

ANNIE BOURBONNAIS
University of South Carolina
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RESEARCH INTERESTS

Marine biogeochemistry, Marine nitrogen cycle, Nitrogen and carbon stable isotopes, Dissolved gases (N₂, O₂, Ar) as tracers of oceanic physical and biological processes, Trace gas production (N₂O) in marine environments, Chemosynthetic deep-sea ecosystems, Oxygen minimum zones, Molecular Microbial Ecology.

EDUCATION

- 2007 – 2012 **Ph.D. Earth and Ocean Sciences**, University of Victoria (UVic), Victoria, BC, Canada (Advisor: Prof. S. Kim Juniper). Dissertation Title: “*Fixed Nitrogen Loss in Two Variably Anoxic Marine Environments: The Subsurface Biosphere of Hydrothermal Vents (Juan De Fuca Ridge, Northeast Pacific) and Saanich Inlet, a British Columbia Fjord*”.
- 2005 – 2007 **M.Sc. Earth Sciences**, University of Québec in Montréal (UQAM), GEOTOP UQAM-McGill Research Center, Montréal, QC, Canada (Advisor: Prof. Moritz F. Lehmann). Thesis title: “*Nitrate isotope anomalies as indicator of N₂ fixation in the Azores Front region (subtropical N-E Atlantic)*”.
- 2001 – 2005 **B.Sc. Environmental Sciences** with Honours in Environmental Geochemistry (*Summa Cum Laude*), University of Ottawa, Ottawa, ON, Canada.

ADDITIONAL COURSES AND TRAINING

- Summer 2013 Satellite Remote Sensing Training for Biological Oceanographers Course, Cornell University, Ithaca, NY, USA. 2 weeks.
- Spring 2011 Teaching Assistant fundamentals certificate, Learning and teaching Centre, UVic (Biology department), Victoria, BC, Canada.
- 1998 – 2001 Analytical Chemistry Diploma, Cégep de l’Outaouais, Hull, Québec, Canada.

RESEARCH EXPERIENCE

- 2018 – present **Assistant Professor**, School of the Earth, Ocean and Environment, University of South Carolina, Columbia, SC, USA.
- 2015 – 2018 **Research Assistant Professor**, School for Marine Science and Technology, University of Massachusetts (UMass) Dartmouth, New Bedford, MA, USA.
- 2016 – 2017 **Postdoctoral Fellow** with Dr. Scott C. Doney, Woods Hole Oceanographic Institution (WHOI), Woods Hole, MA, USA.
- 2016 **Adjunct Professor**, Northeast Maritime Institute, College of Maritime Science, Fairhaven, MA, USA.

- 2013 – 2015 **Postdoctoral Research Fellow** with Prof. Mark A. Altabet, School for Marine Science and Technology, UMass Dartmouth, New Bedford, MA, USA.
- 2007 – 2012 **Research Assistant** (Marine Microbiology and Isotope Biogeochemistry), Principal Investigator: S. Kim Juniper, UVic, BC, Canada.
- 2005 – 2007 **Research Assistant** (Marine Isotope Biogeochemistry), Principal Investigator: Moritz F. Lehmann, UQAM, QC, Canada.
- 2004 –2005 **Research Assistant** (Groundwater Isotope Geochemistry), Principal Investigator: Ian D. Clark, University of Ottawa, ON, Canada.
- Summer 2001 **Analytical Chemist** (internship) at CANMET Mining and Mineral Sciences Laboratories, Natural Resources Canada, Ottawa, ON, Canada.
- Summer 2000 **Analytical Chemist** (internship), University of Franche-Comté, Besançon, France.

TEACHING EXPERIENCE

University of South Carolina

- Spring 2019 **Instructor**, The Chemistry of the Sea (MSCI 313, 74 students)
- Fall 2019 **Instructor**, Stable Isotope Geochemistry (GEOL 715, 6 students)

Northeast Maritime Institute

- Spring 2016 **Instructor**, Introduction to Ocean Science (OS 101)

University of Massachusetts Dartmouth

- Spring 2016 **Guest lecturer**, Marine Microbiology (BIO 471/571): Nitrogen cycling in hydrothermal vents.
- Spring 2015 **Guest lecturer**, Chemical Oceanography (MAR510): Dissolved gases, Ocean Data View virtual lab (carbonate system) and Radioisotopes as tracers.

University of Victoria

- Spring 2012 **Laboratory instructor**, General Biology II (190B)
- Fall 2011 **Laboratory instructor**, Animal Behavior (345)
- Spring 2011 **Laboratory instructor**, General Biology II (190B)
- Fall 2010 **Laboratory instructor**, Oceans and Atmosphere (EOS/GEOG 110)

University of Québec in Montréal

- Spring 2007 **Teaching assistant**, Oceanography (SCT 4320)

ACADEMIC ADVISING EXPERIENCE

University of South Carolina:

Ph.D. Students:

- Julia Raab (yr 1, Nitrogen cycling in South Carolina lakes)

M. Sc. Students:

Holly Westbrook (yr 2, Dissolved organic nitrogen concentrations and stable isotopes in the Eastern Canadian Arctic)

M.Sc. committee member:

Halley Carruthers (yr. 1, Advisor: Dr. Jay Pinckney)

Undergraduate research assistants:

Margaret Gaspar (spring 2020), Darcy Perin (spring 2019 - present), Olivia Melissa Shugart (fall 2019 - present), and Hunter Damron (summer 2019).

University of Massachusetts Dartmouth:**M.Sc. dissertation committee member:**

Haibei Hu (defended in December 2014, Advisor: Dr. Mark Altabet)

Sheel Prajapati (defended in October 2017, Advisor, Dr. Mark Altabet)

Undergraduate research assistants:

Alan Anonian (summer 2018 and 2017), Erin Steele (summer 2017), Anne Cruz (summer 2014).

MAJOR HONORS AND AWARDS

2011	InterRidge Student Award for the “hottest” oral presentation, session: Biochemical function and diversity of chemosynthetic deep-sea ecosystems, European Geosciences Union (EGU) meeting, Vienna, Austria.
2007	Excellent Mention, M.Sc. Earth Sciences, UQAM.
2005	Highest standing in the Honours Baccalaureate in Science in Environmental Sciences, University of Ottawa.
2001 – 2005	Dean's Honour List, faculty of Sciences, University of Ottawa.

FELLOWSHIPS, AND SCHOLARSHIPS

2018	Postdoctoral Research Leave Fellowship, The American Association of University Women (AAUW) (\$30,000, declined)
2016 –2017	U.S. GO-SHIP (Repeat hydrography) Postdoctoral Fellowship, NSF (\$55,000/year).
2013 –2015	Postdoctoral Fellowship, Natural Sciences and Engineering Research Council of Canada (NSERC) (\$40,000/year).
2011 –2012	PEO Scholar Award (\$15,000)
2009 – 2011	Rix Family Leading Edge Student Award (\$5,000/year).
2008 –2010	University of Victoria President’s Scholarship (\$4,000/year).
2008 –2010	Doctoral Canada Postgraduate Scholarship (PGS D), NSERC (\$25,000/year).
2008 –2010	Doctoral Research Scholarship, Fonds Québécois de Recherche sur la Nature et les

	Technologies (FQRNT) (\$20,000/year, declined).
2007 –2008	University of Victoria Fellowship (\$10,000/year).
2007 –2008	University of Victoria Pacific Century Scholarship (\$7,800/year).
2005 –2007	Canada Graduate Scholarship-Master’s (CGS M), NSERC (\$17,500/year)
2005 –2007	Master’s Graduate Scholarship, FQRNT (\$15,000/year, declined).
Summer 2005	Undergraduate Student Research Award (USRA), NSERC (4500\$).
Summer 2004	Undergraduate Student Research Award (USRA), NSERC (4500\$).
2000 – 2005	Admission Scholarship, University of Ottawa (2,500\$/year).

GRANTS

2019-2023	NSF, EPSCoR Research Infrastructure Improvement Program: Track - 2 Focused EPSCoR Collaborations (RII Track-2 FEC): <i>Computational methods and autonomous robotics systems for modeling and predicting harmful cyanobacterial blooms</i> , co-PI at UofSC, Lead PI: Alberto Quattrini Li, Dartmouth College, \$2,999,009 in total, \$335,347 to Bourbonnais.
2019	ASPIRE III, University of South Carolina: Quantifying turbulence and mixing across the estuary-ocean interface with a microstructure profiler, co-PI, PI: Alexander Yankovsky, \$81,426.
2016 –2019	National Science Foundation (NSF), Division of Polar Programs (PLR), Arctic Natural Sciences : <i>Nitrous oxide cycling in the Western Arctic Ocean from stable isotopic and concentration data</i> , Principal Investigator, \$290,608.

PEER-REVIEWED PUBLICATIONS

21. Moos, S. B., E. A. Boyle, M. A. Altabet, and **A. Bourbonnais** (2020), Investigating the cycling of chromium in the oxygen deficient waters of the Eastern Tropical North Pacific Ocean and the Santa Barbara Basin using stable isotopes, *Marine Chemistry*, 103756 (In Press).
20. Lehmann, N., M. Kienast, J. Granger, **A. Bourbonnais**, M. A. Altabet, and J-É. Tremblay (2019), Remote western Arctic nutrients fuel remineralization in the deep Baffin Bay, *Global Biogeochemical Cycles*, doi.org/10.1029/2018GB006134.
19. Dale, A., **A. Bourbonnais**, M. A. Altabet, K. Wallmann, and S. Sommer (2019), Isotopic fingerprints of benthic nitrogen cycling in the Peruvian oxygen minimum zone, *Geochimica et Cosmochimica Acta*, 245, 406-425.
18. Fassbender, A. J., **A. Bourbonnais**, S. Clayton, P. Gaube, M. Omand, P. J. S. Franks, M. A. Altabet, and D. J. McGillicuddy Jr. (2018), Interpreting mosaics of ocean biogeochemistry, *Eos*, 99, <https://doi.org/10.1029/2018EO109707>.
17. Reed, A., C. McNeil, E. D’Asaro, M. Altabet, **A. Bourbonnais**, and B. Johnson (2018), A gas tension device for the mesopelagic zone, *Deep-Sea Research I*, <https://doi.org/10.1016/j.dsr.2018.07.007>.
16. Ganesh, S., A. B. Bertagnolli, L. A. Bristow, C. C. Padilla, N. Blackwood, M. Aldunate, **A. Bourbonnais**, M. A. Altabet, R. R. Malmstrom, T. Woyke, O. Ulloa, K. T. Konstantinidis, B.

- Thamdrup, and F. J. Stewart (2018), Genomic evidence for the use of alternative nitrogen substrates by anammox bacteria, *The ISME Journal*, <https://doi.org/10.1038/s41396-018-0223-9>.
15. **Bourbonnais, A.**, R. T. Letscher, H. W. Bange, V. Échevin, J. Larkum, J. Mohn, N. Yoshida, and M. A. Altabet (2017), N₂O production and consumption from stable isotopic and concentration data in the Peruvian coastal upwelling system, *Global Biogeochemical Cycles*, 31, doi:10.1002/2016GB005567.
 14. Löscher, C. R., **A. Bourbonnais**, J. Dekaezemacker, C. N. Charoenpong, M. A. Altabet, H. W. Bange, R. Czeschel, C. Hoffmann, and R. A. Schmitz (2016), N₂ fixation in eddies of the eastern tropical South Pacific Ocean, *Biogeosciences*, 13, 2889-2899.
 13. Dale, A, S. Sommer, U. Lomnitz, **A. Bourbonnais**, K. Wallmann (2016), Biological nitrate transport in sediments on the Peruvian margin mitigates benthic sulfide emissions and drives pelagic N loss during stagnation events, *Deep-Sea Research Part I*, 112, 123-136.
 12. Hu, H.*, **A. Bourbonnais***, J. Larkum, H. W. Bange, and M. A. Altabet (2016), Nitrogen cycling in shallow low oxygen coastal waters off Peru from nitrite and nitrate nitrogen and oxygen isotopes, *Biogeosciences*, 13, 1453-1468.
*These authors contributed equally to this work.
 11. Padilla, C. C., L. A. Bristow, N. Sarode, E. Garcia-Robledo, E. Gómez Ramírez, C. R. Benson, **A. Bourbonnais**, M. A. Altabet, P. R. Girguis, B. Thamdrup, F. J. Stewart (2016), NC10 bacteria in marine oxygen minimum zones, *The ISME Journal*, 10, 2067-2071.
 10. **Bourbonnais, A.**, M. A. Altabet, C. N. Charoenpong, J. Larkum, H. Hu, H. W. Bange, and L. Stramma (2015), N-loss isotope effects in the Peru oxygen minimum zone studied using a mesoscale eddy as a natural tracer experiment, *Global Biogeochemical Cycles*, 29, 793-811.
 9. **Bourbonnais, A.**, S. K. Juniper, D. A. Butterfield, R. E. Anderson, M. F. Lehmann (2014), Diversity and abundance of Bacteria and *nirS*-encoding denitrifiers associated with the Juan de Fuca Ridge hydrothermal system, *Annals of Microbiology*, 64, 1691–1705.
 8. **Bourbonnais, A.**, M. F. Lehmann, R. C. Hamme, C. C. Manning, S. K. Juniper (2013), Nitrate elimination and regeneration as evidenced by dissolved inorganic nitrogen isotopes in Saanich Inlet, a seasonally anoxic fjord, *Marine Chemistry*, 157, 194–207.
 7. Wenk, C. B., J. Blees, J. Zopfi, M. Veronesi, **A. Bourbonnais**, C. J. Schubert, H. Niemann, M. F. Lehmann (2013), Anammox bacteria and sulfide-dependent denitrifiers co-exist in the water column of a meromictic south-alpine lake, *Limnology and Oceanography*, 58, 1–12.
 6. **Bourbonnais, A.**, S. K. Juniper, D. A. Butterfield, A. H. Devol, M. M. M. Kuypers, G. Lavik, S. J. Hallam, C. B. Wenk, B. X. Chang, S. A. Murdock, and M. F. Lehmann (2012b), Activity and abundance of denitrifying bacteria in the subsurface biosphere of diffuse hydrothermal vents of the Juan de Fuca Ridge, *Biogeosciences*, 9, 4661–4678.
 5. **Bourbonnais, A.**, M. F. Lehmann, D. A. Butterfield, and S. K. Juniper (2012a), Subseafloor nitrogen transformations in diffuse hydrothermal vent fluids of the Juan de Fuca Ridge evidenced by the isotopic composition of nitrate and ammonium, *Geochemistry Geophysics Geosystems*, 13, Q02T01, doi:10.1029/2011GC003863.
 4. Somes, C, A. Schmittner, E. D. Galbraith, M. F. Lehmann, M. A. Altabet, J. P. Montoya, R. M. Letelier, A. C. Mix, **A. Bourbonnais**, and M. Eby (2010), Simulating the global distribution of nitrogen isotopes in the Ocean, *Global Biogeochemical Cycles*, 24, GB4019, doi: 10.1029/2009GB003767.

3. Manning, C. C, R. C. Hamme, and **A. Bourbonnais** (2010), Impact of deep-water renewal events on fixed nitrogen loss from seasonally-anoxic Saanich Inlet, *Marine Chemistry*, 122(1-4), 1–10, doi:10.1016/j.marchem.2010.08.002.
2. **Bourbonnais, A.**, M. F. Lehmann, J. J. Waniek and D. E. Schultz-Bull (2009), Nitrate isotope anomalies as indicator of N₂ fixation in the Azores Front region (subtropical N-E Atlantic), *Journal of Geophysical Research*, 114, C03003, doi:10.29/2007JC004617.
1. Clark, I. D., R. Timlin, **A. Bourbonnais**, K. Jones, and K. Wickens (2008), Origin and fate of industrial ammonia in municipal groundwaters – tracing anaerobic oxidation (anammox) and apportionment with ¹⁵N-NH₄⁺, *Ground Water Monitoring and Remediation*, 28, 73–82.

OTHER PUBLICATIONS

1. McNeil, C., E. D’Asaro, A. Reed, M. A. Altabet, **A. Bourbonnais**, and C. Beaverson (2018), Innovative Nitrogen Sensor Maps the North Pacific Oxygen Minimum Zone, *Oceanography – Supplement - New Frontiers in Ocean Exploration*, 31, p. 96.
2. Wankel, S. D., **A. Bourbonnais**, and C. N. Charoenpong (2017), Microbial nitrogen cycling processes at submarine hydrothermal vents, In Kallmeyer, Jens and Wagner, Dirk (Ed.), *Life in Extreme Environments, Life at Vents and Seeps*, Volume 5, Berlin, Boston: De Gruyter, pp. 179-221.

INVITED TALKS

2. **Bourbonnais, A.**, and M. A. Altabet. (2017) Nitrogen loss in Oxygen Deficient Zone Mesoscale Eddies, OCB summer workshop, June 26-30, Woods Hole Oceanographic Institution, Woods Hole, USA (oral presentation).
1. **Bourbonnais, A.**, S. K. Juniper, D. A. Butterfield, M. F. Lehmann. (2012) Fixed nitrogen loss in two anoxic environments: hydrothermal vents of the Juan de Fuca Ridge (Northeast Pacific) and Saanich Inlet (British Columbia, Canada), SFB754 lunch colloquium, June 22nd, GEOMAR, Kiel, Germany (oral presentation).

SELECTED PRESENTATIONS AT PROFESSIONAL CONFERENCES

(presenting author only)

23. **Bourbonnais, A.**, M. A. Altabet, and J. Granger. (2019), N₂O cycling in the Western Arctic from its concentration, stable isotopes and isotopomers, What can we learn from N₂O isotope data? Analytics, reaction mechanisms and modeling - workshop at EMPA Akademie, October 23-24, Dübendorf, Switzerland (**oral presentation**).
22. **Bourbonnais, A.**, S. Fawcett, R. Flynn, J. Burger, and M. A. Altabet. (2019), Temporal changes in nitrous oxide sources and sea-air fluxes in the Southern Benguela, Ocean Carbon & Biogeochemistry Summer Workshop, June 24-27, Woods Hole Oceanographic Institution, MA, USA (poster).
21. **Bourbonnais, A.**, S. E. Fawcett, R. Flynn, J. Burger, and M. A. Altabet. (2018) Temporal changes in nitrous oxide sources and air-sea fluxes from its isotopic composition in the Southern Benguela, Oceanic Methane & Nitrous Oxide Workshop, October 28-31, Lake Arrowhead, California, USA (poster).
20. **Bourbonnais, A.**, M. A. Altabet, and J. Granger. (2018) N₂O cycling in the Western Arctic from its concentrations, stable isotopes and isotopomers, Ocean Sciences meeting, February 11-16, Portland, USA (poster).

19. **Bourbonnais, A.**, M. A. Altabet, and J. Granger. (2017) N₂O cycling in the Western Arctic from concentrations, stable isotopes and isotopomers, Gordon Research Conference: Chemical Oceanography, July 23-28, Colby-Sawyer College, New Hampshire, USA (poster).
18. **Bourbonnais, A.**, M. A. Altabet, and J. Granger. (2017) N₂O cycling in the Western Arctic as inferred from concentrations and stable isotopes, ASLO meeting, February 26- March 3, Honolulu, Hawaii, USA (**oral presentation**).
17. **Bourbonnais, A.**, R. Letscher, J. Larkum, A. Kock, V. Échevin, H. W. Bange, and M. A. Altabet. (2016) Spatial variations in N₂O concentration and isotopomer composition off the Peru coast, Ocean Sciences meeting, February 21-26, New Orleans (LA), USA (**oral presentation**).
16. **Bourbonnais, A.**, M. A. Altabet, A. Kock, and H. Bange. (2015) Coastal N₂O concentrations and isotopomers off Peru, Gordon Research Conference: Chemical Oceanography, July 26-31, Holderness, New Hampshire, USA (poster).
15. **Bourbonnais, A.**, M. A. Altabet, C. Charoenpong, J. Larkum, H. Hu, H. W. Bange, and L. Stramma. (2014) A mesoscale eddy natural tracer experiment to investigate N-loss isotope effects off the Peru coast, OCB summer workshop, July 21-25, Woods Hole Oceanographic Institution, Woods Hole, USA (poster).
14. **Bourbonnais, A.**, M. A. Altabet, J. Larkum, C. Charoenpong, C. L. McNeil, A. C. Reed, E. A. D'Asaro, (2014) Biogenic N₂ and $\delta^{15}\text{N-N}_2$ as proxies for N-loss in the eastern tropical North Pacific: A lagrangian float experiment, American Geophysical Union (AGU) fall meeting, December 13-19, San Francisco, USA (**oral presentation**).
13. **Bourbonnais, A.**, M. A. Altabet, C. Charoenpong, J. Larkum, H. Hu, H. W. Bange, and L. Stramma. (2014) Biogenic N₂ concentrations and stable nitrogen and oxygen isotope dynamics of dissolved N₂, nitrate and nitrite associated with eddies off the Coast of Peru, Ocean Sciences meeting, February 23-28, Honolulu (Hawaii), USA (**oral presentation**).
12. **Bourbonnais, A.**, C. Charoenpong, J. Larkum, H. Hu, L. Stramma, and M. A. Altabet. (2013) Mesoscale eddies as fixed N-loss hotspots in oxygen minimum zones, OCB summer workshop, July 22-26, Woods Hole Oceanographic Institution, Woods Hole, USA (poster).
11. **Bourbonnais, A.**, S. K. Juniper, D. A. Butterfield, R. E. Anderson, and M. F. Lehmann (2012), Diversity and abundance of nitrite reductase (*nirS*) genes in the subsurface biosphere of hydrothermal vents of the Juan de Fuca Ridge, The deep-sea & sub-seafloor frontiers conference, March 11-14, Sitges (Barcelona), Spain (poster).
10. **Bourbonnais, A.**, M. F. Lehmann, R. C. Hamme, C. C. Manning, and S. K. Juniper. (2011) Nitrate isotope fractionation during denitrification in Saanich Inlet: water column versus sediment effects. 45th CMOS congress, June 5-9, Victoria (BC), Canada (**oral presentation**).
9. **Bourbonnais, A.**, M. F. Lehmann, D. A. Butterfield, S. J. Hallam, A. H. Devol, M. M. M. Kuypers, G. Lavik, R. Roy, B. X. Chang, and S. K. Juniper. (2011) Activity, biodiversity and abundance of denitrifying bacteria in hydrothermal vents of the Juan de Fuca Ridge, North- East Pacific Ocean. EGU meeting, April 3-8, Vienna, Austria (**oral presentation**).
8. **Bourbonnais, A.**, M. F. Lehmann, D. A. Butterfield, M. M. M. Kuypers, G. Lavik and K. S. Juniper. (2010) Denitrication as the dominant N-elimination process in hydrothermal vents of the Juan de Fuca Ridge, Northeast Pacific Ocean, SEOS Graduate Students Workshop, April 23rd 2010, University of Victoria, Victoria, British Columbia, Canada (**oral presentation**).
7. **Bourbonnais, A.**, M. F. Lehmann, and D. A. Butterfield. (2009) The isotopic composition of dissolved inorganic nitrogen in hydrothermal vent fluids, SEOS Graduate Students Workshop, April 20th 2009, University of Victoria, Victoria, British Columbia, Canada (poster).

6. **Bourbonnais, A.**, M. F. Lehmann, D. A. Butterfield, A. Devol, B. X. Chang and K. S. Juniper. (2009) Denitrification in diffuse hydrothermal vent fluids of Axial Volcano and the Endeavour Segment on the Juan de Fuca Ridge, AGU fall meeting, December 14-18, San Francisco, USA (poster).
5. **Bourbonnais, A.**, M. F. Lehmann, and D.A. Butterfield. (2007) Dual nitrogen and oxygen isotope composition of nitrate in hydrothermal vents systems, Fourth Interdisciplinary McGill Graduate Student Research Symposium, March 29-30, Montréal, Canada (poster).
4. Lehmann, M. F., **A. Bourbonnais** and D.A. Butterfield. (2006) The isotopic composition of dissolved inorganic nitrogen in hydrothermal vent fluids. AGU fall meeting, December 10-15, San Francisco, USA (poster, presenting author).
3. **Bourbonnais, A.**, M. F. Lehmann and J. J. Waniak. (2006) The isotopic composition of nitrate, dissolved organic nitrogen and export particulate matter in the Azores Front region : Implications for N₂ fixation in the subtropical North-East Atlantic. AGU fall meeting, December 10-15, San Francisco, USA (**oral presentation**).
2. **Bourbonnais, A.** and M. F. Lehmann. (2006) Dual nitrate isotope measurements in the Azores Front region: indication for N₂ fixation in the subtropical North-East Atlantic Ocean. GAC-MAC, May 14-17, Montréal, Canada (**oral presentation**).
1. **Bourbonnais, A.** and M. F. Lehmann. (2006) Le ¹⁵N/¹⁸O du nitrate dans la région du Front des Açores : indication pour la fixation de l'azote dans l'Atlantique nord-est subtropical. 74th meeting of the Association Francophone pour le Savoir (ACFAS), May 15-19, Montréal, Canada. (**oral presentation**).

OCEANOGRAPHIC FIELD EXPERIENCE (271 days at sea)

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| 2019 | CCGS <i>Amundsen</i> , (Pond Inlet to Resolute Bay, ArcticNet leg 2b), chief scientist: Jean-Carlos Montero-Serrano, dissolved gases (N ₂ , O ₂ , Ar), nitrous oxide isotopes and isotopomers and dissolved organic nitrogen isotopes, Three weeks. |
| 2017 | R/V <i>Okeanos Explorer</i> (Eastern Tropical North Pacific, Hawaii to Panama), CTD lead, dissolved gases (N ₂ , Ar, O ₂), and inorganic nitrogen (NO ₂ ⁻ and NO ₃ ⁻) concentrations, and isotopes and N ₂ O isotopes and isotopomers in the water-column. Four weeks. |
| 2017 | R/V <i>Healy</i> (Chukchi Sea), Chief Scientist: Robert Pickart, dissolved gases (N ₂ , Ar, N ₂ O), and inorganic nitrogen (NO ₂ ⁻ and NO ₃ ⁻) concentrations, isotopes and isotopomers in the water-column and the sediments. Three weeks. |
| 2016 | R/V <i>Ronald H. Brown</i> (NOAA), P18 US GO-SHIP, leg 1 (North and South Pacific, San Diego to Easter Island), Chief Scientist: Brendan Carter, Co-chief Scientist: Annie Bourbonnais , lead for floats, drifters and CTD deployments and recovery, dissolved gases (N ₂ , Ar, N ₂ O) and inorganic nitrogen (NO ₂ ⁻ , NO ₃ ⁻) concentrations, isotopes and isotopomers, tritium and He isotopes. Five weeks. |
| 2014 | R/V <i>New Horizon</i> , Eastern Tropical North Pacific, Chief Scientist: Frank Stewart/Mark Altabet, dissolved gases (O ₂ , N ₂ , Ar) and DIN isotopes; onboard N ₂ /Ar and nutrient analysis. Four weeks. |
| 2013 | R/V <i>Meteor</i> , Eastern Tropical South Pacific, Chief Scientist: Stefan Sommer, dissolved gases (N ₂ , Ar, N ₂ O) and DIN isotopes. Four weeks. |
| 2012 | R/V <i>Meteor</i> , Eastern Tropical South Pacific, Chief Scientist: Hermann Bange, dissolved gases (O ₂ , N ₂ , Ar, N ₂ O) and DIN isotopes. Four weeks. |

- 2009 R/V *Atlantis (HOV Alvin)*, Northeast Pacific (Juan de Fuca Ridge), Chief Scientist: James Holden, diver, DIN isotopes and N-loss rate measurements (¹⁵N-labeled incubations) and onboard nutrient analysis. Two weeks.
- 2008 – 2009 R/V *Strickland*, Saanich Inlet, British Columbia, 9 one-day cruises, **Chief Scientist: Annie Bourbonnais** (Canada), dissolved gases (O₂, N₂, Ar) and DIN isotopes; onboard nutrient and O₂ analysis.
- 2008 R/V *Atlantis (HOV Alvin)*, Northeast Pacific (Juan de Fuca Ridge), Chief Scientist: James Holden, diver, DIN isotopes and N-loss rate measurements and onboard nutrient analysis. Three weeks.
- 2008 R/V *John P. Tully (ROV ROPOS)*, Northeast Pacific (Juan de Fuca Ridge), Chief Scientist: Kim Juniper, DIN isotopes and N-loss rate measurements. 1 week.
- 2007 R/V *Atlantis (ROV Jason2)*, Northeast Pacific (Juan de Fuca Ridge), Chief Scientists: David Butterfield and Bill Chadwick, DIN isotopes and onboard nutrient analysis. 17 days.
- 2005 R/V *Poseidon*, Subtropical Northeast Atlantic (Azores Front), Chief Scientist, Tom J. Müller: DIN and particulate organic N isotopes. 9 days.

PROFESSIONAL SERVICES

- 2018 – present **Review editor** for *Frontiers in Marine Science* (section Marine Biogeochemistry)
- 2015 – present **External reviewer**: US NSF (Marine Geology and Geophysics, Chemical Oceanography; Major Research Instrumentation, Integrative Ecological Physiology, and Arctic Natural Sciences)
Chilean Government (FONDECYT Program)
COFUND II 3rd call, Empa (Switzerland)
Panelist for NSF (CNH2: Dynamics of Integrated Socio-Environmental Systems)
- 2013 – present **External reviewer**: *Aquatic Sciences, Biogeosciences, Chemical Geology, Chemosphere, Deep-Sea Research I & II, Environmental Microbiology Reports, Environmental Pollution, Environmental Science & Technology, Frontiers in Marine Science, Geochemica et Cosmochimica Acta, Global Biogeochemical Cycles, Hydrobiologia, Journal of Geophysical Research – Biogeosciences, Journal of Marine Systems, Limnology & Oceanography, Limnology & Oceanography Letters, Marine Chemistry, Oceanography, Philosophical Transactions A, and Proceedings of the National Academy of Sciences.*
- 2019 **Faculty organizing committee**, 6th annual southeastern biogeochemistry symposium, Mar 30-31, University of South Carolina.
- 2018 **Session chair**: Evolution of Biogeochemical Cycles in the Arctic Ocean: Predicting the impact from and on Climate Change, Ocean Sciences Meeting, Portland, USA.
- 2014 – 2018 **Steering Committee member** for the Society for Women in Marine Science (SWMS), WHOI.
- 2017 **Member** of the WHOI International's Committee.
- 2016 – 2017 **Member** of the WHOI Women's Committee.

- 2016 – 2017 **Postdoctoral representative** for the Chemistry & Geochemistry department and **Vice President** of the WHOI Postdoctoral Association.
- 2009 School of Earth and Ocean Sciences (SEOS) **seminar organizer**, UVic.
- 2008 – 2009 **SEOS Graduate student representative** (UVic).
- 2005 – 2007 **Quebec Activities Representative** for the Canadian Water Network: organized two scientific conferences at UQAM.

CONTRIBUTIONS TO DEPARTMENT, COLLEGE AND UNIVERSITY

University of South Carolina

- Spring 2019 – present **Graduate admissions committee**, SEOE, College of Arts and Sciences.
- Fall 2019 – present **Marine Science (MSCI) Undergraduate committee**, SEOE, College of Arts and Sciences.

MENTORING AND OUTREACH ACTIVITIES

- 2018 **Mentor** for component 2 of the Ocean Sciences Meeting Student Mentoring Program, Portland, OR, USA.
- 2017 **Mentor** for the ASLO Meeting Student Mentoring Program, Honolulu, Hawaii, USA.
- Spring 2016 **Judge** for the University of Massachusetts Intercampus Marine Science 2016 Research Symposium, Dartmouth, MA, USA.
- Spring 2016 **Judge** for the South Shore Regional Science Fair, Bridgewater State University, MA, USA.
- 2016 **Mentor** for component 2 of the Ocean Sciences Meeting Student Mentoring Program, New Orleans, LA, USA.
- 2009 – 2012 Organization of meetings and symposiums for student members of the Explorers Club.
- Spring 2008, 2012 **Judge** for the Vancouver Island Science Fair for high-school students (UVic).
- 2008 and 2011 **Volunteer** during the Experience UVic day for high-school students: performed short experimental demonstrations at the kiosk.
- 2011 **Team leader** during the All Science Challenge Day (Uvic) for the educational outreach program “Let’s Talk Science”.
- 2004 –2005 **Volunteer** for the educational outreach program “Let’s Talk Science”: Organized activities and presentations for elementary and high school students (University of Ottawa).

PROFESSIONAL AFFILIATIONS

- American Geophysical Union (AGU, since 2006)
 Association for the Sciences of Limnology and Oceanography (ASLO, since 2017)
 Canadian Water Network (since 2006)

European Geophysical Union (EGU, since 2011)
Golden Key Award Society (since 2003)
The Society for Women in Marine Science (since 2014)