. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2008.09.004.

28. Ramp, S. R., R. E. Davis, N. E. Leonard, I. Shulman, Y. Chao, A. R. Robinson, J. Marsden, P. F. J. Lermusiaux, D. Fratantoni, J. D. Paduan, F. P. Chavez, F. L. Bahr, S. Liang, W. Leslie, and Z. Li, 2008. Preparing to predict: The Second Autonomous Ocean Sampling Network (AOSN-II) experiment in the Monterey Bay. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2008.08.013.

29. Shulman, I., C. Rowley, S. Anderson, S. DeRada, J. Kindle, P. Martin, J. Doyle, J. Cummings, S. Ramp, F. Chavez, D. Fratantoni, and R. Davis, 2008. Impact of glider data assimilation on the Monterey Bay model. *Deep-Sea Research II*, doi:10.1016/j.dsr2.2008.08.003.

30. Lankhorst, M., D. M. Fratantoni, M. Ollitrault, P. Richardson, U. Send, and W. Zenk, 2008. The mid-depth circulation of the northwestern tropical Atlantic observed by floats. *Deep-Sea Research*, doi:10.1016/j.dsr.2009.06.002.

31. Hodges, B. A. and D. M. Fratantoni, 2009. A thin layer of phytoplankton observed in the Philippine Sea with a synthetic moored array of autonomous gliders. Journal of Geophysical Research - Oceans, 114, doi:10.1029/2009JC005294.

32. The CLIMODE group (23 authors), 2009. Observing the cycle of convection and restratification over the Gulf Stream system and the subtropical gyre of the North Atlantic Ocean: preliminary results from the CLIMODE field campaign. *Bull. Amer. Met. Soc.*, 90(9), 1337-1350.

33. Leonard, N. E., D. A. Paley, R. E. Davis, D. M. Fratantoni, F. Lekien, and F. Zhang, 2010, Coordinated Control of an Underwater Glider Fleet in an Adaptive Ocean Sampling Field Experiment in Monterey Bay. *Journal of Field Robotics*, 27, 718-740.

34. Fratantoni, D. M., Y.-O. Kwon, and B. A. Hodges, 2013. Direct Observation of Subtropical Mode Water Circulation in the Western North Atlantic Ocean. *Deep-Sea Research II,* 91, 35-56.

35. Baumgartner, M. F., D. M. Fratantoni, T. Hurst, M. W. Brown, T. V. N. Cole, S. M. Van Parijs, and M. P. Johnson, 2013. Real-time reporting of baleen whale passive acoustic detections from ocean gliders. *Journal of the Acoustical Society of America*, 134, 1814-1823.

36. Hodges, B. A. and D. M. Fratantoni, 2014, AUV Observations of the Diurnal Surface Layer in the North Atlantic Salinity Maximum. *Journal of Physical Oceanography,* 44(6), 1595-1604.

37. Fratantoni, D. M., 2014, Environmentally-adaptive deployment of Lagrangian instrumentation using the Submerged Autonomous Launch Platform (SALP). *Marine Technology Society Journal*, 48(1), 66-75.

38. Baumgartner, M., K. Stafford, P. Winsor, H. Statscewich, and D. Fratantoni, 2014. Glider-Based Passive Acoustic Monitoring in the Arctic. *Marine Technology Society Journal*, 48(5), 40-51.

39. Farrar, J.T., L. Rainville, A.J. Plueddemann, W.S. Kessler, C. Lee, B.A. Hodges, R.W. Schmitt, J.B. Edson, S.C. Riser, C.C. Eriksen, and D.M. Fratantoni. 2015. Salinity and temperature balances at the SPURS central mooring during fall and winter. *Oceanography* 28(1):56–65, http://dx.doi.org/10.5670/oceanog.2015.06.

40. Fratantoni, D. M., J. K. O'Brien, C. Flagg, and T. Rossby. 2017. AXIS: An Autonomous Expendable Instrument System. *Journal of Atmospheric and Oceanic Technology*, 34, 2673-2682.

41. Lindstrom, Eric J., Andrey Y. Shcherbina, Luc Rainville, J. Thomas Farrar, Luca R. Centurioni, Shenfu Dong, Eric A. D'Asaro, Charles Eriksen, David M. Fratantoni, Benjamin A. Hodges, Verena Hormann, William S. Kessler, Craig M. Lee, Stephen C. Riser, Louis St. Laurent, and Denis L. Volkov. "Autonomous Multi-Platform Observations During the Salinity Processes in the Upper-ocean Regional Study." *Oceanography* 30, no. 2 (2017): 38-48. http://www.jstor.org/stable/26201845.

42. Branch A, Clark E.B., Chien S, et al., 2018, Front delineation and tracking with multiple underwater vehicles. *J Field Robotics*. 2018;1–19. https://doi.org/10.1002/rob.21853

43. E. B. Clark *et al*., 2019, Station-Keeping Underwater Gliders Using a Predictive Ocean Circulation Model and Applications to SWOT Calibration and Validation, *IEEE Journal of Oceanic Engineering*. doi: 10.1109/JOE.2018.2886092

Non-refereed Publications:

1. Fratantoni, D. M., and W. E. Johns, 1991. Development and initial applications of a deep-towed ADCP/CTD package for oceanic bottom boundary layer studies. *Proceedings of Oceans '91, October 1–3, 1991, Honolulu, HI* (paper).

2. Fratantoni, D. M., and W. E. Johns, 1993. The structure and dynamics of North Brazil Current retroflection eddies. *Third Scientific Meeting of The Oceanography Society, April 1991, Seattle, WA* (abstract).

3. Fratantoni, D. M., W. E. Johns, T. L. Townsend, and H. E. Hurlburt, 1994. Rings of the North Brazil Current: Blending observations with a realistic numerical simulation. *Eos, Transactions American Geophysical Union*, **75**(3), 225. Poster presentation at *AGU Ocean Sciences Meeting, February 1994, San Diego, CA*.

4. Johns, W. E., D. M. Fratantoni, T. L. Townsend, and H. E. Hurlburt, 1994. Modeling the equatorial Atlantic circulation: Recent results from the NRL Atlantic Basin model compared with observations. *Eos, Transactions American Geophysical Union*, **75**(3), 72. Poster presentation at *AGU Ocean Sciences Meeting, February 1994, San Diego, CA*.

5. Fratantoni, D. M., C. Rooth, and T. L. Townsend, 1995. Near-surface response of the tropical Atlantic Ocean to variations in meridional overturning cell amplitude. Poster presentation at the *Fourth Scientific Meeting of The Oceanography Society, April 18–21, 1995, Newport, RI.*

6. Johns, W. E., D. M. Fratantoni, and T. L. Townsend, 1995. Modeled inflow variability through the eastern Caribbean passages. *American Geophysical Union, Chapman Conference on Circulation of the Intra Americas Sea, January 22–27, 1995, La Parguera, Puerto Rico* (abstract).

7. Fratantoni, D. M., 1996. Modeling mass transport pathways in the tropical Atlantic Ocean: Experiments with synthetic drifters and tracers. *Eos, Transactions, American Geophysical Union*, **76**(3), 98. Poster presentation at *AGU Ocean Sciences Meeting, February 1996, San Diego, CA*.

8. Johns, W. E., D. M. Fratantoni, T. L. Townsend, and W. D. Wilson, 1996. Thermohaline return flow pathways in the tropical Atlantic and Caribbean. Presentation at the *Atlantic Climate Change Program Principal Investigators Meeting, May 15, 1996, Woods Hole, MA* (abstract).

9. Duncombe-Rae, C. M., S. L. Garzoli, P. L. Richardson, and D. M. Fratantoni, 1998. Hydrography of some rings in the southeast Atlantic Ocean. *Eos, Transactions, American Geophysical Union*, **79**(24), 131. Poster presentation at *AGU Ocean Sciences Meeting, February 1998, San Diego, CA*.

10. Fratantoni, D. M., P. L. Richardson, C. M. Duncombe-Rae, and S. L. Garzoli, 1998. Three rings in the eastern South Atlantic. *Eos, Transactions, American Geophysical Union*, **79**(24), 131. Poster presentation at the *AGU Ocean Sciences Meeting, February 1998, San Diego, CA*.

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53. Fratantoni, D. M., B. A. Hodges, and J. M. Lund, 2008. Autonomous Investigation of Thin Phytoplankton Layers and Their Physical Context. *AGU* Ocean Sciences Meeting, March 2-7, 2008.

54. Fratantoni, D. M., T. K. McKee, J. M. Lund, B. A. Hodges, and F. Straneo, 2008. Direct Observations of Eighteen Degree Water Formation and Dispersal in the North Atlantic using Acoustically-Tracked Bobbing Floats and Subsurface Profiling Moorings. *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS23F-03.

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57. Lund, J. M., P. S. Fratantoni, B. A. Hodges, D. M. Fratantoni, 2008. Exploring the Feasibility of Glider-Based Transport, Stratification, and Ecology Measurements on the New England Shelf Between MVCO and Line W. *AGU* Ocean Sciences Meeting, March 2-7, 2008.

58. Sutor, M. M., D. M. Fratantoni., and M. Alford, 2008. The Use of Glider-Mounted Acoustics and In-Situ Imaging Systems to Resolve Spatial and Temporal Distributions of Zooplankton Layers in Monterey Bay, CA. *AGU* Ocean Sciences Meeting, March 2-7, 2008.

59. Woods, N. W., D. M. Fratantoni, B. A. Hodges, and J. M. Lund, 2008. Thin Phytoplankton Layer Variability in Monterey Bay. *Eos Trans. AGU*, Fall Meet. Suppl., Abstract OS43C-1302.

60. Park, J., Y. Kwon, and D. M. Fratantoni, 2010. Ageostrophic features of coherent mesoscale vortices in the subtropical North Atlantic. AGU Ocean Sciences Meeting, Portland, OR, Feb 22-26, 2010.

61. Fratantoni, D. M., 2010. Environmentally-Adaptive Deployment of Lagrangian Instrumentation using a Submerged Autonomous Launch Platform. AGU Ocean Sciences Meeting, Portland, OR, Feb 22-26, 2010.

62. Baumgartner, M.F. and D.M. Fratantoni. 2010. Monitoring right whale distribution and habitat in the Outer Fall region west of Jordan Basin during late autumn with autonomous vehicles. North Atlantic Right Whale Consortium Meeting. New Bedford, Massachusetts. November 3-4, 2010.

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64. Fratantoni, D.M., Y.-O. Kwon, and J.J. Park. Direct observation of subtropical mode water circulation in the North Atlantic. IUGG General Assembly, Melbourne, Australia, July 2011.

65. Fratantoni, D. M. The Autonomous eXpendable Instrument System (AXIS). IUGG General Assembly, Melbourne, Australia, July 2011.

66. Hurst, T.P., M. Johnson, M.F. Baumgartner, D.M. Fratantoni, and K.A. Shorter, 2011. DMON as the basis of a low power, low noise passive acoustic detection and monitoring system. 19th Biennial Conference on the Biology of Marine Mammals. The Society for Marine Mammalogy. Tampa, Florida, USA. November 27 – December 2, 2011.

67. Fratantoni, D.M., Y-O. Kwon, and B.A. Hodges, 2012. Direct Observation of Subtropical Mode Water Formation in the Western North Atlantic Ocean. Poster presentation at AGU Ocean Sciences Meeting, Salt Lake City, UT

68. Woods, N. W., D. M. Fratantoni, M. F. Baumgartner, R. Ji, and R. He, 2012. Physical Controls on Dense Copepod Aggregations in the Great South Channel. Poster presentation at AGU Ocean Sciences Meeting, Salt Lake City, UT

69. Park, J.J., D. M. Fratantoni, Y.-O. Kwon, and M.S. Lozier, 2012. Patchiness Length Scale of Eighteen Degree Water. Poster presentation at AGU Ocean Sciences Meeting, Salt Lake City, UT

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Classification, Localization, and Density Estimation (DCLDE) of Marine Mammals using Passive Acoustics, University of St. Andrews, Scotland, June 2013.

71. Fratantoni, D.M., A. Gellers, and N. Sharma, 2014. On the oceanography of Brazil's equatorial margin: Hazardous offshore currents and strategies for mitigation. Paper and oral presentation at *Rio Oil & Gas Expo and Conference 2014*, September, 15-18, 2014, Rio de Janeiro, Brazil.

72. Fratantoni, D.M. et al. (19 authors), 2018. Towards Fully Autonomous Ocean Observing: Coupling Heterogeneous Robotic Arrays with Data-Assimilating Models and Autonomous Path Planning. AGU Ocean Sciences Meeting, Portland, OR.

73. Chao, Y., D. M. Fratantoni, et al. (18 authors), 2018. Monterey Bay Field Experiment to Support SWOT In Situ Validation. AGU Ocean Sciences Meeting, Portland, OR.

74. Hodges, B., R. Schmitt, and D.M. Fratantoni, 2018. Nocturnal convection observed from Wave Gliders. AGU Ocean Sciences Meeting, Portland, OR.

Technical Reports and Thesis:

1. Fratantoni, D. M., 1996. On the pathways and mechanisms of upper-ocean mass transport in the tropical Atlantic Ocean. Rosenstiel School of Marine and Atmospheric Science, *Technical Report 96-006*, University of Miami, 250 pp.

2. Roubicek A., S. L. Garzoli, P. L. Richardson, C. M. Duncombe-Rae, and D. M. Fratantoni, 1998. Benguela Current Experiment Data Report: R/V *Seward Johnson* cruise SJ9705. *NOAA Technical Report ERL, AOML-33*, Atlantic Oceanographic and Meteorological Laboratory.

3. Fleurant, C., D. Wilson, W. Johns, S. Garzoli, R. Smith, D. Fratantoni, P. Richardson, and G. Goni, 2000. CTD/O2, LADCP and XBT measurements collected aboard the R/V Seward Johnson, December 1998: North Brazil Current Rings Experiment Cruise 1 (NBC-1). *NOAA Data Report*, OAR AOML-39, 274 pp.

4. Fleurant, C., D. Wilson, W. Johns, S. Garzoli, R. Smith, D. Fratantoni, P. Richardson, and G. Goni, 2000. CTD/O2, LADCP and XBT measurements collected aboard the R/V Seward Johnson, February–March 1999: North Brazil Current Rings Experiment Cruise 2 (NBC-2). *NOAA Data Report*, OAR AOML-37, 291 pp.

5. Fleurant, C., D. Wilson, W. Johns, S. Garzoli, R. Smith, D. Fratantoni, P. Richardson, and G. Goni, 2000. CTD/O2, LADCP and XBT measurements collected aboard the R/V Seward Johnson, February–March 2000: North Brazil Current Rings Experiment Cruise 3 (NBC-3). *NOAA Data Report*, OAR AOML-38, 251 pp.

6. Glickson, D. A., D. M. Fratantoni, C. M. Wooding, and P. L. Richardson, 2000. North Brazil Current Rings Experiment: Surface drifter data report, November 1998–June 2000. *Woods Hole Oceanographic Institution Technical Report*, WHOI-00-10, 129 pp.

7. Glickson, D. A., and D. M. Fratantoni, 2001. North Brazil Current Rings Experiment: Mooring S1 Data Report, November 1998–June 2000. *Woods Hole Oceanographic Institution Technical Report*, WHOI-2001-06, 53 pp.

8. Johns, W., H. Peters, R. Zantopp, A. Bower, and D. Fratantoni, 2001. CTD/O2 measurements collected aboard the R/V Knorr, February–March 2001: REDSOX-1. University of Miami, Rosenstiel School of Marine and Atmospheric Science, *Technical Report* 2001-01, 499 pp.

9. Wooding, C. M., P. L. Richardson, M. A. Pacheco, D. A. Glickson, and D. M. Fratantoni, 2002. North Brazil Current Rings Experiment: RAFOS Float Data Report November 1998–June 2000. *Woods Hole Oceanographic Institution Technical Report*, WHOI-2002-08, 88 pp.

10. Furey, H. H., A. S. Bower, and D. M. Fratantoni, 2005. Red Sea Outflow Experiment (REDSOX): DLD2 RAFOS Float Data Report February 2001-March 2003. *Woods Hole Oceanographic Institution Technical Report*, WHOI-2005-01, 141 pp.

11. Hutto, L., R. Weller, D. Fratantoni, J. Lord, J. Kemp, J. Lund, E. Brambilla, and S. Bigorre, 2006. CLIVAR Mode Water Dynamics Experiment (CLIMODE) Fall 2005 R/V *Oceanus* Voyage 419, November 9, 2005–November 27, 2005. *Woods Hole Oceanographic Institution Technical Report*, WHOI-2006-07, 71 pp.

12. Kirincich, A., B. Hodges, D. Fratantoni, and F. Bahr, 2009. OC449-09 Data Report: St. Thomas, USVI to Bermuda. December 1-10, 2008. *Woods Hole Oceanographic Institution Collaborative Technical Report*, WHOI-KAUST-CTR-2009-03, 152pp.

13. Fratantoni, D. M., T. K. McKee, B. A. Hodges, H. H. Furey, and J. M. Lund, 2010. CLIMODE Bobber Data Report: July 2005-May 2009. *Woods Hole Oceanographic Institution Technical Report* WHOI-2010-03, 154 pp.

14. Hodges, B.A., and D. M. Fratantoni, 2013. Ecomapper Operations - KN209-1. *Woods Hole Oceanographic Institution Technical Report* WHOI-2013-01, 46 pp.

Significant Research Funding as PI or co-PI (2002--)

Awards made before 2002, supplemental awards and awards totaling less than $50,000 are excluded from this list.

As Scientist at Woods Hole Oceanographic Institution

1. North Brazil Current Rings Experiment Synthesis (2002, NSF, $319,860)

2. Development of Oceanographic Sampling Networks Using Autonomous Gliding Vehicles (2002, ONR, $395,626)

3. An Autonomous Glider Network for the Monterey Bay Predictive Skill Experiment / AOSN-II (2002, ONR, $1,302,203)

4. Demonstration of WHOI Glider Fleet Operations in the Tropical Western Pacific for the Naval Oceanographic Office (2002, ONR, $276,945)

5. Observing Subtropical Gyre Variability with a Network of Environmentally-Propelled Autonomous Gliders (2003, Grayce B. Kerr Fund, $500,000)

6. Optimal Asset Distribution for Environmental Assessment and Forecasting Based on Observations, Adaptive Sampling, and Numerical Prediction (2004, ONR, $747,819)

7. CLIMODE: CLIVAR Mode Water Dynamics Experiment (2004, NSF, $2,163,496)

8. Instrumentation in Support of Autonomous Glider Operations (2005, ONR, $375,000)

9. Research on Operational Aspects of Large Autonomous Underwater Glider Fleets (2005, ONR, $99,988)

10. Advanced Development Associated with the Glider Technology Transition Initiative (2005, ONR via subcontract from U. Washington, $141,243)

11. The Physical Context for Thin Layers in the Coastal Ocean: Analysis and Synthesis (2006, ONR, $735,072)

12. Exploring the Feasibility of Glider-Based Transport, Stratification, and Ecology Measurements on the New England Shelf Between MVCO and Line W (2006, WHOI Access-to-the-Sea Award, $101,717)

13. Detection and Classification of Baleen Whale Vocalizations from Autonomous Platforms (2007, ONR, $250,074)

14. Development of a Mobile, Autonomous, Broadband Passive Acoustic Monitoring System for Marine Mammals (2008, ONR, $1,110,427)

15. An Autonomous Expendable Instrument System (2010, NSF, $496,897)

16. Evolution and Fate of Eighteen Degree Water in the North Atlantic Subtropical Gyre (2010, NSF, $1,073,639)

17. Beta Testing of Persistent Passive Acoustic Monitors (2010, ONR, $381,339)

18. Multiscale Autonomous Surveys in Support of SPURS (2011, NASA, $1,700,000)

19. Autonomous Gliders for Real-Time Passive Acoustic Remote Sensing (2010, NOAA ASTWG, $90,000)

20. Development of a RAFOS Ocean Acoustic Monitoring (ROAM) Tag: A New Tool for Tracking Marine Megafauna (2010, WHOI Interdisciplinary Award, $99,917)

21. Real-Time Assessment of Baleen Whale Occurrence Using Moored Passive Acoustics (2012, NOAA, $190,764)

22. Environmental Influences of Diel Calling Behavior in Baleen Whales (2012, ONR, $496,641)

As Chief Science Officer/COO and SVP Research and Development at Seatrec, Inc.

23. An Environmentally-Powered Underwater Glider for Ocean Research (2016, Schmidt Marine Technology Partners, $150,000)

24. Development of Ocean Thermal Energy Systems (2018, ONR SBIR Phase II, $999,817)

25. Clean Energy from Air-Sea Temperature Differences (2018, NOAA SBIR Phase I, $120,000)

26. SLX Thermal Engine Pod (2019, subcontract to Northrop Grumman Corp. in support of DARPA rapid development program, $ confidential)

27. Demonstration of a thermally-powered underwater glider to support ocean exploration (2019, subcontract from Rutgers University, $50,000)

28. Air-Sea Thermal Energy Harvesting on an Arctic Buoy (2020, ONR STTR Phase I, $139,761)