Skidaway Institute of Oceanography
UNIVERSITY OF GEORGIA

Clifton Stryker Buck, Ph.D.

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2025-present	Professor
2019-2025	Associate Professor
2013-2019	Assistant Professor University of Georgia Skidaway Institute of Oceanography
2011-2013	Postdoctoral Research Associate Florida State University
2008-2010	Postdoctoral Scholar University of California, Santa Cruz

Education

2008 Ph.D. Oceanography
Florida State University
Dissertation*: "Aerosol Iron Solubility: Observations from the Atlantic and Pacific Oceans"*
Advisor: Dr. William Landing

2001 B.S. Earth and Environmental Science – Honors
Lehigh University
Thesis: *"The Nutrient Dynamics of the Lehigh River Watershed"*
Advisor: Dr. Donald Morris

Funding Awards (*Active)

- *NSF Ocean Section – Chemical Oceanography. Collaborative Research: Linking size distribution, solubility, and deposition flux of aerosol trace elements: a North Atlantic time-series study ($367,399; 6/15/2024-6/14/2027)
- *NSF Ocean Section – Chemical Oceanography. US GEOTRACES GP17-OCE and GP17-ANT: Atmospheric deposition and aerosol fractional solubility in remote ocean regions ($488,656; 08/01/2021 – 07/31/2025)
- *NSF Ocean Section – Chemical Oceanography. Hawaii Aerosol Time Series (HATS): Quantifying Marine Dust Deposition and Composition in an Oligotrophic Gyre ($1,074,114; 09/01/2020 – 08/31/2025)
- NSF EAR – Hydrologic Sciences. Collaborative Research: Hydrology of the vegetation on vegetation: Comparison and scaling of rainfall interception and solute alteration by common arboreal epiphytes ($448,725; 06/01/2020-05/31/2024).
- NSF Ocean Section – Ocean Instrumentation. University of Georgia/RV Savannah Oceanographic Instrumentation ($182,625; 03/15/2020-02/28/2023)
  To fund purchase of a shared-use trace element clean rosette, bottles, and CTD.

- NSF OPP. Collaborative Research: Defining the atmospheric deposition of trace elements into the Arctic Ocean-Ice ecosystem during the year-long MOSAiC ice drift ($350,412; 01/01/2018-12/31/2022)
- NSF FSML: Acquisition of a Raman Microscope at the Skidaway Institute of Oceanography ($207,500; 11/01/2019 – 10/31/2021)
- NSF Ocean Section - Chemical Oceanography. Collaborative Research: US GEOTRACES PMT: Quantification of Atmospheric Deposition and Trace Element Fractional Solubility ($466,135; 03/15/2018-02/28/2022)
- NSF CNIC. Collaborative Research: U.S.-Brazil Planning visit: Facilitating collaborative research on the Southern Brazilian Continental Shelf. ($10,430; 01/01/2015-07/31/2015)
- NSF Ocean Section - Chemical Oceanography. Collaborative Research: GEOTRACES Arctic Section: Collection and analysis of atmospheric deposition ($264,219; 10/01/2014-09/30/2017)
- NSF Ocean Section - Chemical Oceanography. Collaborative Research: GEOTRACES Pacific Section: Collection and analysis of atmospheric deposition ($199,380; 12/01/2012-11/30/2016)

Peer-Reviewed Publications ([P]Postdoc/Professional, [G]Graduate Student)

ORCID: 0000-0002-5691-9636

1. He, Y., D. Kadko, M. Stephens, M.T. SheridanG, **C.S. Buck**, C. MarsayP, W.M. Landing, M. Zheng, P. Liu. Constraining aerosol deposition over the global ocean. *Nature Geoscience*. (accepted)
2. Bunnell, Z., M. Sieber, D. Hamilton, C. Marsay[P], **C.S. Buck**, W.M. Landing, S. John, T. Conway. 2025. The influence of natural, anthropogenic, and wildfire sources on iron and zinc aerosols delivered to the North Pacific Ocean. *Geophysical Research Letters,* doi: 10.1029/2024GL113877
3. Ohnemus, D., C. Kollman[G], C. Marsay, M. Ricci, **C.S. Buck**. 2025. The Hawaii Dust Regime: Patterns and Variability in Aerosol Mineral Dust from MERRA-2 at Station ALOHA and the Hawaii Aerosol Time-Series. *JGR – Atmospheres.*, doi: 10.1029/2024JD041860.
4. Raffai, A., S.G. Gotsch, A.F.P. Moore[P], **C.S. Buck**, J. Van Stan II. 2025. Evaporation and condensation dynamics within saturated epiphyte communities in a *Quercus virginiana* forest (coastal Georgia, USA). *Agricultural and Forest Meteorology.* doi: 10.1016/j.agrformet.2024.110329.
5. **Buck, C.S.**, S. Fietz, D. Hamilton, T. Ho, M.M.G. Perron, R.U. Shelley. 2024. GEOTRACES: Fifteen years of progress in marine aerosol research. Invited submission to *Oceanography*. doi: 10.5670/oceanog.2024.409
6. Stephens, M.P., C. Marsay, M. Schneebeli, W.M. Landing, **C.S. Buck**, W. Geibert. 2024. Aerosol deposition and snow accumulation processes from Beryllium-7 measurements in the Central Arctic Ocean: Results from the MOSAiC expedition. *JGR-Oceans*. doi: 10.1029/2023JC020044
7. Moore, A.[P], J. Antoine, L. Bedoya, A. Medina, **C.S. Buck**, J. Van Stan, S. Gotsch. 2023. Drought decreases water storage capacity of two arboreal epiphytes with differing ecohydrological traits. *Science of The Total Environment*, doi: 10.1016/j.scitotenv.2023.164791.
8. Sieber, M., N.T. Lanning, Z.B. Bunnell, X. Bian, S.-C. Yang, C.M. Marsay[P], W.M. Landing, **C.S. Buck**, J.N. Fitzsimmons, S.G. John, T.M. Conway. 2022. Biological, physical, and atmospheric controls on the distribution of cadmium and its isotopes in the North Pacific Ocean. *Global Biogeochemical Cycles,* doi: https://doi.org/10.1029/2022GB007441.

9. Marsay, C.M.[P], W.M. Landing, D. Umstead[G], C.P. Till, R. Freiberger, J.N. Fitzsimmons, N.T. Lanning, A.M. Shiller, M. Hatta, R. Chmiel, M. Saito, **C.S. Buck**. 2022. Does sea-spray aerosol contribute significantly to aerosol trace element loading? A case study from the U.S. GEOTRACES Pacific Meridional Transect (GP15). *Global Biogeochemical Cycles,* doi: 10.1029/2022GB007416.
10. Wei, Z., J.K. Cochran, E. Horowitz, P. Fitzgerald, C. Heilbrun, D. Kadko, M. Stephens, C.M. Marsay[P], **C.S. Buck**, W.M. Landing. 2022. ^{210}Pb and ^{7}Be as coupled flux and source tracers for aerosols in the Pacific Ocean. *Global Biogeochemical Cycles,* doi: 10.1029/2022GB007378.
11. Marsay, C.M.[P], D. Kadko, W.M. Landing, **C.S. Buck**. 2022. Aerosol trace element concentrations and bulk deposition fluxes during the US GEOTRACES GP15 Pacific Meridional Transect. *Global Biogeochemical Cycles*. doi: 10.1029/2021GB007122
12. Shupe, M.D., M. Rex…**C.S. Buck**…C.M. Marsay[P] et al. 2022. Overview of the MOSAiC Expedition – Atmosphere. *Elementa: Science of the Anthropocene*. doi: 10.1525/elementa.2021.00060
13. Jensen, L., N.T. Lanning, C.M. Marsay[P], **C.S. Buck**, A. Aguilar-Islas, R. Rember, W.M. Landing, R.M. Sherrell, J. N. Fitzsimmons. 2021. Biogeochemical cycling of colloidal trace metals in the Arctic cryosphere. *JGR-Oceans*. doi.org/10.1029/2021JC017394
14. Mukherjee, P., C.M. Marsay[P], S. Yu, **C.S. Buck**, W.M. Landing, Y. Gao. 2021. Concentrations and size-distributions of water-soluble inorganic and organic species on aerosols over the Arctic Ocean observed during the US GEOTRACES Western Arctic Cruise GN01. *Atmospheric Environment* 261, 118569, doi: 10.1016/j.atmosenv.2021.118569.
15. Kadko, D., W.M. Landing, **C.S Buck**. 2020. Quantifying Atmospheric Trace Element Deposition over the Ocean on a Global Scale with Satellite rainfall products. *Geophysical Research Letters,* 47, e2019GL086357. doi: 10.1029/2019GL086357.
16. Kadko, D., A. Aguilar-Islas, **C.S. Buck**, J. Fitzsimmons, W. Landing, A. Shiller, C. Till, K. Bruland, E. Boyle, R. Anderson. 2020. Sources, fluxes and residence times of trace elements measured during the US GEOTRACES East Pacific Zonal Transect. *Mar. Chem. 222,* 103781, doi: 10.1016/j.marchem.2020.103781.
17. Gao, Y., C. Marsay[P], S. Yu., S. Fan, P. Mukherjee, **C.S. Buck**, W.M. Landing. 2019. Particle-size variability of aerosol iron and impact on the iron solubility and dry deposition: A case study in the Arctic Ocean. *Scientific Reports*, 9, 16653 doi: 10.1038/s41598-019-52468-z.
18. Meskhidze N., C. Völker, H. Al-Abadleh, K. Barbeau, M. Bressac, **C.S. Buck**, R. Bundy, P. Croot, Y. Feng, A. Ito, A. Johansen, W. Landing, J. Mao, S. Myriokefalitakis, D. Ohnemus, B. Pasquier, Y. Ye. 2019. Perspective on Identifying and Characterizing the Processes Controlling Iron Speciation and Residence Time at the Atmosphere-Ocean Interface. *Mar. Chem.*, doi: 10.1016/j.marchem.2019.103704
19. Ito A., S. Myriokefalitakis, M. Kanakidou, N. Mahowald, R. Scanza, D. Hamilton, A. Baker, T. Jickells, M. Sarin, S. Bikkina, Y. Gao, R. Shelley, **C. S. Buck**, W. Landing, A. Bowie, M. Perron, C. Guieu, N. Meskhidze, M. Johnson, Y. Feng, J. Kok, A. Nenes, R. Duce. 2019. Pyrogenic iron: The missing link to high iron solubility in aerosols. *Science Advances*, 5 (5), eaau7671, doi: 10.1126/sciadv.aau7671
20. **Buck, C.S.**, A. Aguilar-Islas, C. Marsay[P], D. Kadko, W.M. Landing. 2019. Trace element concentrations, elemental ratios, and enrichment factors observed in aerosol samples collected during the US GEOTRACES eastern Pacific Ocean transect (GP16). *Chemical Geology,* 511, 212-224, doi: 10.1016/j.chemgeo.2019.01.002

21. Kadko, D., A. Aguilar-Islas, C. Bolt, **C.S. Buck**, J.N. Fitzsimmons, L.T. Jensen, W.M. Landing, C.M. Marsay[P], R. Rember, A.M. Shiller, L.M. Whitmore, R.F. Anderson. 2019. The residence times of trace elements determined in the surface Arctic Ocean during the 2015 US Arctic GEOTRACES expedition. *Marine Chemistry,* 208, 56-69, doi: 10.1016/j.marchem.2018.10.011

22. Scanza, R., N. Mahowald, C. Garcia-Pando, **C.S. Buck**, A. Baker, D. Hamilton. 2018. Atmospheric processing of iron in mineral and combustion aerosols: Development of an intermediate complexity mechanism suitable for Earth system models. *Atmospheric Chemistry and Physics,* 18(19), 14175-14196, doi: 10.5194/acp-18-14175-2018.

23. Schlitzer, R., R. A. Anderson, E. M. Dodas, M. Lohan, W. Geibert, A. Tagliabue, A. Bowie, C. Jeandel, M. Maldonado, W. Landing, D. Cockwell, **C.S. Buck** et al. 2018. The GEOTRACES Intermediate Data Product 2017. *Chemical Geology,* 493, doi: 10.1016/j.chemgeo.2018.05.040.

24. Marsay, C.[P], D. Kadko, W. Landing, B. Summers, P. Morton, **C.S. Buck**. 2018. Concentrations, provenance and deposition rates of aerosol trace elements during US GEOTRACES Arctic cruise GN01. *Chemical Geology,* 502, doi: 10.1016/j.chemgeo.2018.06.007.

25. Marsay, C.[P], A. Aguilar-Islas, J. Fitzsimmons, M. Hatta, L. Jensen, S. John, D. Kadko, W. Landing, N. Lanning, P. Morton, A. Pasqualini, S. Rauschenberg, R.M. Sherrell, A. Shiller, B. Twining, L. Whitmore, R. Zhang, **C.S. Buck**. 2018. Dissolved and particulate trace metals in late summer Arctic melt ponds. *Marine Chemistry,* 204, 70-85, doi: 10.1016/j.marchem.2018.06.002.

26. **Buck, C.S.**, C. Hammerschmidt, K. Bowman, G. Gill, W.M. Landing. 2015. Flux of total and methylmercury to the northern Gulf of Mexico from U.S. estuaries. *Env. Sci. Tech.* 49, 13992-13999, DOI: 10.1021/acs.est.5b03538.

27. Grand, M., C. Measures, M. Hatta, W. Hiscock, W.M. Landing, P. Morton, **C.S. Buck**, P. Barrett, J. Resing. 2015. Dissolved Fe and Al in the upper 1000m of the eastern Indian Ocean: a high-resolution transect along 95°E from the Antarctic margin to the Bay of Bengal. *Global Biogeochem. Cycles, 29,* doi: 10.1002/2014GB004920.

28. Grand, M., C. Measures, M. Hatta, W. Hiscock, **C.S. Buck**, W.M. Landing. 2015. Dust deposition in the eastern Indian Ocean: the ocean perspective from Antarctica to the Bay of Bengal. *Global Biogeochem. Cycles, 29,* doi: 10.1002/2014GB004898.

29. Barrett, P.M., J.A. Resing, N.J. Buck, R.A. Feely, J. Bullister, **C.S. Buck**, W.M. Landing. 2014. Calcium carbonate dissolution in the upper 1000m of the eastern North Atlantic. *Global Biogeochem. Cycles,* 28, doi: 10.1002/2013GB004619.

30. Grand, M., **C.S. Buck**, W.M. Landing, C. Measures, M. Hatta, W. Hiscock, M. Brown, J. Resing. 2014. Quantifying the Impact of Atmospheric Deposition on the Biogeochemistry of Fe and Al in the Upper Ocean: A Decade of Collaboration with the CLIVAR / US Repeat Hydrography Program. *Oceanography 27(1).*

31. **Buck, C.S.**, W.M. Landing, J. Resing. 2013. Pacific Ocean Aerosols: Deposition and Solubility of Iron, Aluminum, and Other Trace Elements. *Mar. Chem.,* 157, 117-130, doi: 10.1016/j.marchem.2013.09.005.

32. Morton, P.L., W.M. Landing, A. Milne, A. Aguilar-Islas, A. Baker, M. Baskaran, **C.S. Buck**, et al. 2013. Methods for the sampling and analysis of marine aerosols: Results from the 2008 GEOTRACES aerosol intercalibration experiment. *Limnol. Oceanogr.: Methods 11*, 62-78, doi:10.4319/lom.2013.11.62.

33. **Buck, C.S.**, A. Paytan. 2012. Evaluation of commonly used filter substrates for the measurement of aerosol trace element solubility. *Limnol. Oceanogr.: Methods 10,* 790-806, doi:10.4319/lom.2012.10.790

34. Barrett, P., J. Resing, N. Buck, **C.S. Buck,** W.M. Landing, C. Measures. 2012. The trace element composition of suspended particulate matter in the upper 1000m of the eastern North Atlantic Ocean: A16N. *Mar. Chem.* 142-144, 41-53, doi: 10.1016/j.marchem.2012.07.006.

35. Han, Q., C.S. Zender, J.K. Moore, **C.S. Buck**, Y. Chen, A. Johansen, C.I. Measures. 2012. Estimating mineral aerosol iron and aluminum solubility from particle size using diffusion-controlled and surface-area-controlled approximations. *Global Biogeochem. Cycles,* 26, doi:10.1029/2011GB004186.

36. Gallon, C., M. Ranville, C. Conaway, W. Landing, **C. Buck**, P. Morton, A.R. Flegal. 2011. Asian industrial lead inputs to the North Pacific evidenced by lead concentrations and isotopic compositions in surface waters and aerosols. *Env. Sci. Tech.,* 23, doi:10.1021/es2020428.

37. **Buck, C.S.**, W.M. Landing, J.A. Resing. 2010. Particle size and aerosol iron solubility: A high-resolution analysis of Atlantic aerosols. *Mar. Chem.*, 120, 14-24, doi: 10.1016/j.marchem.2008.11.002

38. **Buck, C.S.**, W.M. Landing, J.A. Resing, C.I. Measures. 2010. The Solubility and Deposition of Aerosol Fe and other Trace Elements in the North Atlantic Ocean: Observations from the A16N CLIVAR/CO_2 Repeat Hydrography Section. *Mar. Chem.*, 120, 57-70, doi: 10.1016/j.marchem.2008.08.003

39. Ranville, M., G. Cutter, **C.S. Buck**, W.M. Landing, L. Cutter, J. Resing, R.A., Flegal. 2010. Aeolian contamination of Se and Ag in the North Pacific from Asian fossil fuel combustion. *Env. Sci. Tech.,* 44 (5), 1587-1593, doi:10.1021/es902523m

40. Measures, C.I., W.M. Landing, M.T. Brown, **C.S. Buck.** 2008. A commercially available rosette system for trace metal clean sampling. *Limnol. Oceanogr.: Methods 6*, 384-394.

41. Measures, C.I., W.M. Landing, M.T. Brown, **C.S. Buck.** 2008. High resolution Al and Fe data from the Atlantic Ocean CLIVAR-CO_2 Repeat Hydrography A16N transect shows extensive linkages between atmospheric dust and upper ocean geochemistry. *Global Biogeochem. Cycles, 22,* GB1005, doi:10.1029/2007GB003042

42. **Buck, C.S.**, W.M. Landing, J.A. Resing, G.T. Lebon. 2006. Aerosol iron and aluminum solubility in the northwest Pacific Ocean: Results from the 2002 IOC Cruise. *Geochem. Geophys. Geosyst., 7,* Q04M07, doi: 10.1029/2005GC000977

Submitted Manuscripts

Landing, W., A. Milne, C.S. Buck, S.J. Rigby, A. Tagliabue. Distributions and cycling of biologically-active trace metals in the upper 1000 meters of the North and South Pacific Ocean along 150◦W: the P16 transect. *JGR – Oceans*. July 2024.

Elliott, H., E. Blades, H. Royer, C.S. Buck, C. Kollmna[G], R. Kukkadapu, S. China, Z. Cheng, N. Lata, M. Engelhard, M. Bowden, N. Lahiri, R. Parham, L. Meagher, A. Ault, A. Hornby, K. Dayton, E. Gazel, C. Gaston. Composition, rather than size, controls iron solubility in volcanic ash: Implications for fertilization of the North Atlantic. *Global Biogeochemical Cycles*. June 2025.

Marsay, C.M., M. Stephens, S. Bucci, W.M. Landing, **C.S. Buck**. Concentrations, solubility, and deposition fluxes of aerosol trace elements in the central Arctic during winter and spring: results from the MOSAiC expedition. *Global Biogeochemical Cycles*, April 2025.

Technical Reports

Mercury Species, Fluxes, and Cycling in Gulf of Mexico Estuaries. Prepared for the Florida Department of Environmental Protection, 241pp (2013)

Courses

MARS 8020 – Chemical Oceanography
MARS 1011e – Introduction to the Marine Environment (online)

Professional and Graduate Student Advising

Dr. Althea Moore – Postdoctoral Associate
Dr. Christopher Marsay – Research Professional (now research faculty at Univ. of Delaware)
Charlotte Kollman – PhD student
Michael Sheridan – MS Student
Devon Umstead – MS, Graduation: May 2022
Lisa Kovalanchik – Non-thesis MS, Graduation: May 2022
Mariah Ricci – PhD Committee Member UGA
Justin Manley – PhD Committee Member UGA
Zachary Bunnell – MS Committee Member, University of South Florida
Eleanor Bates – PhD Committee Member, University of Hawaii
Hope Elliott – PhD Committee Member, University of Miami

Undergraduate Student and Intern Advising

Allison Statton – Southwest Oklahoma State University undergraduate (2015 REU)
Alexander Kovensky – Georgia Tech undergraduate (2022)
Sarah Belcher – UGA undergraduate (2022; MARS4960R)

Media Coverage

WTOC story on HATS Project
WSAV story on Arctic GEOTRACES
WTOC story on MOSAiC
GPB story on MOSAiC
WABE story on MOSAiC
WABE story on MOSAiC and COVID

Invited Lectures and Panel Participation

2025 SCOR Working Group 38: Research priorities for improving global chemical flux estimates of atmospheric deposition to the ocean

2024 Panelist for the Global Ocean Acidification Network: *Building Capacity in Physical Chemistry for Oceanography: How To Address the Emerging Skills Gaps*
2021 Trace Element Limitation of Marine Primary Production. Kennesaw State University
2015 Trace Element Biogeochemistry: La Plata Plume, Patos Lagoon and Groundwater, Fundação Universidade do Rio Grande, Rio Grande, Brazil
2015 Trace Element Biogeochemistry: Aerosol Iron as a Case Study, Savannah State University
2013 Iron and Mercury – Case Studies in Trace Metal Cycling. University of Georgia
2013 Iron and Mercury – Case Studies in Trace Metal Cycling. Skidaway Institute of Oceanography
2011 Aerosols – Linking the Continents, Ocean, and Climate. Sweet Briar College
2010 Aerosol Iron – Linking the Continents to the Deep Blue Sea. Oregon State University

Presentations and Posters since joining UGA-Skidaway Institute:

(presenter underlined, [1]invited, [P]Postdoc/Professional, [G]Graduate Student)

1. Kim, Y., N. Lanning, K. Dick, M. Sheridan[G], C. Ryder, **C.S. Buck**, E. Boyle, J. Fitzsimmons, F. Marcantonio (2025). Does surface seawater actively trace the Pb isotope ratios of aerosol Pb? A case study of the low-dust South Pacific and Southern Oceans. EAG Goldschmidt Conference, Prague, Czechia.
2. **Buck, C.S.**, M. Sheridan[G], Y. He, C. Marsay, M. Stephens (2024). Atmospheric inputs of trace elements to the South Pacific Ocean: Fractional solubility and deposition flux on U.S. GEOTRACES GP17-OCE. AGU Fall Meeting, Washington D.C.
3. Stephens, M., Y. He, M. Sheridan[G], **C.S. Buck**, C. Marsay, W.M. Landing, M. Zheng, P. Liu (2024). Underestimated aerosol deposition over the global ocean: evidence from radioisotope Beryllium-7. AGU Fall Meeting, Washington D.C.
4. Marsay, C., P. Morton, W.M. Landing, **C.S. Buck** (2024). Aerosol trace element concentrations, fractional solubility, and deposition fluxes: Comparison of Central Arctic Ocean datasets from winter/spring (MOSAiC) and summer (U.S. GEOTRACES GN01). AGU Fall Meeting, Washington D.C.
5. Stephens, M.P., **C.S. Buck**, Y. He, C. Kollman[G], C. Marsay, W.M. Landing, D. Ohnemus, M. Sheridan[G] (2024). A decade of Beryllium-7 measurements in the Pacific, Indian, and Southern Oceans. AGU Fall Meeting, Washington D.C.
6. Ohnemus, D., C. Kollman[G], C. Marsay, M. Ricci, **C.S. Buck** (2024). The Hawaii dust regime: Patterns and variability in aerosol mineral dust from MERRA-e at Station ALOHA and the Hawaii Aerosol Time-series. AGU Fall Meeting, Washington D.C.
7. Kollman, C.[G], C. Marsay, D. Ohnemus, M. Stephens, E. Bates, **C.S. Buck** (2024). Results from the Hawaii Aerosol Time-series reveal seasonally contrasting aerosol solubility in the North Pacific oligotrophic gyre, driven by source diversity in spring and fall dust pulses. AGU Fall Meeting, Washington D.C.
8. Elliott, H., E. Blades, H. Royer, **C.S. Buck**, C. Kollman[G], R. Kukkadapu, S. China, Z. Cheng, N.N. Lata, M. Engelhard, M.E. Bowden, N. Lahiri, R. Parkam, L. Meagher, A.P. Ault, A. Hornby, K. Dayton, E. Gazel, A. Oehlert, K. Popendorf, C. Gaston (2024). Constraining iron solubility in volcanic ash: Do ash-derived nutrients fertilize the surface ocean? AGU Fall Meeting, Washington D.C.
9. Elliott, H., C. Gaston, E. Blades, H. Royer, A. Oehlert, R. Kukkadapu, S. China, Z. Cheng, N. Nahar Lata, M. Engelhard, M. Bowden, N. Lahiri, **C.S. Buck**, C. Kollman[G], E. Gazel, A.

Hornby, K. Dayton, R. Parham, L. Meagher, A. Ault (2024). Iron in volcanic ash: Iron-specific mineralogy explains solubility. EAG Goldschmidt Conference, Chicago, Illinois.

10. Sheridan, M.[G], C. Marsay, M. Stephens, Y. He, **C.S.** Buck (2024). Aerosol trace element fractional solubility and deposition along US GEOTRACES GP17-OCE. ASLO/AGU Ocean Sciences Meeting, New Orleans, Louisiana.
11. Ricci. M., D. Ohnemus, **C.S. Buck**, C. Marsay, C. Kollman[G] (2024). Seasonal aerosol controls over size-fractionated marine particulate trace element composition at Station ALOHA. ASLO/AGU Ocean Sciences Meeting, New Orleans, Louisiana.
12. Kollman, C.[G], C. Marsay, D. Ohnemus, M. Stephens, E. Bates, **C.S. Buck** (2024). An aerosol time-series reveals seasonal cycles in aerosol composition and solubility over the North Pacific Ocean. ASLO/AGU Ocean Sciences Meeting, New Orleans, Louisiana.
13. Marsay, C., A. Aguilar-Islas, W. Landing, **C.S. Buck** (2024). Trends in size-fractionated aerosol trace element distributions along two U.S. GEOTRACES Pacific Ocean sections. ASLO/AGU Ocean Sciences Meeting, New Orleans, Louisiana.
14. Elliott, H., C. Gaston, E. Blades, H. Royer, A. Oehlert, R. Kukkadapu, S. China, Z. Cheng, N. Nahar Lata, **C.S. Buck**, C. Kollman[G], E. Gazel, A. Hornby, A. Ault (2024). Single-particle analysis of volcanic ash reveals differences in Fe minerology, speciation, and solubility. ASLO/AGU Ocean Sciences Meeting, New Orleans, Louisiana.
15. Kollman, C.[G], C. Marsay, D. Ohnemus, M. Ricci, M. Stephens, E. Bates, **C.S. Buck** (2023). Seasonality in aerosol flux drives marine particle residence time variability during Year 1 of the Hawaii Aerosol Time-Series. AGU Fall Meeting, San Francisco, California.
16. Moore, A.[P], J. Antoine, L. Bedoya, **C.S. Buck**, J. Van Stan, S.G. Gotsch (2023). Drought stress decreases water interception capacity of two arboreal epiphytes with differing ecohydrological traits. Ecological Society of America Annual Meeting, Portland, Oregon.
17. Van Stan, J., A. Raffai, S.G. Gotsch, A. Moore[P], **C.S. Buck** (2023). Rain and condensation capture by a mixed epiphyte community in coastal Georgia (USA). Ecological Society of America Annual Meeting, Portland, Oregon.
18. He, Y., M.T. Sheridan[G], **C.S. Buck**, C.M. Marsay[P], M.P. Stephens (2023). Using Beryllium-7 as a tracer of aerosol deposition and upper ocean mixing processes in the South Pacific and Southern Oceans during the GP17-OCE. Gordon Research Conference: Chemical Oceanography.
19. Ohnemus, D., **C.S. Buck**, C. Kollman[G], E. Bates, M. Ricci (2023). Preliminary results from the Hawai'i Aerosol Time-Series: Linking atmospheric deposition with water column size-fractionated particulate trace element composition. Gordon Research Conference: Chemical Oceanography.
20. Kollman, C.[G], D. Ohnemus, M. Charette, **C.S. Buck** (2023). Radium-224: A potential new tracer for aerosol deposition to the surface ocean. EAG Goldschmidt Conference, Lyon, France.
21. Kollman, C.[G], C. Marsay[P], D. Ohnemus, E. Bates, M. Stephens, **C.S. Buck** (2023). Early observations of aerosols from the Hawaii Aerosol Time-Series. EAG Goldschmidt Conference, Lyon, France.
22. **Buck, C.S.**, C. Marsay[P], W. Landing, M. Stephens (2023). Aerosol trace element fractional solubility and deposition in the central Arctic during the MOSAiC campaign. ASLO Aquatic Sciences Meeting, Mallorca, Spain.

23. Invited Panelist for Session: Experiential Learning + Undergraduate Research Discussion, 2023 Georgia Climate Conference, Athens, GA.
24. **Buck, C.S.**, C. Alexander, J. Brandes, N. Cohen, C. Edwards, D. Ohnemus, S. Rivero-Calle (2023). Semester@Skidaway: Bringing Field-Based Marine Science Education to UGA Undergraduates. Georgia Water Resources Conference. Athens, GA.
25. Marsay, C.M.[P], W.M. Landing, M. Stephens, D. Kadko, **C.S. Buck** (2022). Aerosol trace element concentrations and fractional solubility during Legs 2 and 3 of the MOSAiC campaign. AGU Fall Meeting.
26. Moore, A.F.P.[P], J. Antione, L. Bedoya, **C.S. Buck**, J.T. Van Stan, S. Gotsch (2022). Simulated drought stress influences water interception capacity and leaf properties of arboreal epiphytes. AGU Fall Meeting.
27. Raffai, A., A.F.P. Moore[P], S. Gotsch, **C.S. Buck**, J. T. Van Stan (2022). Evaporation and condensation in an epiphyte community. AGU Fall Meeting.
28. **Buck, C.S.**, C.M. Marsay[P], W.M. Landing (2022). Fractional solubility observations for aerosol trace elements collected on the 2018 US GEOTRACES GP15 section. ASLO/AGU Ocean Sciences Meeting. (*accepted but not presented*)
29. Marsay, C.M.[P], W.M. Landing, **C.S. Buck** (2022). Size-Fractionated aerosol iron concentrations and solubility during three US GEOTRACES sections in the Pacific and Arctic Oceans. ASLO\AGU Ocean Sciences Meeting. (*accepted but not presented*)
30. Umstead, D.[G], **C.S. Buck**, C.M. Marsay[P], W.M. Landing (2022). Bulk aerosol soluble ion concentrations and aerosol trace metal fractional solubility: US GEOTRACES GP15 Pacific Meridional Transect. ASLO/AGU Ocean Sciences Meeting.
31. Bunnell, Z., M. Sieber, C.M. Marsay[P], **C.S. Buck**, D. Hamilton, N. Mahowald, W.M. Landing, S. John, T. Conway (2021). Tracing anthropogenic iron, zinc, and cadmium aerosols delivered to the surface of the North Pacific Ocean. ASLO/AGU Ocean Sciences Meeting.
32. Landing, W.M., **C.S. Buck**, C. Hammerschmidt, K.L. Bowman, G.A. Gill (2021). Inorganic mercury and monomethyl mercury fluxes and speciation in Gulf of Mexico rivers and estuaries. AGU Fall Meeting. New Orleans LA.
33. Umstead, D.[G], **C.S. Buck**, C.M. Marsay[P], W.M. Landing (2020). Bulk aerosol cation and iron concentrations in the North Pacific Ocean: US GEOTRACES GP-15 Pacific Meridional Transect. Southeastern Biogeochemistry Symposium, Atlanta GA.
34. **Buck, C.S.**, C. Marsay[P], W.M. Landing (2020). Aerosol trace element concentration and fractional solubility in the North Pacific Ocean: US GEOTRACES GP-15 Pacific Meridional Transect. ASLO/AGU Ocean Sciences Meeting, San Diego CA.
35. Landing, W.M., **C.S. Buck**, D. Kadko, A. Milne (2020). Re-analysis of bioactive trace element atmospheric deposition along the P16 CLIVAR line. ASLO/AGU Ocean Sciences Meeting, San Diego CA.
36. Kadko, D., W.M. Landing, **C.S. Buck**, C. Marsay[P] (2020). Quantifying atmospheric trace element deposition on a global scale with GEOTRACES transect data. ASLO/AGU Ocean Sciences Meeting, San Diego CA.
37. Wozniak, A.S., J.I. Czarnecki, A.M. Ebling, N.R. Coffey, **C.S. Buck** (2020). Aerosol organic matter composition during the US GEOTRACES Pacific Meridional Transect (GP-15). ASLO/AGU Ocean Sciences Meeting, San Diego CA.

38. Fan, S., C. Marsay[P], B. Lai, W.M. Landing, E.D. Ingall, **C.S. Buck**, P.L. Morton, Y. Gao (2019). Chemical composition and oxidation of iron-containing aerosol particles observed during US GEOTRACES Western Arctic Cruise GN01. AGU Fall Meeting, San Francisco CA.
39. Marsay C.[P], WM Landing, **C.S. Buck (**2019). Concentrations, provenance, and fluxes of aerosol trace metals along the US GEOTRACES Pacific Meridional Transect (GP15). SOLAS Open Science Meeting in Japan.
40. **Buck, C.S.**, R. Shelley, C. Marsay[P], W. Landing (2018). Particle-size effects on aerosol fractional solubility in samples from US GEOTRACES section cruises. AGU Fall Meeting, Washington DC.
41. **Buck, C.S.**, R. Shelley, W. Landing (2018). Particle size effects on aerosol iron solubility in the North Atlantic (and beyond). Identifying and Characterizing the Processes Controlling Iron Speciation and Residence Time at the Atmosphere-Ocean Interface Workshop, Telluride CO.
42. 32 Ito, A., S. Myriokefalitakis, M. Kanakidou, N. Mahowald, R. A. Scanza, A. Baker, T. Jickells, M. Sarin, S. Bikkina, Y. Gao, R. Shelley, **C.S. Buck**, W. Landing, A. Bowie, P. Morgane, N. Meskhidze, M. Johnson, Y. Feng, R. Duce (2018). The GESAMP global model intercomparison: Evaluation of labile iron in aerosols. European Geosciences Union General Assembly, Vienna, Austria.
43. Kadko, D., **Buck, C.S.**, W. Landing (2018). Defining the atmospheric deposition of trace elements into the Arctic Ocean-Ice ecosystem during the year-long MOSAiC ice drift. MOSAiC Planning Meeting. Potsdam, Germany.
44. **Buck, C.S.**, W.M. Landing, A. Aguilar-Islas, C. Marsay[P], D. Kadko (2017). Aerosol deposition and fractional solubility of trace elements in the remote ocean. European Association of Geochemistry Goldschmidt Conference, Paris, France.
45. Wiedinmyer, C. H. Lihavainen, N. Mahowald, A. Alastuey, S. Albani, P. Artaxo, G. Bergametti, S. Batterman, J. Brahney, R. Duce, Y. Feng, **C.S. Buck**, P. Ginoux, Y. Chen, C. Guieu, D. Cohen, J. Hand, R. Harrison, B. Herut, A. Ito, R. Losno, D. Gomez, M. Kanakidou, W. Landing, B. Laurent, N. Mihalopoulos, K. Mackey, W. Maenhaut, C. Hueglin, C. Milando, R. Miller, S. Myriokefalitakis, J. Caufield Neff, M. Pandolfi, A. Paytan, C Perez Garcia-Pando, M. Prank, J. Prospero, E. Tamburo, D. Varrica, M. Wong, Y. Zhang (2017). COARSEMAP: synthesis of observations and models for coarse-mode aerosols. AGU Fall Meeting.
46. Ito, A., S. Myriokefalitakis, M. Kanakidou, N. Mahowald, A. Baker, T. Jickells, M. Sarin, S. Bikkina, Y. Gao, R. Shelley, **C.S. Buck**, W. Landing, A. Bowie, M. Perron, N. Meskhidze, M. Johnson, Y. Feng, R. Duce (2017). Evaluation of labile iron processing in atmospheric models. European Association of Geochemistry Goldschmidt Conference, Paris, France.
47. Hammerschmidt, C., **Buck, C.S.**, Bowman, K., Gill, G., Landing, W (2017). Mercury Partitioning and speciation in northern Gulf of Mexico estuaries. International Mercury as a Global Pollutant Meeting. Providence, Rhode Island.
48. Landing, W., R. Shelley, P. Morton, **C.S. Buck**, C. Marsay[P], A. Aguilar-Islas (2017). Aerosol chemistry and atmospheric deposition from the GEOTRACES Program. Gordon Research Conference: Chemical Oceanography.

49. **Buck, C.S.**, C. Marsay[P], A. Ebling, P. Morton, B. Summers, W. Landing (2017). Aerosol concentration, composition, and fractional solubility on the US GEOTRACES Western Arctic Cruise. ASLO Aquatic Sciences Meeting, Honolulu, Hawaii.

50. Summers, B., P. Morton, V. Salters, W. Landing, **C.S. Buck**, C. Marsay[P] (2017). A comparison of extremes: Pb isotopic composition in Arctic and Indian aerosols. ASLO Aquatic Sciences Meeting, Honolulu, Hawaii.

51. Marsay, C.[P], W. Landing, P. Morton, B. Summers, S. Rauschenberg, B. Twining, **C.S. Buck** (2017). Dissolved and particulate trace elements in Arctic melt ponds. ASLO Aquatic Sciences Meeting, Honolulu, Hawaii.

52. Mukherjee, P., Y. Gao, C. Marsay[P], **C.S. Buck**, W. Landing (2017). Characterization of the water-soluble inorganic and organic species on aerosols in the Arctic troposphere during summer. ASLO Aquatic Sciences Meeting, Honolulu, Hawaii.

53. Gao, Y., C.S. Buck, C. Marsay[P], P. Mukherjee, W.M. Landing (2016). Mass-size distributions of selected nutrient elements in aerosols and their air-to-sea fluxes to the Arctic Ocean: Preliminary results from the US GEOTRACES Arctic cruise in summer 2015. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

54. Hammerschmidt, C., C.S. Buck, K. Bowman, G. Gill, W.M. Landing (2016). Flux of total and methyl mercury to the northern Gulf of Mexico from U.S. estuaries. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

55. Marsay, C.M.[P], C.S. Buck, W.M. Landing, N.J. Wyatt (2016). Atmospheric Deposition to the Arctic Ocean: Concentrations of Dissolved Trace Elements in Melt Ponds During US GEOTRACES Western Arctic Section. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

56. Null, K.A, D.R. Corbett, J. Crenshaw, R. Peterson, L. Peterson, **C.S. Buck**, W.B. Lyons (2016). Meltwater Pathways and Iron Delivery to the Antarctic Coastal Ocean. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

57. Savidge, W., H. Windom, **C.S. Buck** (2016). Geographic and Oceanographic Information within Trace Metals in Moray Eel Otoliths. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

58. Summers, B.A., P.L. Morton, N.J. Buck, W.M. Landing, **C.S. Buck**, P.M. Barrett, J.A. Resing (2016). Supply of Natural and Industrial Aerosols to the Indian Ocean. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

59. Aguilar-Islas, A., **C.S. Buck**, R. Rember, W. Landing (2016). Constraining the Solubility of Aerosol Fe using US GEOTRACES Data. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

60. Morton, P.L., C. Zurbrick, W.M. Landing, **C.S. Buck**, C. Gallon, J.R. Donat, A.M. Shiller, A.R. Flegal (2016). A Margin Source of Cd in the Western North Pacific Ocean. ASLO Ocean Sciences Meeting, New Orleans, Louisiana.

61. Peterson, R.N., **C.S. Buck**, H.L. Windom, L.F. Niencheski, L.E. Peterson (2015). Physical controls on iron and trace element transport across the southern Brazilian continental shelf. Gordon Research Conference: Chemical Oceanography. Holderness School, New Hampshire.

62. Bowman, K., **C.S. Buck**, C. Hammerschmidt, W.M. Landing, G. Gill (2015). Flux of total and methyl mercury to the northern Gulf of Mexico from U.S. estuaries. International Conference on Mercury as a Global Pollutant, Jeju, Korea.

63. **Buck, C.S.**, A. Aguilar-Islas, R. Rember, W. Landing (2015). Dry depositional flux and aerosol iron fractional solubility. ASLO Aquatic Sciences Meeting, Granada, Spain.
64. **Buck, C.S.**, W. Landing, A. Aguilar-Islas, R. Rember (2014). Trace element fractional solubility in ultrapure water from samples collected during the US GEOTRACES Eastern Tropical South Pacific Section. AGU Fall Meeting, San Francisco, California.
65. Corbett, D.R., K. Null, J. Crenshaw, W. Lyons, R. Peterson, L. Peterson, R. Viso, **C.S. Buck** (2014). Meltwaters in Antarctica: Delineating and quantifying sources of freshwater along the Western Antarctic Peninsula. AGU Fall Meeting, San Francisco, California.
66. Landing, W., A. Milne, **C.S. Buck** (2014). Fertilizing the photic zone in the Pacific Ocean: Where do the bioactive trace elements come from? Challenger Society Marine Conference, Plymouth, UK.
67. Morton, P., C. Zurbrick, **C.S. Buck**, C. Gallon, J. Donat, W. Landing, A. Shiller, A.R. Flegal (2014). Too much cadmium in the western North Pacific: sources, sinks and the biological response. Southeastern Biogeochemistry Symposium, Atlanta, Georgia.
68. **Buck, C.S.**, K. Bowman, G. Gill, C. Hammerschmidt, W. Landing, A. Landing (2014). Partitioning and Speciation of Mercury in Gulf of Mexico Estuaries. ASLO Ocean Sciences Meeting, Honolulu, Hawaii.

Public Lectures:

- Exploring Ocean Fertilization: Iron and the Carbon Cycle (Watch on YouTube)
- Climate Change: Myths and Reality (Watch on YouTube)

Professional Service:

- Associate Editor: *Limnology & Oceanography: Methods*
- Associate Editor: *Frontiers of Marine Science*
- Manuscript Reviewer: *ACS Earth and Space Science*, *Atmospheric Chemistry and Physics, Atmospheric Research, Biogeosciences, Biogeosciences Discussions, Communications Earth & Environment, Deep-Sea Research Part I, Earth-Science Reviews, Elementa, Environmental Chemistry, Environmental Science: Processes & Impacts, Environmental Science & Technology, Estuarine Coastal and Shelf Science, Geochemistry Geophysics Geosystems, Geochimica et Cosmochimica Acta, Geophysical Research Letters, Global Biogeochemical Cycles, JGR-Atmospheres, JGR-Biogeosciences, JGR-Oceans, Limnology & Oceanography, Limnology & Oceanography: Methods, Marine Chemistry, Marine Pollution Bulletin, Nature, Nature Communications, Proceeding of the National Academy of Sciences, Science Advances, Science of the Total Environment, Talanta*
- Research Proposal Reviewer: NSF OCE-Chemical Oceanography, NSF AGS-GEO/ATM, National Science Foundation panelist, French National Research Agency (ANR), German Research Foundation, Université Libre de Bruxelles: Action Recherche Concertée, European Research Council, NERC – United Kingdom, New York Sea Grant
- 2013-2015, 2020 Southeastern Biogeochemistry Symposium – Steering Committee

Institutional Service

2022-present Dept. of Marine Sciences Graduate Program Coordinator

2022-present	Director: Semester@Skidaway Domestic Field Study
2018-present	SkIO Education Committee Chair/Internship Program Coordinator
2017-present	SkIO Instructional Technology Committee
2023	UGA Marine Sciences Academic Professional Search Committee
2022-2023	Dept. of Marine Sciences Diversity, Equity, and Inclusion Committee
2020-2023	Franklin College Faculty Senate
2020-2022	UGA Marine Sciences Undergraduate Affairs Committee
2020	UGA Marine Sciences Strategic Planning Committee
2019-2020	SkIO Faculty Search Chair – Biological Oceanographer (Two positions)
2017-2018	UGA Marine Sciences Faculty Search Committee
2013-2020	UGA Marine Sciences Graduate Affairs Committee
2015-2017	SkIO Seminar Series Chair
2015-2017	SkIO Webpage Renovation Committee
2016	SkIO Graphic Designer Search Committee
2015-2016	SkIO IT Director Search Committee
2014	UGA Marine Sciences Webpage Renovation Committee

Workshops and Synergistic Activities

2023	US GEOTRACES GP17-ANT Planning Meeting – Old Dominion University
2022	US GEOTRACES GP17-OCE Planning Meeting – Old Dominion University
2021	Iron at the Air-Sea Interface Workshop – Asheville, NC
2020	Faculty Learning Community: "Inclusive Pedagogies: Using Technology to Reduce the Distance in Distance Learning"
2020	US GEOTRACES GP17 Section Planning Meeting (virtual)
2019	University of Georgia Summer Leadership Institute participant
2019	OCB Ocean-Atmosphere Interactions: Scoping directions for U.S. research Workshop – Sterling, VA
2019	MOSAiC Science Planning Meeting – Potsdam, Germany
2018	Identifying and Characterizing the Processes Controlling Iron Speciation and Residence Time at the Atmosphere-Ocean Interface, Telluride Science Research Center – Telluride, CO
2018	MOSAiC Science Planning Meeting – Potsdam, Germany
2017	US GEOTRACES Arctic Section Data Synthesis Meeting – Miami, FL
2017	Session chair, "Linking atmospheric deposition to the biogeochemistry of aquatic and marine systems", ASLO Aquatic Sciences Meeting, Honolulu, HI
2016	US GEOTRACES Pacific Meridional Transect Planning Meeting - La Jolla, CA
2016	OCB/GEOTRACES: Biogeochemical Cycling of Trace Elements with within the Ocean Workshop – Palisades, NY
2016	Session chair, "Atmospheric Deposition and Ocean Biogeochemistry", ASLO Ocean Sciences Meeting, New Orleans, LA
2015	Session chair, "Atmospheric Deposition and Ocean Biogeochemistry", ASLO Aquatic Sciences Meeting, Granada, Spain
2015	US GEOTRACES Arctic Section Cruise Planning Meeting – Miami, FL
2013	US GEOTRACES Eastern Pacific Section Planning Meeting – WHOI, MA
2012	US GEOTRACES Arctic Section Planning Meeting – Alexandria, VA
2012	COSEE Education & Outreach Professional Development Workshop – Salt Lake City, UT

2011 US GEOTRACES Eastern Pacific Section Planning Meeting – La Jolla, CA

Honors and Awards

2023 UGA Provost International Travel Award
2017 UGA Provost International Travel Award
2015 UGA Provost International Travel Award
2010 ASLO Early Career Travel Award
2008 FSU Department of Oceanography Outstanding Graduate Student
2007 FSU Department of Oceanography Graduate Student Travel Award
2001 Graduated with Honors, Lehigh University

Fieldwork

2023 HOT-343, RV Kilo Moana, 7 days
2023 HOT-340, RV Kilo Moana, 4 days
2018 US GEOTRACES Pacific Meridional Transect, RV Revelle, Seattle – Hawaii, 33 days
2013 US GEOTRACES Eastern Pacific Zonal Transect, RV Thompson, Ecuador – Tahiti, 57 days
2012 FSU/FDEP joint research on 10 largest river/estuary systems in Northern Gulf of Mexico
2007 CLIVAR I8S Repeat Hydrography Cruise, RV Revelle, New Zealand – Australia, 41 days
2006 CLIVAR P16N Repeat Hydrography Cruise, RV Thompson, Tahiti – Alaska, 42 days
2005 CLIVAR P16S Repeat Hydrography Cruise, RV Revelle, Tahiti - New Zealand, 42 days
2004 CLIVAR P2 Repeat Hydrography Cruise, RV Melville, Japan - California, 72 days
2003 CLIVAR A16N Repeat Hydrography Cruise, NOAA Ronald H. Brown, Iceland - Brazil, 75 days
2002 IOC Cruise, RV Melville, Japan - Hawaii, 35 days
2002 SWISS-III, RV Pelican, northern Gulf of Mexico, 21 days
2001 SWISS-II, RV Pelican, northern Gulf of Mexico, 15 days