

Filipa Carvalho

Ocean Biogeochemistry and Ecosystems
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RESEARCH INTERESTS

Biophysical interactions, autonomous oceanography, gliders, ocean dynamics, ocean optics, biological carbon pump, remote sensing, polar ecosystems, integrated ocean observatories

EDUCATION

- 2017 **PhD**, Oceanography, Rutgers University, United States.
Title: *Coupled physical and phytoplankton dynamics in coastal Antarctica*
(Advisors: Prof. Oscar Schofield and Prof. Josh Kohut).
- 2009 **MS** (no thesis, Specialized Studies), Integrated Ocean Studies, University of the Azores, Portugal
(Advisor: Dr. Ana Martins)
- 2009 **MS**, Fisheries and Aquaculture, University of Lisbon, Portugal.
Title: *Morphology of Fish Eggs: a comparative method for different salinities and preservatives*
(Adviser: Dr. Luis Narciso)
- 2007 **LIC** (Pre-Bologna), Environmental Marine Biology, University of Lisbon, Portugal

APPOINTMENTS

- | | |
|----------------|--|
| 2017 - Present | Postdoctoral Researcher, National Oceanography Centre (UK) |
| 2018 - Present | Visiting Scientist, University of Southampton (UK) |
| 2017 | Postdoctoral Research Associate, Rutgers University (USA) |
| 2015 - 2016 | Graduate Teaching Assistant, Rutgers University (USA) |
| 2011 - 2017 | Graduate Research Assistant, Rutgers University (USA) |
| 2009 - 2011 | Research Assistant, Dept of Oceanography and Fisheries, Univ. Azores (PT) |
| 2007 - 2008 | Graduate Research Assistant, Guia Marine Laboratory, University of Lisbon (PT) |

FELLOWSHIPS, AWARDS, and HONORS

- 2019: National Oceanography Centre DST Early Career Award for Science (£1000)
- 2019: Ocean Obs'19 Travel Grant Award (~\$3000)
- 2017: Graduate School of New Brunswick Travel Grant Award (\$250)
- 2016: NSF SCAR OSC Travel Grant Award (\$2250)
- 2015 - 2017: Teledyne Marine Graduate Research Fellowship
- 2011 - 2015: Doctoral Grant, Foundation for Science and Technology, Portugal (~ 100,000 €)
- 2011: Antarctic Service Medal
- 2010: EMS Young Scientist Travel Award, European Meteorological Society (250 €)
- 2009: Saldanha/Tenore Fellowship, Luso-American Foundation, FLAD (~3500 €)

PUBLICATIONS

MANUSCRIPTS (PEER-REVIEWED)

Carvalho, F., J. Fitzsimmons, N. Couto, N. Waite, M. Gorbunov, J. Kohut, M.J. Oliver, R. Sherrell, O. Schofield, 2019. Testing the Canyon Hypothesis: Evaluating light and nutrient controls of phytoplankton growth in penguin foraging hotspots along the West Antarctic Peninsula. *Limnology and Oceanography*, doi:[10.1002/lno.11313](https://doi.org/10.1002/lno.11313).

Oliver, M. J., J. T. Kohut, K. Bernard, W. Fraser, P. Winsor, H. Statscewich, E. Fredj, M. Cimino, D. Patterson-Fraser, and F. Carvalho (2019), Central place foragers select ocean surface convergent features despite differing foraging strategies, *Scientific Reports*, 9(1), 157, doi:[10.1038/s41598-018-35901-7](https://doi.org/10.1038/s41598-018-35901-7).

Laber, C., J. Hunter, **F. Carvalho**, J. Collins, B. Schieler, E. Boss, K. More, M. Frada, K. Thamatrakoln, C. Brown, L. Haramaty, J. Ossolinski, H. Fredricks, U. Sheyn, Y. Lehahn, A. Martins, M. Coolen, A. Vardi, G. DiTullio, B. Van Mooy, and K. Bidle (2018). Coccolithovirus stimulation of carbon export in the North Atlantic. *Nature Microbiology*, 3(5), 537-547, doi:[10.1038/s41564-018-0128-4](https://doi.org/10.1038/s41564-018-0128-4).

Schofield, O., G. Saba, K. Coleman, **F. Carvalho**, N. Couto, H. Ducklow, Z. Finkel, A. Irwin, A. Kahl, T. Miles, M. Montes-Hugo, S. Stammerjohn, N. Waite (2017), Decadal variability in coastal phytoplankton community composition in a changing West Antarctic Peninsula, *Deep Sea Res Part 1 Oceanogr Res Pap*, 124, 42-54, doi: [10.1016/j.dsr.2017.04.014](https://doi.org/10.1016/j.dsr.2017.04.014).

Carvalho, F., J. Kohut, M. J. Oliver, and O. Schofield (2017), Defining the ecologically relevant mixed-layer depth for Antarctica's coastal seas, *Geophys. Res. Lett.*, 44, 338–345, doi:[10.1002/2016GL071205](https://doi.org/10.1002/2016GL071205).

Kohut, J. T., A. Kustka, M. Hiscock, P. Lam, C. Measures, A. Milligan, A. White, **F. Carvalho**, M. Hatta, B. Jones, D. Ohnemus, J. Swartz (2017), Mesoscale variability of the summer bloom over the northern Ross Sea shelf: A tale of two banks, *Journal of Marine Systems*, 166, 50-60, doi: [10.1016/j.jmarsys.2016.06.009](https://doi.org/10.1016/j.jmarsys.2016.06.009).

Carvalho, F., J. Kohut, M. J. Oliver, R. M. Sherrell, and O. Schofield (2016), Mixing and phytoplankton dynamics in a submarine canyon in the West Antarctic Peninsula, *J. Geophys. Res. Oceans*, 121, 5069–5083, doi:[10.1002/2016JC011650](https://doi.org/10.1002/2016JC011650).

Penha-Lopes, G., J. Marques, M.C. Leal, **F. Carvalho**, J. Paula (2012), Population structure and reproduction of *Pseudione elongata africana* (Bopyridae, Isopoda). *West Indian Ocean J Mar Sci*, 11(1): 27-39.

Glenn, S., O. Schofield, J. Kohut, J. McDonnell, R. Ludescher, D. Seidel, D. Aragon, T. Haskins, E. Handel, C. Haldeman, I. Heifetz, J. Kerfoot, E. Lemus, S. Lichtenwalner, L. Ojanen, H. Roarty, **F. Carvalho**, A. Lopez, A. Martin, C. Jones, D. Webb, J. Miller, M. Lewis, S. McLean, A. Martins, C. Barrera, A. Ramos, E. Fanjul (2011). The Trans-Atlantic Slocum Glider Expeditions: A Catalyst for Undergraduate Participation in Ocean Science and Technology. *Marine Technology Society Journal*, 45(1): 52-67, doi: [10.4031/MTSJ.45.1.12](https://doi.org/10.4031/MTSJ.45.1.12).

MANUSCRIPTS IN REVIEW

Carvalho, F., M. Gorbunov, M.J. Oliver, C. Haskins, D. Aragon, J. Kohut, O. Schofield. FIRE glider: Mapping *in situ* chlorophyll variable fluorescence using autonomous underwater gliders. Revising/re-submit to *Limnology and Oceanography Methods*.

BOOK CHAPTERS

Yi, X., S. Glenn, **F. Carvalho**, C. Jones, J. Kohut, J. McDonnell, T. Miles, G. Seroka, O. Schofield. (2019). Chapter 8 - Glider Technology Enabling a Diversity of Opportunities With Autonomous Ocean Sampling. In E. Delory & J. Pearlman (Eds.), *Challenges and Innovations in Ocean In Situ Sensors* (pp. 367-374): Elsevier. (ISBN: 9780128098868), doi: [10.1016/B978-0-12-809886-8.00008-9](https://doi.org/10.1016/B978-0-12-809886-8.00008-9).

CONFERENCE PROCEEDINGS

Carvalho, F., J. Kohut, M. Gorbunov, O. Schofield, and M. J. Oliver (2016), Mapping Antarctic phytoplankton physiology using autonomous gliders. OCEANS 2016 MTS/IEEE Monterey, 19-23 Sept. 2016, doi: [10.1109/OCEANS.2016.7761193](https://doi.org/10.1109/OCEANS.2016.7761193).

Schofield, O., M. Brown, **F. Carvalho**, N. Couto, T. Miles, S. Nardelli, N. Waite, G. Saba (2017). Decadal variability in phytoplankton community structure along rapidly changing West Antarctic Peninsula. OCEANS 2017 MTS/IEEE Anchorage, 18-21 Sept. 2017.

ORAL PRESENTATIONS

INVITED SEMINARS

- Observing ocean biogeochemistry from afar: a remote sensing approach. Invited lecture for Biological Oceanography, University of Southampton. November 2019
- Ocean Biogeochemistry and Ecosystems research around the world. Presented at Ocean Business 2019, National Oceanography Centre, Southampton, UK. April, 2019

- Variability in the biological carbon pump: the GOCART and COMICS projects. Presented at *Council for Scientific and Industrial Research*, Cape Town, South Africa. June 29, 2018.
- Coupled physical and phytoplankton dynamics in Antarctic coastal seas. Presented at *POETS Corner Seminar Series*; 2017 Jun 5; National Oceanography Centre, Southampton, UK
- RUCOOL glider applications. *2016 PLOCAN Glider School*. Gran Canaria, Spain. Nov 9, 2016.
- Mixing and phytoplankton dynamics in Antarctica's coastal seas. *Polar Oceans Seminar Series*. British Antarctic Survey, Cambridge, UK. Oct 7, 2016.
- Mixing and phytoplankton dynamics in Antarctica's coastal seas. *Atmospheric and Marine Biogeochemistry Seminar Series*. University of East Anglia, Norwich, UK. Oct 3, 2016.
- RUCOOL glider applications. *2015 PLOCAN Glider School*. Gran Canaria, Spain. Oct 22, 2015.
- Using gliders to map phytoplankton dynamics in submarine canyons in the West Antarctic Peninsula. *Teledyne Webb Research Seminar*. Falmouth, MA, USA. Jul 29, 2015.
- Dynamics of the phytoplankton spring bloom over Palmer Deep Canyon (West Antarctic Peninsula). *PAL-LTER Meeting*. Williamsburg, VA, USA. Oct 1, 2014.
- Impact of canyon dynamics on the spring phytoplankton bloom (Palmer Deep Canyon, West Antarctic Peninsula). *OGSA Seminar Series*. Department of Marine and Coastal Sciences, Rutgers University, USA. Oct 21, 2014.

CONTRIBUTED

- **Carvalho, F.**, S. Henson, N. Briggs, S. Thomalla. What can gliders tell us about the Biological Carbon Pump. *UK Glider Workshop*. National Oceanography Centre. Nov 15, 2019.
- Espinola, B., S. Giering, N. Briggs, **F. Carvalho**, C. Baker, C. Peabody, R. Lampitt, H. East. Neutrally buoyant sediment traps collect particles from further away than previously considered. *2019 IMBeR Open Science Conference*. Brest, France. June 17-21, 2019.
- Briggs, N., S. Henson, **F. Carvalho**, H. Claustre. Global drivers of variability in carbon flux. *2019 IMBeR Open Science Conference*. Brest, France. June 17-21, 2019.
- **Carvalho, F.**, S. Henson, N. Briggs, S. Thomalla. Insights on the Biological Carbon Pump from high-resolution glider measurements. *8th EGO Meeting and International Glider Workshop*. Rutgers University, New Brunswick, US. May 20-24, 2019.
- **Carvalho, F.**, M. Gorbunov, O. Schofield, M. Oliver, J. Kohut, D. Aragon, C. Haskins. Mapping Antarctic phytoplankton physiology using autonomous gliders. *Ocean Optics XXIV*. Dubrovnik, Croatia. Oct 7-12, 2018.
- **Carvalho, F.**, S. Henson, N. Briggs, S. Thomalla. Phytoplankton dynamics and Carbon export in an iron enriched region (South Georgia). *18th Biennial Conference of the Challenger Society for Marine Science*. Newcastle University, Newcastle, UK. Sep 10-13, 2018.
- Briggs, N., S. Henson, H. Claustre, **F. Carvalho**. Strong link between surface particle size and deep carbon flux suggested by a fast-growing, multi-ocean autonomous dataset of optical backscattering. *18th Biennial Conference of the Challenger Society for Marine Science*. Newcastle University, Newcastle, UK. Sep 10-13, 2018.
- Giering, S., S. Henson, R. Sanders, **F. Carvalho**, M. Moore, J. Ainsworth, M. Stinchcombe, R. Brown, S.J. Shorter. Weird happenings in the twilight zone: Spring-bloom diatoms are lonely sinkers. *18th Biennial Conference of the Challenger Society for Marine Science*. Newcastle University, Newcastle, UK. Sep 10-13, 2018.
- Kohut, J., K. Bernard, W. Fraser, M. Oliver, P. Winsor, H. Statscewich, M. Cimino, D. Patterson-Fraser, T. Miles, **F. Carvalho**. 2017. Project CONVERGE: Impacts of local oceanographic processes on Adélie penguin foraging ecology. *Developing the West Antarctic Peninsula International Network within SOOS*. *SOOS WAP Working Group Meeting*. British Antarctic Survey, Cambridge, UK, 15-16 May 2017.
- Laber, C., J. Hunter, **F. Carvalho**, J. Collins, E. Hunter¹, B. Schieler, E. Boss, K. Moore, M. Frada, C. Johns, B. Knowles, E. Harvey, K. Thamatrakoln, C. Brown, L. Haramaty, J. Ossolinski, H. F. Fredricks, J. Nissimov, R. Gardella, U. Sheyn, Y. Lehahn, A. Martins, M. Coleen, A. Vardi, G. DiTullio, B. Van Mooy, K. Bidle. Coccolithovirus infection enhances vertical carbon flux in the North Atlantic. *Ocean Sciences Meeting*. Portland, OR, USA. Feb 11-16, 2018.
- Oliver, MJ, J. T Kohut, K. Bernard, W. Fraser, P. Winsor, H. Statscewich, E. Fredj, M. Cimino, D. Patterson-Fraser, **F. Carvalho**. Central place foragers select ocean surface features based on species-specific foraging strategy. *Ocean Sciences Meeting*. Portland, OR, USA. Feb 11-16, 2018.
- **Carvalho, F.**, O. Schofield, M. Oliver, M. Gorbunov, D. Aragon, J. Kohut. Coupled physical and phytoplankton dynamics

- in Antarctic coastal seas. *7th EGO conference on autonomous ocean gliders and their applications*. National Oceanography Centre, Southampton, UK. Sept 26-29, 2016.
- **Carvalho, F.**, O. Schofield, M. Oliver, M. Gorbunov, D. Aragon, J. Kohut. Mapping Antarctic phytoplankton physiology using autonomous gliders. *OCEANS'16 MTS/IEEE Conference*. Monterey, CA, USA. Sept 19-23, 2016.
 - **Carvalho, F.**, O. Schofield, M. Oliver, M. Gorbunov, J. Kohut. Mixing and phytoplankton dynamics in Antarctica's coastal seas. *XXXIV SCAR Open Science Conference*. Kuala Lumpur, Malaysia. Aug 20-30, 2016.
 - Schofield, O., H. Ducklow, D. Steinberg, G. Saba, T. Miles, **F. Carvalho**, N. Couto, N. Waite, A. Kahl, Z. Finkel, A. Irwin, V. Saba (2016). Decadal dynamics in phytoplankton communities in the West Antarctic Peninsula. *XXXIV SCAR Open Science Conference*. Kuala Lumpur, Malaysia. Aug 20-30, 2016.
 - Schofield, O., G. Saba, T. Miles, **F. Carvalho**, N. Couto. Decadal variability in phytoplankton community structure along the West Antarctic Peninsula. *Ocean Sciences Meeting*. New Orleans, LA, USA. Feb 21-26, 2016.
 - **Carvalho, F.**, O. Schofield, J. Kohut, H. Ducklow. The Long-Term Ecological Research (PAL-LTER) in the West Antarctic Peninsula. *VII Conferência Polar Portuguesa*. Evora, Portugal. Oct 28-29, 2015.
 - **Carvalho, F.**, O. Schofield, H. Ducklow, J. Kohut. Using Autonomous underwater gliders to study phytoplankton dynamics in the West Antarctic Peninsula. *VI Conferência Polar Portuguesa*. Porto, Portugal. Oct 30-31, 2014.
 - **Carvalho, F.**, O. Schofield, N. Couto, J. Kohut. Impact of canyon dynamics on the spring phytoplankton bloom (Palmer Deep Canyon, West Antarctic Peninsula). *Ocean Optics XXII*. Portland, ME, USA. Oct 26-31, 2014.

POSTERS

- **Carvalho, F.**, S. Henson, N. Briggs, B. Espinola, S. Thomalla. GOCART: Understanding the Biological Carbon Pump from high resolution glider measurements. *Ocean Obs'19*. Honolulu, HI, USA. Sep 16-20, 2019.
- Briggs, N., H. Claustre, S. Henson, **F. Carvalho**. Strong link between surface particle size and deep carbon flux suggested by a fast-growing, multi-ocean autonomous dataset of optical backscattering. *BIARRITZ Workshop*. National Oceanography Centre, Southampton, UK. July 22-26, 2019.
- Espinola, B., S. Giering, N. Briggs, **F. Carvalho**, C. Baker, C. Peabody, R. Lampitt, H. East. Neutrally buoyant sediment traps collect particles from further away than previously considered. *BIARRITZ Workshop*. National Oceanography Centre, Southampton, UK. July 22-26, 2019.
- Espinola, B., S. Giering, N. Briggs, **F. Carvalho**, C. Baker, C. Peabody, R. Lampitt, H. East. Neutrally buoyant sediment traps collect particles from further away than previously considered. *2019 IMBeR Open Science Conference*. Brest, France. June 17-21, 2019.
- Briggs, N., H. Claustre, S. Henson, **F. Carvalho**. Strong link between surface particle size and deep carbon flux suggested by a fast-growing, multi-ocean autonomous dataset of optical backscattering. *Ocean Optics XXIV*. Dubrovnik, Croatia. Oct 7-12, 2018.
- **Carvalho, F.**, J. Kohut, O. Schofield, M. Oliver, M. Gorbunov. Coupled physical and phytoplankton dynamics in Antarctic coastal seas. *Polar Marine Science Gordon Research Conference/Seminar*. Ventura, CA, USA. Mar 25-31, 2017.
- Oliver, M. J., J. Kohut, K. Bernard, W. Fraser, P. Winsor, H. Statscewich, M. Cimino, D. Patterson-Fraser, T. Miles, **F. Carvalho**. Project CONVERGE: Estimated physical and biological decorrelation time and space scales from coordinated AUV observations in coastal Antarctica. *Polar Marine Science Gordon Research Conference/Seminar*. Ventura, CA, USA. Mar 25-31, 2017.
- **Carvalho, F.**, J. Kohut, O. Schofield, M. Oliver. Deciphering the Temporal and Spatial Complexity in Submarine Canyons in Antarctica: the Role of Mixed Layer Depth in Regulating Primary Production. *Ocean Sciences Meeting*. New Orleans, LA, USA. Feb 21-26, 2016
- Oliver, M., J. Kohut, M., Cimino, P. Winsor, H. Statscewich, T. Miles, K. Todoroff, W. Fraser, **F. Carvalho**, D. Patterson-Fraser. Project CONVERGE: Estimated physical and biological decorrelation time and space scales from coordinated AUV observations in coastal Antarctica. *Ocean Sciences Meeting*. New Orleans, LA, USA. Feb 21-26, 2016.
- **Carvalho, F.**, M. Oliver, O. Schofield, J. Kohut. The role of mixed layer depth in regulating primary production at Palmer Deep Canyon (West Antarctic Peninsula). *Rutgers Regional Climate Symposium*. New Brunswick, NJ, USA. Nov 20, 2015.
- **Carvalho, F.**, M. Oliver, O. Schofield, J. Kohut. The role of mixed layer depth in regulating primary production at Palmer Deep Canyon (West Antarctic Peninsula). *2015 LTER All Scientists Meeting*. Estes Park, CO, USA. Aug 30 - Sep 2, 2015.
- **Carvalho, F.**, O. Schofield, M. Oliver, J. Kohut. Phytoplankton dynamics at Palmer Deep Canyon (West Antarctic Peninsula). *Polar Marine Science Gordon Research Conference/Seminar*. Lucca (Barga), Italy. Mar 15-20, 2015

- **Carvalho, F.**, O. Schofield, G. Saba, J. Kohut, H. Ducklow. The role of light availability and nutrient delivery in controlling the spring phytoplankton bloom in Palmer Deep Canyon in the West Antarctic Peninsula. *Ocean Sciences Meeting*. Honolulu, Hawaii, USA. Feb 23-28, 2014.
- Martins, A., C. Loureiro, **F. Carvalho**, R. Fernandes, S. Prakya, I. Bashmachnikov, J. DiTullio, K. Bidle. Detection of *Emiliana huxleyi* in the open ocean NE Atlantic using MODIS/AQUA Ocean Color imagery. *Ocean Sciences Meeting*. Honolulu, Hawaii, USA. Feb 23-28, 2014.
- **Carvalho F.**, I. Bashmachnikov, C. Loureiro, M. Figueiredo, A. Martins. Satellite-derived SST/Ocean Colour and the North Atlantic Oscillation: A case study for the NE Atlantic region. *ESA-SOLAS Conference: Earth Observation for Ocean-Atmosphere Interactions Science*. ESA/ESRIN, Frascati, Italy. Nov 29-Dec 2, 2011.
- Martins, A., C. Loureiro, **F. Carvalho**, A. Mendonça, I. Baschmachnikov, M. Figueiredo, S. Sequeira, S. Gomes, A. Medeiros, A.F. Silva. Oceanographic in situ and Satellite Data Collection on CONDOR Bank (Azores, NE Atlantic): Comparison with NAO Indices. *ESA-SOLAS Conference: Earth Observation for Ocean-Atmosphere Interactions Science*. ESA/ESRIN, Frascati, Italy. Nov 29-Dec 2, 2011.
- **Carvalho, F.**, M. Santos, S. Sequeira, A. Mendonça, C. Loureiro, M. Figueiredo, A. Martins. CONDOR Seamount (SW Faial Island, Azores): Space and Time Ocean Colour and SST variability from 2002 to 2010. *5th ESA Earth Observation Summer School on Earth System Monitoring and Modeling*. ESA/ESRIN, Frascati, Italy. Aug 2-13, 2010. * BEST POSTER PRESENTATION
- **Carvalho, F.** & J. Kohut. Impact of a storm induced downwelling along the New Jersey inner shelf. Coastal Ocean Observation Lab Meeting. Rutgers University, New Brunswick, NJ, USA. NOV 2, 2009.

PROJECTS

BIARRITZ (co-PI): Bridging International Activity and Related Research Into the Twilight Zone (2018-2020; £83,409)

GOCART: Gauging Ocean organic Carbon fluxes using Autonomous Robotic Technologies (2017-Present)

COMICS: Controls over Ocean Mesopelagic Interior Carbon Storage (2017-Present)

CUSTARD: Carbon Uptake and Seasonal Traits in Antarctic Remineralisation Depth (2018-Present)

PAL-LTER: Palmer Long Term Ecological Research (2011-2017)

CONVERGE: Impacts of local oceanographic processes on Adélie penguin foraging ecology (2014-2017)

SEAFARERS: Slocum Enhanced Adaptive Fe Algal REsearch in the Ross Sea (2011-2012)

NA-VICE: North Atlantic Virus Infection of Coccolithophores Expedition (2012-2013)

MESOHUX: Mesocosms Incubation with *E. hux* (2017)

CONDOR: Observatory for a Long-Term Study and Monitoring of Azorean Seamount Ecosystems (2009-2011)

CIMBA: Development and Implementation of a Regional, National and International Oceanographic Monitoring (Hydrodynamics and Biological) Network in the Azores (2009-2011)

Scarlet Knight glider: Trans-Atlantic Challenge (2009)

CRUISE and FIELD WORK

More than a week long

2018: - Research Scientist, RRS Discovery, South Pacific/Southern Ocean. *CUSTARD 1* Cruise. Glider Operations, CTD and water sampling. 3 weeks (November - December 2018)

- Research Scientist, RRS Discovery, Benguela Current, Namibia. *COMICS 2* Cruise. Glider Operations, Marine Snow Catchers sampling, Optical profiling (LISST Holo, Wetlabs ECO triplet, RESPIRE deployments). 5+ weeks (May - Jun 2018)

- Research Scientist, RV Mirabilis, Benguela Current, Namibia. *Hake MOM1802* Cruise. Glider Operations, CTD and optics profiling, fish sampling. 3 weeks (Feb 2018)

2017: - Research Scientist, RRS Discovery, Falkland Islands and South Georgia. *COMICS 1* Cruise. Glider Operations, Satellite data processing, Marine Snow Catchers sampling. 6+ weeks (Nov – Dec 2017)

- Dive Leader/Supervisor, Espegrend Marine Research Field Station, Blomsterdalen, Norway. MesoHux 2017 Project. Daily dive operations involving sediment traps recovery, water column optics and water sampling. 3+ weeks (May - June 2017)

- 2015: - Research Scientist, ARSV Laurence M. Gould, West Antarctic Peninsula. Annual PAL-LTER Cruise. Water Sampling, trace metal clean incubation experiments, AC9, PRR. 4+ weeks (Jan – Feb 2015)
- 2014: - Research Scientist, R/V Joanne Daiber, Delaware River (Philadelphia, PA, USA). Dye Experiment in collaboration with Philadelphia Water Department. 1 week (Aug 2014)
- Research Scientist, ARSV Laurence M. Gould, West Antarctic Peninsula. PAL-LTER Project. Water sampling, incubation experiments, AC9, PRR. 4+ weeks (Jan – Feb 2014)
- 2013: - Research Scientist, Palmer Station (West Antarctic Peninsula), Antarctica. PAL-LTER Project. Glider operations, CTD, Water sample analysis, nutrient/light incubations. 3+ months (Nov 2012 – Feb 2013)
- 2012: - Research Scientist, R/V Knorr, North Atlantic: Ponta Delgada (Azores, Portugal) - Reykjavík (Iceland). NA-VICE Project. Gliders (ru01, ru25d) and CTD deployments, water sampling. 5 weeks (Jun – Jul 2012).
- 2011: - Research Scientist, R/V Nathaniel B. Palmer, Ross Sea, Antarctica. SEAFARERS Project. Glider operations, CTD, Smith-Mac, AC9, chlorophyll and nutrients analysis. 7 weeks (Jan – Feb 2011)
- 2010: - Scientific Diver, Faial, Portugal. INVASORAS Project. *Exploration dives to detect invasive algae Caulerpa webbiana*. 20 dives (Aug – Oct 2010)

Less than a week long

- 2014-2015: Research Scientist, R/V/ *Caleta*, Raritan River, NJ. CTD, OBS, ADCP, Fluorometer transects
- 2012-2017: Glider Technician, R/V *Arabella*, Coastal NJ, USA. Glider deployments
- 2012: Research Scientist, L/I *Aguas Vivas*, Azores, Portugal. NA-VICE Project. Glider deployment
- 2009-2010: Research Scientist, R/V *Arquipelago*, Condor Seamount, Azores, Portugal. CONDOR Project. Mooring deployments.

RELEVANT TEACHING EXPERIENCE

- Summer 2018: Instructor, Biogeochemistry Summer School, National Oceanography Centre, UK
- 2017, 2019: Invited Lecturer, Biological Oceanography, University of Southampton, UK
- Spring 2017: Instructor, Scientific Diving - AAUS (11:628:306), Rutgers University, USA
- 2015, 2016: Lecturer, PLOCAN Glider School, PLOCAN, Gran Canaria, Spain
- Spring 2016: Assistant Instructor, Scientific Diving - AAUS (11:628:306), Rutgers University
- Spring 2015: Teaching Assistant, Oceanographic Methods and Data Analysis (11:628:364), Rutgers University, USA
- 2014 – 2017: Scuba Instructor. Rutgers Scuba program, USA
- Spring 2011: Teaching Assistant, Sea and Laboratory Methods II, University of the Azores
- 2007: Marine Educator (in training), Lisbon Oceanarium, Portugal

MENTORING EXPERIENCE (* as main supervisor)

Graduated Students:

*Evelyn Byer (MSc 2018), Uni. Southampton, UK. "*Temporal evolution of the interior carbon stocks in South Georgia*"

Current Students:

Benoit Espinola (PhD 2019-Present), Uni. Southampton, UK. "*Observing the biological carbon pump with autonomous underwater vehicles*"

Sarah Cryer (PhD 2018-Present), Uni. Southampton, UK. "*The role of river flow is regulating ocean acidification in Belizean Coastal waters*"

RELEVANT RESEARCH EXPERIENCE/WORKSHOPS

- UHDAS / CODAS scientific workshop to process vessel mounted ADCP (2019)
- An Introduction to Python for Oceanographers, Ocean Obs'19, Honolulu, HI, USA (2019)

- Instrumenting our ocean for better observation: a 10-day international training course on a suite of biogeochemical sensors (Bio-optics, oxygen, pH and pCO₂, organised by IOCCP and BONUS INTEGRAL), Sven Lovén Center for Marine Sciences, in Kristineberg, Sweden (2019)
- COSEE Gears Professional Development Workshop for Early Career Scientists, Ocean Sciences, Hawaii, USA (2014)
- Internship in Oceanography, Department of Oceanography and Fisheries at the U. of the Azores, Portugal (2010-2011)
- 5th ESA/ENVISAT Earth Observation Summer School on Earth System Monitoring & Modelling, European Space Agency, Italy (2010)
- Internship in Oceanography, Rutgers University, USA (2009)

COMMUNITY SERVICE INVOLVEMENT

2019	Organisation of the 2019 UK glider workshop
2018-2019	Bluedot Festival, Cheshire, UK, <i>Biological carbon pump exhibitor</i>
2017	Science Uncovered, Natural History Museum, London, UK, <i>invited scientist</i>
2016	POLAR-ICE Sci-I Workshop, invited scientist
2015-Present	Association of Polar Early Career Scientists (APECS) Portugal, <i>Executive Committee member, "Science in the Clear" outreach coordinator (2015-2017)</i>
2014-2017	4-H Climate & Environmental Change Teen Summit, NJ, <i>invited scientist</i>
2015-2017	Shore Bowl volunteer (<i>Science Judge, Rules Judge</i>)
2013-2014	Rutgers Oceanography Graduate Student Association, <i>seminar coordinator</i>

CERTIFICATIONS:

2017	Scientific Diver (AAUS – American Academy of Underwater Sciences)
2016	PADI Open Water Scuba Instructor
2016	Emergency First Responder (EFR) Instructor
2015	DAN Diving First Aid for Professional Divers
2014	PADI Assistant Instructor
2012	CMAS 3-Star Diver (Divemaster)
2012	CMAS Scuba specialties: Underwater Navigation, Rescue Diver, Nitrox, Night Diving
2012	Ocean Skipper (Yachtman's License), IPTM, Portugal (good until 2035)
2011	Maritime and Touristic Operator (Technological Specialty Course, Ocean skipper and Divemaster), University of the Azores, Portugal
2005	Certificate of Proficiency in English, ESOL Examinations, Cambridge University

MANUSCRIPT REVIEWER FOR:

Journal of Geophysical Research: Oceans, Antarctic Science and Geophysical Research Letters, Scientific Reports.

MEMBERSHIP OF PROFESSIONAL SOCIETIES:

UK Challenger Society for Marine Science, Association for the Science of Limnology and Oceanography, American Geophysical Union, The Oceanography Society, Association of Polar Early Career Scientists Portugal, Association of Polar Early Career Scientists International, Marine Technology Society.