Susan Q. Lang

EDUCATION

Ph.D. 2006. Chemical Oceanography, University of Washington, USA
M.S. 2003. Chemical Oceanography, University of Washington, USA
B.S. 1999. Chemistry, Massachusetts Institute of Technology, USA

APPOINTMENTS

2022 – present **Director**, National Ocean Sciences Accelerator Mass Spectrometry facility, Woods Hole Oceanographic Institution
2022 – present **Associate Scientist w/ Tenure**, Department of Geology and Geophysics, Woods Hole Oceanographic Institution
2020 – 2022 **Associate Professor**, School of the Earth, Ocean, and Environment, Univ. of South Carolina
2014 – 2019 **Assistant Professor**, School of the Earth, Ocean, and Environment, Univ. of South Carolina
2009 – 2014 **Research Staff** (Wissenschaftliche Mitarbeiter), ETH Zürich, Swizterland
2007 – 2009 **Postdoctoral Researcher**, Scripps Institution of Oceanography

AWARDS, FELLOWSHIPS AND HONORS

2018. Breakthrough Star Award, University of South Carolina
2016. Kavli Frontiers of Science Fellow, bestowed by National Academy of Sciences and Alexander von Humboldt Foundation
2013. Web of science highly cited paper, for Schrenk, Brazelton, and Lang (2013)
2012. Top 25 most cited articles, *Geochimica et Cosmochimica Acta*, Elsevier, for Lang et al., 2010
2009. InterRidge Postdoctoral Fellowship ($5,000)
2000 – 2003. National Defense Science and Engineering Graduate Student Fellowship
1999 – 2002. Achievement Rewards for College Scientists Graduate Student Fellowship
1999. Undergraduate Research Award, MIT Chemistry Department

PUBLICATIONS

Graduate student (†) or research technician (¥) under my supervision; corresponding author (*)

Published, in press

64. **Lang, S.Q.**, Wheat, C.G., Dickerson, K.L., Reagan, M.K., Savov, I.P., Robare, J.A., Brazelton, W.J., Suhonen, J., Cavazos, O., McCaig, A., Blum, P., Abe, N., Colat, R., Deans, J.R., Godard, M., John, B.E., Klein, F., Kuehn, R., Lin, K.-Y., Lissenberg, C.J., Liu, h., Lopes, E.L., Nozaka, T., Osborne, W., Parsons, A.J., Pathak, V., Rodgers, J., Seewald, J.S., Sims, Southam, G., K.W., Sylva, S., Wang, F. (in press) Hydrogen and Single Carbon Constituents in the Oceanic Ultramafic-Dominated Lithosphere. Geochim. Cosmochim. Acta
63. Hansell, D.A., German, C.R., Carlson, C.A., Druffel, E.R.M., Jenkins, W.J., **Lang, S.Q.**, Toner, B.M. (in press) Hydrothermally Induced Refractory DOC Sinks int eh Deep Pacific Ocean. Global Biogeochemical Cycles
62. Gartman, A., Blackburn, T., Frank, K., **Lang, S.Q.**, Seewald, J.S. (2025) Kiloyear cycles of carbonate and Mg-silicate replacement at Von Damm hydrothermal vent field. Geology. 53(8): 668-672
61. FUTURE 2024 PI-team and 57 co-authors including Lang (2025) The FUTURE of the US marine seafloor & subseafloor sampling capabilities. AGU Advances 6, e2024AV001560
60. Alain, O.M., Brazelton, W.J., Aquino, K.A., Twing, K.I., Pendelton, H.L., Früh-Green, G., **Lang, S.Q.**, Schrenk, M.O. (2025) Microbial community differentiation in vent chimneys of the Lost City Hydrothermal Field reflects habitat heterogeneity. Front. Microbiomes 3 doi: 10.3389/frmbi.2024.1401831
59. Santini, S., Lartigue, A., Alempic, J.M., Coute, Y., Belmundes, L., Brazelton, W., **Lang, S.Q.**, Claverie, J.M., Legendre, M., Abergel, C. (2025) Pacmanvirus isolated from the Lost City hydrothermal field extends the concept of transpoviron beyond the family Mimiviridae. ISME 19(1): raf002
58. Lissenberg, C.J.[1], McCaig, A.M.[1], **Lang, S.Q.[1]**, Blum, P. Abe, N., Brazelton, W., Coltat, R., Deans, J.R., Dickerson, K.L., Godard, M., John, B.E., Klein, F., Kuehn, R., Lin, K.-Y., Liu, H., Lopes, E.L., Nozaka, T., Parsons, A.J.,

Pathak, V., Reagan, M.K., Robare, J.A., Savov, I.P., Schwarzenbach, E., Sissmann, O.J., Southam, G., Wang, F., Wheat, C.G., Anderson, L., Treadwell S. (2024) A long section of serpentinized depleted mantle peridotite. Science. 385(6709): 623-629 *[1]Authors contributed equally*

57. **Lang, S.Q.** (2024) Dissolved Organic Matter in Hydrothermal Systems. In: Hansell, D.A. and Carlson, C.A. (ed.) Biogeochemistry of Marine Dissolved Organic Matter, 3rd Edition, Academic Press pp. 317-342
56. German, C.R., **Lang, S.Q.**, and Fitzsimmons, J.N. (2024) Hydrothermal Processes. In: Treatise on Geochemistry, 3rd Edition, Elsevier, Oxford.
55. Elkassas, S.M., Serres, M.H., Navarro, M., Patterson, A., Zhivkova, T., Petersen, M., Weeks, K., **Lang, S.Q.**, Seewald, J., Wheat, C.G., Trembath-Reichert, E., and Huber, J.A. (2024) Draft genome sequences of 6 high pH adapted *Marinobacter shengliensis* sp. isolated from Mariana forearc serpentinite mud volcanoes. Microbiology Resource Announcements. doi: 10.1128/mra.01045-24
54. Lindsay, M.R., D'Angelo, T., Munson-McGee, J.H., Saidi-Mehrabad, A., Devlin, M., McGonigle, J., Goodell, E., Herring, M., Lubelczyk, L., Mascena, C., Brown, J., Gavelis, G., Liu, J., Yousavich, D.J., Hamilton-Brehm, S.D., Hedlund, B.P., **Lang, S.Q.**, Treude, T., Poulton, N.J., Stepanauskas, R., Moster, D.P., Emerson, D., Orcutt, B.N. (2024) Species-resolved, single-cell respiration rates reveal dominance of sulfate reduction in a deep continental subsurface ecosystem. Proc. Nat. Acad. Sci. 121(15), e2309636121
53. **Lang, S.Q.**, Benitez-Nelson, B., Vincent, M., Soong, R., Kock, F.V.C., Lysak, D.H., Jenne, A., and Simpson, A.J. (2024) Rapid removal and replacement of dissolved organic matter during circulation through ultramafic crust. *Earth. Planet. Sci. Lett.* 629:118600 doi: 10.1016/j.epsl.2024.118600
52. Aquino, K.A., Früh-Green, G.L., Bernasconi, S.M., Bontognali, T.R.R., Foubert, A., and **Lang, S.Q.** (2024) Controls on mineral formation in high pH fluids from the Lost City hydrothermal field. *Geochim. Geophys. Geosyst.* 25(2) e2023G011010. https://doi.org/10.1029/2023GC011010
51. Aquino, K.A., Früh-Green, G.L., Bernasconi, S.M., Rickli, J., **Lang, S.Q.**, Lilley, M.D. (2024) Fluid mixing and spatial geochemical variability in the Lost City hydrothermal field chimneys. *Geochim. Geophys. Geosyst.* 25(2) e2023G011011. https://doi.org/10.1029/2023GC011011
50. Voss, B.M., Eglinton, T.I., Peucker-Ehrenbrink, B., Galy, V., **Lang, S.Q.**, McIntyre, C., Spencer, R.G.M., Bulygina, E., Wang, Z.A., Guay, K.A. (2023) Isotopic evidence for sources of dissolved carbon and the role of respiration in the Fraser River basin, Canada. *Biogeochemistry,* 164(1): 207-228. doi: 10.1007/s10533-022-00945-5
49. Hu, S.K., Smith, A., Anderson, R., Sylva, S., Setzer, M., Steadmon, M., Frank, K., Chan, E., Lim, D., German, C., Breier, J.A., **Lang, S.Q.**, Butterfield, D.A., Fortunato, C.S., Seewald, J.A., Huber, J.A. (2023) Globally-distributed microbial eukaryotes exhibit endemism at deep-sea hydrothermal vents. *Molecular Ecology*. 32(23), 6580-6598. https://doi.org/10.1111/mec.16745
48. Brazelton, W.E., McGonigle, J.M., Motamedi, S., Pendleton, H.L., Twing, K.I., Miller, B.C., Lowe, W.J., Hoffman, A.M., Prator, C.A., Chadwick, G.L., Anderson, R.E., Thomas, E., Butterfield, D.A., Aquino, K.A., Früh-Green, G.L., Schrenk, M.O., and **Lang, S.Q.** (2022) Metabolic strategies shared by basement residents of the Lost City hydrothermal field. *Appl. Environ. Microbiol.* 88(17): 1-17
47. Aquino, K.A., Früh-Green, G., Rickli, J., Bernasconi, S.M., **Lang, S.Q.**, Lilley, M.D., Butterfield, D.A. (2022) Multi-stage evolution of Lost City hydrothermal vent fluids. *Geochim. Cosmochim. Acta.* 332: 239-262
46. Pinckney, J.L., Zaunbrecher, S., **Lang, S.Q.**, Wilson, A., Knapp, A. (2022) Seasonality of benthic microalgal community abundance in shallow shelf waters. *Continental Shelf Research* 244: 104797
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44. **Lang, S.Q.,** Lilley, M.D., Baumberger, T., Früh-Green, G., Walker, S., Brazelton, W., Kelley, D.S., Elend, M., Mau, A.J.† (2021) Extensive decentralized hydrogen export from the Atlantis Massif. *Geology* 49(7): 851-856. doi: 10.1130/G48322.1
43. **Lang, S.Q.** and Benitez-Nelson, B.¥ (2021) Hydrothermal Organic Geochemistry (HOG) sampler for deployment on deep-sea submersibles. *Deep-Sea Research Part I* 173: 103529

42. McCabe, K., Smith, E., **Lang, S.Q.**, Osburn, C., Benitez-Nelson, C. (2021) Particulate and dissolved organic matter in stormwater runoff influences oxygen demand in urbanized headwater catchments. *Environ. Sci. Techol.* 55:952-961. https://dx.doi.org/10.1021/acs.est.0c04502
41. Liu, L., Zou, Y., Bhattacharya, A., Zhang, D., **Lang, S.Q.**, Houk, K.N., and Devaraj, N.K. (2020) Enzyme-free aqueous phospholipid synthesis promotes self-assembly of minimal cell membranes. *Nature Chemistry.* 12:1029-1034. doi.org/10.1038/s41557-020-00559-0
40. **Lang, S.Q.** and Brazelton, W.J. (2020) Habitability of the oceanic alkaline serpentinite subsurface: a case study of the Lost City hydrothermal field. *Phil. Trans. R. Soc. A* 378:20180429
39. Nguyen, T.B.[†], Topçuoğlu, B.D., Holden, J.F., **Lang, S.Q.*** (2020) Lower hydrogen flux leads to larger carbon isotopic fractionation of methane and biomarkers during hydrogenotrophic methanogenesis. *Geochim. Cosmochim. Acta* 271: 212-226
38. Xiao, K., Wilson, A.M., Li, H., Santos, I.R., Tamborski, J., Smith, E., **Lang, S.Q.**, Zheng, C., Luo, X., Correa, R.E. (2020) Reduced blue carbon sequestration through CO_2 release and tidal flushing in salt marsh crab burrows. *Limnol. Oceanogr.* doi: 10.1002/lno.11582
37. McGonigle, J.M., **Lang, S.Q.**, and Brazelton, W.J. (2020) Genomic evidence for formate metabolism by Chloroflexi as the key to unlocking deep carbon in Lost City microbial ecosystems. *Appl. Environ. Microbiol.* 86(8):02583-19
36. LaRowe, D., Arndt, S., Bradley, J., Estes, E., Hoarfrost, A., **Lang, S.Q.**, Lloyd, K., Mahmoudi, N., Orsi, W., Walter, S., Steen, A., and Zhao, R. (2020) The fate of organic carbon in marine sediments – new insights from recent data and analysis. *Earth-Science Reviews* 204:103146
35. Cannizzo, Z.J., **Lang, S.Q**., Benitez-Nelson, B.[¥], Griffen, B.D. (2020) An artificial habitat increases the reproductive fitness of a range-shifting species within a newly colonized ecosystem. *Scientific Reports* 10(554) 1-13
34. **Lang, S.Q.**, Steen, A. D., Osburn, M.R. (2019) Carbon in deep biosphere: forms, biogeochemical cycling, and fates. Reviews in Mineralogy and Geochemistry. In B. Orcutt, I. Daniel, R. Dasgupta (Eds.), Deep Carbon: Past to present (pp. 480 – 523). Cambridge: Cambridge University Press. Doi: 10.1017/ 9781108677950.016
33. Topçuoğlu, B.D., Meydan, C., Nguyen, T.B.[†], **Lang, S.Q.**, Holden J.F. (2019) Growth Kinetics, Carbon Isotope Fractionation, and Gene Expression in the Hyperthermophile *Methanocaldococcus jannaschii* during Hydrogen-Limited Growth and Interspecies Hydrogen Transfer. *Applied and Environmental Microbiology* 85:e00180-19.
32. Lechleitner, F.A., **Lang, S.Q.**, Haghipour, N., McIntyre, C., Baldini, J.U.L., Prufer, K., and Eglinton, T.I. (2019) Towards organic carbon isotope records from stalagmites: coupled 13C and 14C analysis using WCO. *Radiocarbon* 61(3):749-764
31. Früh-Green, G.L., Orcutt, B.N., Rourméjon, S., Lilley, M.D. Morono, Y., Cotterill, C., Green, S., Escartin, J., John, B.E., McCaig, A.M., Cannat, M., Ménez, B., Schawarzenbach, E.M., Williams, M.J., Morgan, S., **Lang, S.Q.**, Schrenk, M.O., Brazelton, W.J., Akizawa, N., Boschi, C., Dunkel, K.G., Quéméneur, M., Whattman, S.A., Mayhew, L., Harris, M., Bayrakci, G., Behrmann, J.-H., Herrero-Bervera, E., Hesse, K., Liu, H.-Q., Ratnayake, A.S., Twing, K., Weis, D., Zhao, R., Bilenker, L., Magmatism, serpentinization and life: Insights through drilling the Atlantis Massif (IODP Expedition 357). (2018) *Lithos* DOI: 10.1016/j.lithos.2018.09.012
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29. Emmons, A.M., Bizimis, M., **Lang, S.Q.**, Stangler, W., Geidel, G., Baalousha, M., Wanamaker, E.[¥], and Rothenberg, S.E. (2018) Enrichments of Metals, including Methylmercury, in Sewage Spills in South Carolina, USA. *Journal of Environmental Quality*. 1-9. DOI: 10.2134/jeq2018.02.0067
28. Hickok, K. A.†, Nguyen, T.B.†, **Lang, S.Q.** (2018) Assessment of apolar lipids in in subseafloor rocks and potential contaminants from the Atlantis Massif (IODP Expedition 357). *Organic Geochemistry* 122: 68-77
27. **Lang, S.Q.**, Früh-Green G.L, Bernasconi, S.M., Brazelton, W.J., Schrenk, M.O., and McGonigle, J.M. (2018) Deeply-sourced formate fuels sulfate reducers but not methanogens at Lost City hydrothermal field *Scientific Reports* 8(755) 1-10.
26. **Lang, S.Q.** (2018) News and Views: Hydrothermal Stamp on the Ocean. *Nature Geoscience* 11:6-20.

25. Pisapia, C. Gérard, E., Gérard, M., Lecourt, L., **Lang, S.Q.**, Pelletier, B., Payri, C., Monnin, C., Guentas, L., Postec, A., Quéméneur, M., Erauso, G., Ménez, B. (2017) Mineralization filamentous bacteria from the Prony Bay Hydrothermal Field give new insights to the functioning of serpentinization-based subseafloor ecosystems. *Front. Microbiol.* 8:57. DOI: 10.3389/fmicb.2017.00057
24. Brazelton, W.J., Thornton, C.N., Hyer, A., Twing, K.I., Longino, A.A., **Lang, S.Q.**, Lilley, M.D., Früh-Green, G.L., Schrenk, M.O. (2017) Metagenomic identification of active methanogens and methanotrophs in serpentinite springs of Voltri Massif, Italy. *PeerJ* 5:e2945 DOI: 10.77117/peerj.2945
23. **Lang, S.Q.**, McIntyre, C.P., Bernasconi, S.M., Früh-Green, G., Voss, B.M., Eglinton, T.I., and Wacker L. (2016) Rapid 14C Analysis of Dissolved Organic Carbon in Non-Saline Waters. *Radiocarbon*. 1-11; DOI:10.1017/RDC.2016.17
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21. Wiedemeier, D.B., **Lang, S.Q.**, Gierga, M., Abiven, S., Bernasconi, S.M., Früh-Green, G.L., Hajdas, I., Hanke, U.M., Hilf, M.D., McIntyre, C.P., Scheider, M.P.W., Smittenberg, R.H., Wacker, L., Wiesenberg, G.L.B., Schmidt, M.W.I. (2016) Characterization, Quantification and Compound-Specific Isotope Analysis of Pyrogenic Carbon Using Benzene Polycarboxylic Acids (BPCA) *J. Vis. Exp*. (111) e53922, doi: 10.3791/53922
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18. Hindsaw, R.S., **Lang, S.Q.**, Bernasconi, S.M., Heaton, T.H.E., Lindsay, M.R., and Boyde, E.S. (2016) Origin and temporal variability of unusually low δ13C-DOC values in two High Arctic catchments. *JGR-Biogeosciences*. DOI: 10.1002/2015JG003303.
17. Larson, B. I., **Lang, S.Q.**, Lilley, M.D., Olson, E.J., Lupton, J., Nakamura, K., Buck, N. (2015) Stealth export of hydrogen and methane from a low temperature serpentinization system. *Deep-Sea Research Part II*. 121: 233-245. DOI: 10.1016/j.dsr2.2015.05.007
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15. Jaeschke, A., Eickmann, B., **Lang, S.Q.**, Bernasconi, S.M., Strauss, H., Früh-Green, G.L. (2014) Biosignatures in chimney structures and sediment from the Loki's Castle low-temperature hydrothermal vent field at the Arctic Mid-Ocean Ridge. *Extremeophiles*. 18(3): 545-560.
14. Gierga, M., Schneider, M.P.W., Widemeir, D.B., **Lang, S.Q.**, Smittenberg, R.H., Hajdas, I., Bernasconi, S.M., Schmidt, M.W.I. (2014) Purification of fire-derived molecular markers for microgram-scale isotope analysis ($\delta^{13}C$, $\Delta^{14}C$) using high-performance liquid chromatography (HPLC). *Organic Geochemistry*. 70:1-9
13. Méhay S., Früh-Green G.L., **Lang S.Q.**, Bernasconi S.M., Brazelton W.J., Schaeffer P., and Adam P., (2013) "Record of archaeal activity at the Lost City Hydrothermal Field" *Geobiology*. 11:570-592
12. Schwarzenbach E.M., **Lang S.Q.**, Früh-Green G.L., Lilley M.D., Bernasconi S.M., and Méhay S. (2013) "Sources and cycling of carbon in a continental, serpentinite-hosted alkaline springs in the Voltri Massif, Italy" *Lithos*. 177:226-244.
11. **Lang S.Q.**, Früh-Green G.L., Bernasconi S.M, and Wacker L. (2013). Isotopic (δ13C, Δ14C) Analysis of Organic Acids in Seawater Using Wet Chemical Oxidation. *L&O: Methods*. 11:161-175
10. Schrenk M.O., Brazelton W.J., and **Lang S.Q.** (2013) "Serpeninitzation, Carbon, and Deep Life." *Reviews in Mineralogy and Geochemistry*.75(1): 575-606
9. **Lang S.Q.**, Früh-Green G.L., Bernasconi S.M., and Butterfield D.A (2013). Sources of organic nitrogen at the serpentinite-hosted Lost City hydrothermal field. *Geobiology.* 11:154-169. DOI: 10.1111/gbi.12026

8. **Lang. S.Q.**, Früh-Green G.L., Kelley D.S., Lilley M.D., Proskurowski G., and Reeves E.P. (2012) Letter to the Editor: H2/CH4 ratios cannot reliably distinguish abiotic vs. biotic methane in natural hydrothermal systems. *Proc. Natl. Acad. Sci. USA*.E3210-E3210. www.pnas.org/cgi/doi/10.1073/pnas.1213138109.
7. **Lang S.Q.**, Früh-Green G.L., Bernasconi S.M., Lilley M.D., Proskurowski G., Méhay S., and Butterfield D.A. (2012) Microbial utilization of abiogenic carbon and hydrogen in a serpentinite-hosted system. *Geochim. et Cosmochim. Acta.* 92:82-99.
6. **Lang S.Q.**, Bernasconi S.M., and Früh-Green G.L. (2012) Stable Isotope Analysis of Organic Carbon in Small (μg) Samples and Dissolved Organic Matter Using a GasBench Preparation Device. *Rapid Communications in Mass Spectrometry.* 26(1):9-16.
5. **Lang S. Q.**, Butterfield D. A., Schulte, M. S., Kelley D.S., and Lilley M. D. (2010) Elevated Concentrations of Formate, Acetate and Dissolved Organic Carbon Found at the Lost City Hydrothermal Field. *Geochim. et Cosmochim. Acta* 74:941-952.
4. **Lang S.Q.**, Lilley M.D., and Hedges J.I. (2007) A method to measure the isotopic (C-13) composition of dissolved organic carbon using a high temperature combustion instrument. *Mar. Chem*.10:318 – 326.
3. **Lang S.Q.**, Butterfield D.A., Lilley M.D., Johnson H.P., and Hedges J.I. (2006) Dissolved Organic Carbon in Ridge-Flank and Ridge-Axis Environments. *Geochim. et Cosmochim. Acta* 70(15): 3830-3842.
2. Peterson M.L., **Lang S.Q.**, Aufdenkampe A.K., and Hedges J.I. (2003) "Dissolved organic carbon measurements using a modified high-temperature combustion analyzer" *Mar. Chem*. Volume 81 (1-2): 89-104.
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Expedition Reports

7. McCaig, A.M, **Lang, S.Q.**, Blum, P., Abe, N., Brazelton, W., Coltat, R., Deans, J.R., Dickerson, K.L., Godard, M., John, B.E., Klein, F., Kuehn, R., Lin, K.-Y., Lissenberg, C.J., Liu, H., Lopes, E.L., Nozaka, T., Parsons, A.J., Pathak, V., Reagan, M.K., Robare, J.A., Savov, I.P., Schwarzenbach, E., Sissmann, O.J., Southam, G., Wang, F., and Wheat, C.G. (2025) Expedition 399 summary. In McCaig, A.M., **Lang, S.Q.,** Blum, P., and the Expedition 399 Scientists, Building Blocks of Life, Atlantis Massif. Proceedings of the International Ocean Discovery Program, 399: College Station, TX (International Ocean Discovery Program).
6. **Lang, S.Q.,** McCaig, A.M, Blum, P., Abe, N., Brazelton, W., Coltat, R., Deans, J.R., Dickerson, K.L., Godard, M., John, B.E., Klein, F., Kuehn, R., Lin, K.-Y., Lissenberg, C.J., Liu, H., Lopes, E.L., Nozaka, T., Parsons, A.J., Pathak, V., Reagan, M.K., Robare, J.A., Savov, I.P., Schwarzenbach, E., Sissmann, O.J., Southam, G., Wang, F., and Wheat, C.G. (2025) Expedition 399 methods. In McCaig, A.M., **Lang, S.Q.,** Blum, P., and the Expedition 399 Scientists, Building Blocks of Life, Atlantis Massif. Proceedings of the International Ocean Discovery Program, 399: College Station, TX (International Ocean Discovery Program).
5. McCaig, A.M, **Lang, S.Q.**, Blum, P., Abe, N., Brazelton, W., Coltat, R., Deans, J.R., Dickerson, K.L., Godard, M., John, B.E., Klein, F., Kuehn, R., Lin, K.-Y., Lissenberg, C.J., Liu, H., Lopes, E.L., Nozaka, T., Parsons, A.J., Pathak, V., Reagan, M.K., Robare, J.A., Savov, I.P., Schwarzenbach, E., Sissmann, O.J., Southam, G., Wang, F., and Wheat, C.G. (2025) Site U1309. In McCaig, A.M., **Lang, S.Q.,** Blum, P., and the Expedition 399 Scientists, Building Blocks of Life, Atlantis Massif. Proceedings of the International Ocean Discovery Program, 399: College Station, TX (International Ocean Discovery Program).
4. **Lang, S.Q.,** McCaig, A.M, Blum, P., Abe, N., Brazelton, W., Coltat, R., Deans, J.R., Dickerson, K.L., Godard, M., John, B.E., Klein, F., Kuehn, R., Lin, K.-Y., Lissenberg, C.J., Liu, H., Lopes, E.L., Nozaka, T., Parsons, A.J., Pathak, V., Reagan, M.K., Robare, J.A., Savov, I.P., Schwarzenbach, E., Sissmann, O.J., Southam, G., Wang, F., and Wheat, C.G., 2025. Site U1601. In McCaig, A.M., **Lang, S.Q.,** Blum, P., and the Expedition 399 Scientists, Building Blocks of Life, Atlantis Massif. Proceedings of the International Ocean Discovery Program, 399: College Station, TX (International Ocean Discovery Program).
3. McCaig, A.M., **Lang, S.Q.**, Blum, P., Expedition 399 Scientists (2024) Expedition 399 Preliminary Results: Building Blocks of Life, Atlantis Massif.

2. McCaig, A.M., **Lang, S.Q.**, Blum, P., Expedition 399 Scientists (2022) Expedition 399 Scientific Prospectus: Building Blocks of Life, Atlantis Massif. https://doi.org/10.14379/iodp.sp.399.2022
1. Früh-Green, G.L., Orcutt, B.N., Green, S.L., Cotterill, C., Morgan, S., Akizawa, N., Bayrakci, G., Behrmann, J.-H., Boschi, C., Brazelton, W.J., Cannat, M., Dunkel, K.G., Escartin, J., Harris, M., Herrero-Bervera, E., Hesse, k., John, B.E., **Lang, S.Q.**, Lilley, M.D., Liu, H.-Q., Mayhew, L.E., McCaig, A.M., Menez, B., Morono, Y., Quéméneur, M., Rouméjon, S., Sandaruwan Ratnayake, A., Schrenk, M.O., Schwarzenbach, E.M., Twing, K.I., Weis, D., Whattham, S.A., Williams, M., and Zaho, R. (2017) Expedition 357 Summary. In Früh-Green, G.L., Orcutt, B.N., Green, S.L., Coterill, C., and the Expedition 357 Scientists, Atlantis massif Serpentinization and Life. *Proceedings of the International Ocean Discovery Program*, 357. College Station, TX. Doi: 10.14379/iodp.proc.357.101.2017.

In review or submitted

1. Vincent, J., Wilson, A.M., Moore, W.S., Thomas, R., Knapp, A.N., **Lang, S.Q.**, Joye, S.B. and Pinckney, J.L. (in review) Annual weather patterns drive large pulses of saline submarine groundwater discharge and major summer inputs of nutrients to the South Atlantic Bight. Journal Geophys. Res.
2. Davidson, A.M., Brazelton, W.J. and **Lang, S.Q.** (in review) Portholes into the Deep: Exploring Ocean Memory of the Lost City through Art and Science. Elementa
3. Xu, L., Gagnon, A.R., Roberts, M.L., Hansman, R.L., Elder, K.L., Seewald, J.S., Harris, R., **Lang, S.Q.** (in review) A simple and effective method to remove hydrogen sulfide from fluid and gas samples prior to radiocarbon analysis of CO_2 gas and dissolved inorganic carbon. Radiocarbon
4. Vincent, J., Wilson, A.M., Moore, W.S., Thomas, R., Knapp, A.N., **Lang, S.Q.**, Joye, S.B. and Pinckney, J.L. (in review) Annual weather patterns drive large pulses of saline submarine groundwater discharge and major summer inputs of nutrients to the South Atlantic Bight. Journal Geophys. Res.
5. Evans, A.D., Goring-Harford, H., Coggon, R.M., James, R.H., McCarthy, C., Cooper, M.J., Foster, G.L., Fruh-Green, G., **Lang, S.Q.**, Teagle, D.A.H. (submitted) Contrasting serpentinization reactions revealed by boron isotope systematics of Lost City vent fluids. Geology.
6. Zhao, M., Zhang, Y., Wilson, A.M., Moore, W.S., Smith, E., **Lang, S.Q.**, Sheng, C., Zheng, C., Li, H., Han, G., Xiao, K. (submitted) Large blue carbon loss through submarine groundwater discharge: insights from a marsh-creek basin system. Global Biogeochemical Cycles
7. Lopes, E.L., Tikoo, S.M., Ju, O., Mells, J., Vanorio, T., Burns, D., Deans, J., Hatfield, R., Blum, P., John, B.E., Kuehn, R., **Lang, S.Q.**, McCaig, A., and Parsons, A.J. (submitted) Serpentinization and Magnetic Properties of the Lower Oceanic Lithosphere: Insights from the Atlantis Massif. JGR Solid Earth

SCIENTIFIC MEETINGS, INVITED PRESENTATIONS

18. Lang, S.Q., Benitez-Nelson, B., Vincent, M., Mau, A., Petersen, M., Seewald, J.S., McCollom, T.M., Wheat, C.G., (12/2024) "Influence of Geological Setting on the Radiocarbon Signature of Dissolved Organic Carbon Exported from Hydrothermal Systems." AGU Fall Meeting.
17. Lang, S.Q. "Fluid and volatile sampling at and below the seafloor" Futures in U.S. Marine Seafloor and Subseafloor Sampling Capabilities Workshop (3/2024) Invited Speaker
16. Lang, S.Q., et al. "Fate of dissolved organic carbon in marine hydrothermal systems" International Forum on Carbon Neutrality, Ocean University, Shandong, China (11/2023) Invited Speaker
15. Lang, S.Q., et al. "DOC in mafic and ultramafic hydrothermal systems" Chemical Oceanography Gordon Research Conference (7/2023) Invited Speaker
14. Lang, S.Q. "Microbiology & Borehole Monitoring" MagellanPlus Workshop: Accessing the cirum-Iberian mantle archive of Wilson Cycle processes through Land-to-Sea drilling. (6/2023) Invited Speaker
13. Lang, S.Q., Benitez-Nelson, B., Vincent, M., Camper, N. "Organics in the rocky serpentinite subseafloor: Life, abiotic synthesis, or something else" Serpentine Days (11/2022) Invited Speaker
12. Lang, S.Q. "Carbon cycling and serpentinization: an update from Lost City and the Atlantis Massif" Deep Carbon 2019 Annual Meeting (10/2019) Invited Speaker

11. Lang, S.Q. “Serpentinization, fluids, and life” American Society for Microbiology (ASM) Annual Meeting, San Francisco, CA (6/2019) Invited Speaker
10. Lang, S.Q. "Identifying microbial activity in serpentinization systems using organics and isotopes" Royal Society Discussion Meeting, London, England (11/2018) Invited Speaker.
9. Lang, S.Q., Camper, N. Benitez-Nelson, B. "Organics and life in the serpentinite subsurface" Goldschmidt. Boston, MA (8/2018) Invited Keynote.
8. Lang, S.Q. (4/2018) “Serpentinization, carbon, and life” Keynote presentation for the Southeastern Biogeochemistry Symposium, Tallahassee, Fl
7. Lang, S.Q., Wanamaker, E., Orcutt, B., Früh-Green, G., Lilley, M.D., Twing, K. (3/2018) “Direct access to the serpentinite subsurface: A biogeochemical characterization of a unique habitat.” Deep Carbon Observatory Annual Meeting. St. Andrews, Scotland, U.K.
6. Lang, S.Q. (1/2017) "Carbon in serpentinite-hosted systems." NASA Workshop Without Walls on Serpentinizing Systems Science, Online workshop.
5. Lang, S.Q., Lilley, M.D., Orcutt, B., Früh-Green, G., Twing, K., Monoro, Y., IODP Expedition 357 Science Party (12/2016) "Direct access to the serpentinite subsurface: a biogeochemical investigation to characterize a unique habitat." American Geophysical Union Fall Meeting. San Francisco, CA
4. Lang, S.Q., Lilley, M.D., Orcutt, B., Früh-Green, G., Twing, K., Monoro, Y., IODP Expedition 357 Science Party (10/2016) "Direct access to the serpentinite subsurface: a biogeochemical investigation to characterize a unique habitat." C-DEBI Annual Meeting. Marina, CA
3. Lang, S.Q. (10/2016) "Modern Ecosystems & Ecology – Present." Isotopes Past, Present & Future Symposium, Carnegie Geophysical Laboratory. Washington, D.C.
2. Lang, S.Q., Früh-Green, G.L., Bernasconi, S., Wacker, L. (3/2016) "Linking mantle to microbe in serpentinite-hosted systems." German-American Kavli Frontiers of Science Symposium, hosted by Alexander von Humboldt Foundation and U.S. National Academy of Sciences. Potsdam, Germany
1. Lang, S.Q. (7/2015) Drilling the Atlantis Massif, Goals and Plans. C-DEBI Basement Microbiology Workshop. Cambridge, MA

SCIENTIFIC MEETINGS, CONTRIBUTED PRESENTATIONS

*[&]Postdoctoral researcher, **undergraduate student, [†]graduate student, or [¥] research technician under the primary supervision of S.Q. Lang [§]Undergraduate carrying out laboratory measurements with S.Q. Lang*

67. Catalano, J.G., Millman, E., Chatterjee, K.M., Parker, K.M., and Lang, S.Q. (7/2025) Systematic selectivity patterns in the adsorption of amino acids by smectite and serpentine clay minerals. Goldschmidt.
66. Savov, I.P., Osborne, W., Agostini, S., Godard, M., McCaig, A., and Lang, S.Q. (7/2025) Alteration of the depleted mantle and gabbro crust drilled at Atlantis Massif: insights from mineralogy, elemental and B and Sr isotope variations in rocks and fluids from IODP Hole U1601C. Goldschmidt.
65. Godard, M., Robare, J., Suhonen, J., Cavazos, O.R., Martin, C., Lissenberg, J., Garcia da Fonseca, G., Coltat, R., Liu, H., Sissmann, O., Lang, S.Q., McCaig, A., Shipboard party (7/2025) Serpentinization, carbonation and H2 production at Atlantis Massif (MAR 30°N): Preliminary geochemical results from IODP Expedition 399. Goldschmidt.
64. Bradley, M.W., Seltzer, A.M., Anderson, M., Mitchell, S., Hayes-Guastella, L., Lloyd, K., Reese, B.K., Huber, J.A., Lang, S.Q., Seewald, J.S., Wheat, C.G., Barnes, J.D., Segee-Wright, G., and Barry, P.H. (7/2025) Goldschmidt.
63. Hansman, R.L., Girts, J., Brunet, I., Crossen, A.M., Cruz, A.J., Elder, K.L., Emmons, M.P., Gagnon, A.R., Gospodinova, K.D., Handwork, S., Lannon, O., Lardie Gaylord, M.C., Roberts, M.L., Trowbridge, N.Y., Xu, L., and Lang, S.Q. (6/2025) Status report of the NOSAMS MICADAS. Poster. 25th Radiocarbon Conference, Krakow, Poland.

62. Xu, L., Lardie Gaylord, M., Girts, J., Gospodinova, K., Elder, K., Hansman, R., and Lang, S.Q. (6/2025) A sampling and preservation test of radiocarbon free groundwater for dissolved inorganic carbon C-14 measurement. 25th Radiocarbon Conference, Krakow, Poland.
61. Dickerson, K., Fisher, A.T., Deans, J.R., Abe, N., **Lang, S.Q.**, McCaig, A.M., Blum, P., IODP Exp 399 Science Party (12/2024) Characterizing primary lithology and secondary modification of a deep, mafic-ultramafic section from the Atlantis Massif, Mid-Atlantic Ridge using core and downhole data and machine learning. AGU Fall Meeting.
60. Abe, N., Dickerson, K., Dean, J.R., **Lang, S.Q.,** McCaig, A.M., Blum, P., IODP Exp 399 Science Party (12/2024) Quality check of measured data for different shapes of onboard physical property measurements for hard rock samples in IODP Exp 399. AGU Fall Meeting.
59. Penkrot, M., Malone, M.J., Blum, P., Avila-Santis, A., Broyles, C., Crowder, l, Novak, B., Kowalski, J., Peng, C., **Lang, S.Q.**, McCaig, A.M. (12/2024) Monitoring of Airborne Asbestos Fibers Generated While Processing Geologic Cores Containing Asbestiform Minerals. AGU Fall Meeting.
58. Ma, K.[&], Lalk, E., Pohlman, J., Lapham, L., **Lang, S.Q.** (12/2024) Elucidating the Carbon Flow Pathways at Cascadia Margin Methane Seeps. AGU Fall Meeting.
57. Hansell, D.A., German, C.R., Carlson, C.A., Druffel, E.R.M., Jenkins, W.J., **Lang, S.Q.**, Toner, B.M. (12/2024) Does Scavenging by Hydrothermal Iron Create Deep Pacific Ocean DOC Deficits? (Invited). AGU Fall Meeting.
56. Ahn, S.H. [&], **Lang, S.Q.**, Johnson, M.D. (12/2024) Tracking Mixoplanktonic Grazing and Carbon Flow Using Natural Abundance Radiocarbon. AGU Fall Meeting.
55. Pohlman, J., Lapham, L., Wilson, R., Seewald, J.S., Lalk, E., Hildebrand, A., Lloyd, K.G., Williams, L., Veloso, M., Weiss, T., Greinert, J., Ma, K., **Lang, S.Q.**, Stock, L., Elvert, M., (12/2024) Sources, age, production, and fate of seep-derived dissolved organic carbon at methane seeps in Astoria Canyon: An overview of recent and ongoing studies. AGU Fall Meeting.
54. Roberts, M., de Santos, G., Erkkila, B., Czimczik, C., **Lang, S.Q.** (9/2024) Report on a MICADAS Workshop. 16th International Conference on Accelerator Mass Spectrometry
53. Elkassas, S., Ely, T., **Lang, S.Q.**, Trembath-Reichert, E., Seewald, J., Weeks, K., Wheat, C.G., Huber, J.A. (5/2024) Life detection in cool, alkaline fluids from the subseafloor of serpentinite mud volcanoes. Astrobiology Science Conference.
53. **Lang, S.Q.**, C. Geoff Wheat, Andrew McCaig, Peter Blum, Natsue Abe, William Brazelton, Remi Coltat, Jeremy R. Deans, Kristin L. Dickerson, Marguerite Godard, Barbara E. John, Frieder Klein, Rebecca Kuehn, Kaun-Yu Lin, C. Johan Lissenberg, Haiyang Liu, Ethan L. Lopes, Toshio Nozaka, Andrew J. Parsons, Vamdev Pathak, Mark K. Reagan, Jordyn A. Robare, Ivan Savov, Olivier J. Sissmann, Gordon Southam, Fengping Wang. "Serpentinization and Synthesis: Initial insights from a deep borehole in oceanic ultramafic rocks." Ocean Sciences Meeting, New Orleans, LA (2/2024) Poster
52. Hu, S., Anderson, R., Krinos, A., Alexander, H., Pachiadaki, M., Edgcomb, V.P., Serres, M., Sylva, S., German, C.R., **Lang, S.Q.**, Seewald, J., Huber, J.A. (2/2024) Ocean Sciences Meeting
51. D'Hondt, S., Casagrande, D., Gagnon, A.R., Grahm, D., Gospodinova, K., **Lang, S.Q.**, Posckalny, R.A., Roman, C., and Spivack, A.J. (12/2023) Radiocarbon Dating of Hadal Water Replacement in the Puerto Rico Trench. AGU Fall Meeting.
50. Abe, N., Dickerson, K., Deans, J.R., McCaig, A., **Lang, S.Q.**, Blum, P. (12/2023) An initial report of IODP Exp. 399: The relationship between lithology and physical properties at Atlantis Massif, MAR. AGU Fall Meeting
49. Dickerson, K., Abe, N., Deans, J.R., McCaig, A.M., **Lang, S.Q**., Blum, P. (12/2023) Physical properties of newly recovered, variably altered lower crustal and upper mantle material from the Atlantis Massif during IODP Expedition 399. AGU Fall Meeting
48. McCaig, A.M., **Lang, S.Q.**, Blum, P., and IODP Science Party (12/2023) IODP Expedition 399: A new deep hole opens a window into lithospheric and melting processes at spreading ridges. AGU Fall Meeting
47. **Lang, S.Q.**, Benitez-Nelson, B., Vincent, M., Mau, A., Simpson, A.J., Kock, F.V.C., Lysak, D.H., and Soong, R., (9/2022) Seawater DOC is rapidly removed in ultramafic hydrothermal systems and replaced by 14C-free labile organics. 24th Radiocarbon International Conference, Zurich, Switzerland

46. **Lang, S.Q.,** Lilley, M.D., Baumberger, T., Fruh-Green, G., Walker, S.L., Brazelton, W.J., Kelley, D.S., Elend, M., Butterfield, D.A., Mau, A.† (12/20) Extensive decentralized hydrogen export from the Atlantis Massif. AGU Fall Meeting.
45. Mau, A.†, Simpson, A., Soong, R., Kock, F.F.C., Lysak, D.H., Seewald, J., McCollom, T.M., **Lang, S.Q. *** (12/2020) Different fates for Dissolved Organic Carbon in Mid-Cayman Rise Hydrothermal Systems Revealed through Novel Characterizations. AGU Fall Meeting.
44. Frankle, J.†, Moore, W.S., Benitez-Nelson, C.R., **Lang, S.Q.*** (12/2020) Remarkably elevated activity of short-lived radium in an ultramafic hydrothermal system on the Mid-Cayman Rise. AGU Fall Meeting.
43. Rogers, K.L., Cario, A., Daniel, I., Frank, K.L., Garel, M., **Lang, S.Q.**, Marre, S., Seewald, J., Sylva, S., Tamburini, C., Yoshimura, K. (12/2020) Combined technologies for high-pressure sampling, transfer, enrichment, and filtration from deep-sea hydrothermal vents. AGU Fall Meeting.
42. McCaig, A., Blackman, D.K., Orcutt, B., Menez, B., Lilley, M.D., Wheat, C.G., Lissenberg, J., Ildefonse, B., Klein, **Lang, S.Q.,** Seyfried, W.E., Andreani, M., John, B.E., Godard, M., Morris, A., Schwarzenbach, E., MacLeod, C.J., Savov, I.P., Abe, N., Ohara, Y. (12/2020) Accessing the Building Blocks of Life: deepening Hole U1309D, Atlantis Massif, Mid-Atlantic Ridge: IODP Proposal 937. AGU Fall Meeting.
41. Gunnells, S., Hoffman, C.L., Lohan, M.C., Tagliabue, A., Lough, A.J.M., Resing, J., **Lang, S.Q.**, Bundy, R.M. (2020) Exploring organic metal-binding ligands at the Lost City hydrothermal field. Ocean Sciences Meeting.
40. Wheat, C.G., Seewald, J., **Lang, S.Q.** (12/2019) Borehole Observatories on the Mariana Forearc: A window into Dynamic Processes Within a Subduction Channel. AGU. San Francisco, CA
39. Rogers, K.L., Steele, A., Fox, P.A., Catalano, J.G., Goldman, A.D., Iwsa, J., Korenaga, J., **Lang, S.Q.**, LaRowe, D., McCollom, T.M., McGown, L., Shelley, J., Schaller, M.F., Trail, D., Watson, E.B. (12/2019) The Earth First Origins Project: Constructing Life from the Ground Up. AGU. San Francisco, CA
38. Zaunbrecher, S., Pinckney, J.L., Lang, S.Q. (2019) Spatial variability of benthic microalgae in the South Atlantic Bight. CERF Biennial Conference.
37. McGonigle, J.M., **Lang, S.Q.**, Brazelton, W.J. (6/2019) Metabolic Strategies of the Dense Biofilms Inhabiting the Lost City Hydrothermal Vent Field. Astrobiology Science Conference. Bellingham, WA.
36. Aquino, K.A., Fruh-Green, G.L., Bernasconi, S.M., **Lang, S.Q.** (8/2019) Stable isotope geochemistry of carbonate-brucite chimneys and vent fluids from the Lost City Hydrothermal Field, 30N MAR. Goldschmidt. Barcelona Spain.
35. Moore, W.S., Frankle, J.D. †, **Lang, S.Q.**, Benitez-Nelson, C. (8/2019) Enormous excess 223 Ra in fluids from the Lost City hydrothermal field. Goldschmidt. Barcelona Spain.
34. Rogers, K.L., Steele, A., Fox, P.A., Catalango, J.G., Goldman, A.D., Iwsa, J., Korenaga, J., **Lang, S.Q.**, LaRowe, D., McCollom, T.M., McGown, L., Shelley, J., Schaller, M.F., Trail, D., Watson, E.B. (6/2019) The Earth First Origins Project: Constructing Life from the Ground Up. Astrobiology Science Conference. Bellingham, WA.
33. Nguyen, T.B.†, Topçuoğlu, B.D., Holden, J.F., **Lang, S.Q.** (8/2018) "Influence of energy availability on the carbon isotopes of methane and biomarkers during hydrogenotrophic methanogenesis" Goldschmidt. Boston, MA. Poster presentation
32. McGonigle, J.M., Brazelton, W.J., **Lang, S.Q.** (8/2018) “Deeply-sourced formate fuels sulfate reducers but not methanogens at Lost City hydrothermal field” Goldschmidt
31. Nguyen, T.B.†, Topçuoğlu, B.D., Holden, J.F., **Lang, S.Q.** (4/2018) "Influence of energy availability on the carbon isotopes of methane and biomarkers during hydrogenotrophic methanogenesis" Southeastern Biogeochemistry Conference. Tallahassee, FL. Poster presentation
30. Camper, N.†, **Lang, S.Q.**, IODP Expedition 357 Science Party (4/2017) “Amino Acids in Serpentinization Fluids from the Atlantis Massif” 2017 Astrobiology Science Conference. Mesa, AZ. Poster presentation.
29. Cable, M.L., Postberg, F., **Lang, S.Q.**, Aluwihare, L.I., Huber, J., Clark, B., Spilker, L.J., Lunine J.I. (4/2017) Mechanisms for Enrichment of Organics in the Enceladus Plume. Astrobiology Science Conference (AbSciCon), Mesa, Arizona
28. Hickok, K.†, Nguyen, T.†, Orcutt, B., Früh-Green, G., IODP Expedition 357 Science Party, **Lang, S.Q.** (4/2017) "Serpentinization and Synthesis: Can Abiotic and Biotic Non-Volatile Organic Molecules Be Identified in the Subsurface of the Atlantis Massif?" Southeastern Biogeochemistry Conference. Athens, GA. Poster presentation.

27. **Lang, S.Q.**, Früh-Green, G., Bernasconi, S.M., Brazelton, W.J., McGonigle, J.M. (12/2016) The potential role of formate for synthesis and life in serpentinization systems. American Geophysical Union Fall Meeting. San Francisco, CA
26. Hickok, K.†, Nguyen, T.†, Orcutt, B., Früh-Green, G., Wanamaker, E.[¥], and **Lang, S.Q.** (12/2016) Serpentinization and Synthesis: Can abiotic and biotic non-volatile organic molecules be identified in the subsurface of the Atlantis Massif? American Geophysical Union Fall Meeting. San Francisco, CA
25. Lilley, M.D., **Lang, S.Q.,** Früh-Green, G., Orcutt, B. (12/2016) Sensor Package Data and H2 and CH4 concentrations in Pre-and Post-Drilling Water Samples: IODP Expedition 357. American Geophysical Union Fall Meeting. San Francisco, CA
24. Lechleitner, F.A., **Lang, S.Q.**, McIntyre, C., Baldini, J.U.L., Dittmar, T., and Eglinton, T.I. (2016) Source to sink characterization of dissolved organic matter in a tropical karst system. Poster. EGU. Vienna, Austria.
23. Park, H. **, Wanamaker, E.[¥], and **Lang, S.Q.** (2016) Sample Storage and Contamination Considerations for IODP Rock Cores. Poster, Southeastern Biogeochemistry Symposium, Knoxville, TN, Feb 2016
22. Gomez-Saez, G.V., Niggemann, J., Dittmar, T., Pohlabeln, A.M., **Lang, S.Q.**, Noowong, A., Pichler, T., Wörmer, L., Bühring, S.I. (2016) Sources and fate of dissolved organic sulfur at the redox interface of marine shallow hydrothermal systems. Ocean Sciences Meeting.
21. **Lang, S.Q.**, Früh-Green, G.L., Bernasconi, S., Wacker, L. and Lilley, M. (2015) "14C of Individual Molecules to Track Deep Carbon, Deep Life" Deep Life Community Science Meeting, Lisbon, Portugal
20. Nguyen, T.§, **Lang, S.Q.**, Walla, M., Al-Sudani, K., Pournelle, J.R. (2015) Establishing site boundaries in Basra Governorate, southern Iraq using fecal sterol biomarkers in sediments. Poster, American Schools of Oriental Research Annual Meeting.
19. Kohl, l., Cumming, E., Cox, A., Suzuki, S., Morrissey, L., Rietze, A., **Lang, S.Q.**, Richter, A., Nealson, K.H., Morrill, P.L. (2015) Exploring the Metabolic Potential of Microbial Communities in Ultra-basic, Reducing Springs at The Cedars, CA: Evidence of Microbial Methanogenesis and Heterotrophic Acetogenesis. AGU.
18. Krueger, R.**, Thunell, R., Ziolkowski L., and **Lang, S.Q.** (2015) Leaf Waxes as an Indicator of Past Precipitation. Poster, USC Summer Research Symposium.
17. Park, H.**, Wanamaker, E.[¥], and **Lang, S.Q.** (2015) Sample Storage and Contamination Considerations for IODP Rock Cores. Poster, USC Summer Research Symposium.
16. **Lang, S.Q.,** Schwarzenbach, E.M., and Früh-Green, G.L. (2014) Tracking the fate of carbon in serpentinite-hosted systems. Goldschmidt Meeting, Sacramento, June 2014
15. McIntyre C., Lechleitner, F., **Lang, S.Q.**, Wacker, L., Fahrni, S., Eglinton, T. (2014) "14C Contamination Testing Using Wet Chemical Oxidation and a Gas Ion Source" AMS-13 Aix en Provence
14. Hindshaw, R., Heaton, T., Boyd, E., **Lang, S.Q.**, Tipper, E. (2014) Significant differences in biogeochemical processes between a glaciated and a permafrost dominated catchment. EGU General Assembly. Vienna, Austria, April 2014.
13. Larson, B. I., **Lang, S.Q.**, Lilley, M.D., Olson, E.J., Lupton, J., Nakamura, K., Buck, N. (2014) Stealth export of hydrogen and methane from a low temperature serpentinization system. Symposia in honor of Peter Rona. Rutgers
12. **Lang S.Q.**, Früh-Green G.L., Bernasconi S.M., and Wacker L. (2012) "Tracking the transfer of carbon from the geosphere to the biosphere in a serpentinite-hosted environment" Oral Presentation. Serpentine Days, Porquerolles Island, France.
11. Früh-Green G.L. and **Lang S.Q.** (2012) "Fluid-rock-microbe interactions in serpentinite-hosted hydrothermal systems: Life in a CO2-limited world." Oral Presentation. Dark energy biosphere institute research coordination network meeting, Bremen, Germany.
10. **Lang S.Q.**, Früh-Green G.L., Bernasconi, S.M., and Lilley M.D. (2011) "The Influence of Hydrogen on Organic Matter Cycling at the Lost City Hydrothermal Field." Poster Presentation, International Meeting of Organic Geochemistry.
9. **Lang S.Q.**, Früh-Green G.L., Bernasconi S.M., Butterfield D.A., Lilley M.D., Proskurowski G., and Méhay S. (2011) "Microbial Utilization of the Products of Serpentinization at the Lost City Hydrothermal Field." Oral Presentation, Goldschmidt.

8. Schwarzenbach, E., Früh-Green, G.L., Bernasconi, S.M., Méhay, S., Lilley, M. and **Lang, S.Q.** (2010) "Present-Day Serpentinization and Microbial Activity in Peridotites Hosting High-Ph Spring Waters, Gruppo di Voltri (Italy)." Oral Presentation, Goldschmidt.
7. **Lang, S.Q.** and Aluwihare L.I. (2008) "Investigating the carbon and nitrogen sources supplying the base of the Suisun Bay food web: a compound-specific isotope approach." Poster. CALFED Science Conference.
6. **Lang, S.Q.**, Butterfield, D.B., and Lilley, M. (2008) "Organic Geochemistry of Lost City Hydrothermal Fluids: Implications for Microbial Communities." Oral Presentation. 5th Annual Southern California Geobiology Symposium.
5. **Lang, S.Q.**, Butterfield, D. A., and Lilley, M.D. (2007) "Organic Geochemistry of Lost City Fluids." Oral Presentation, InterRidge Theoretical Institute.
4. **Lang S.Q.**, Hutnak M., Johnson H. P., Butterfield D.A., and Lilley M.D. (2006) "Evidence for a 'third fluid' at Baby Bare Seamount: Implications for Chemical Fluxes." Poster. RIDGE Theoretical Institute
3. **Lang, S.Q.**, Hedges, J.I., Butterfield, D., and Lilley, M.D. (2005) "Production of Isotopically Heavy Dissolved Organic Carbon From the Lost City Vent Field." Oral Presentation. AGU Fall Meeting
2. **Lang, S.Q.**, Hedges, J.I., Butterfield, D., and Lilley, M. (2004) "Stable Carbon Isotopes of the Lost City Hydrothermal Vent Field." Poster. Gordon Research Conference on Organic Geochemistry, Plymouth, New Hampshire
1. **Lang, S.Q.**, Hedges, J.I., and Butterfield, D. (2001) "Dissolved Organic Carbon in Endeavour Segment of Juan de Fuca Ridge." Oral Presentation. ACS Spring Meeting

SEMINARS

RARE Seminar, Rensselaer Polytechnic Institute (11/2024)
Pittsburgh Geological Society (9/2024)
School for Marine Science & Technology, UMass Dartmouth (9/2023)
School of Rock, International Ocean Discovery Program (2/2023)
Earth & Environmental Sciences Seminar, University of Pennsylvania (2/2023)
Biology Seminar, University of South Carolina (2/12/2021)
Marine Science Seminar, University of Georgia (9/23/2019)
Earth & Environmental Sciences Seminar, Boston University (3/12/2019)
Earth & Environmental Sciences Seminar, Lehigh University (1/27/2017)
Environmental Engineering & Earth Sciences, Clemson University (9/9/2016)
Earth and Planetary Sciences, University of Tennessee – Knoxville (9/10/2015)
Marine Sciences Seminar, University of South Carolina (1/16/2015)
Virginia Tech Geosciences Department Seminar, Virginia Tech (9/26/2014)
Illinois State Geological Survey (1/29/2013)
Department of Earth and Atmospheric Sciences, University of Houston (2/1/2013)
Department of Earth and Ocean Sciences, University of South Carolina (2/4/2013)
College of Marine Science, University of South Florida (2/11/2013)
Texas A&M Oceanography Department, Texas A&M (2/14/2013)
Geophysical Laboratories Seminar, Carnegie Institution of Washington (11/13/2012)
EAWAG (Swiss Federal Institute of Aquatic Science and Technology) (11/18/2012)
AMS Seminar, ETH-Zürich (10/26/2011)
Oceanography Department Seminar, University of Washington (4/2010)
Marine Science Institute Seminar, University of Texas at Austin (2009)

OCEANOGRAPHIC EXPEDITIONS

2023. Co-Chief Scientist. IODP Expedition 399: Building Blocks of Life. 60-day cruise with the JOIDES Resolution to drill new boreholes and sample borehole fluids at the Atlantis Massif.
2022. Mariana Forearc. 27-day cruise with *ROV JASON* on the *R/V Kilo Moana* to sample borehole fluids from active serpentinite mud volcanoes on the Mariana Forearc
2020. Carbon at Cayman. 26-day cruise with *ROV JASON* on the *R/V Atlantis* to collect samples from the Von Damm and Piccard Hydrothermal fields
2018. Chief Scientist. Lost City as an urban center for subseafloor life. 24-day cruise with ROV *Jason* on the *R/V Atlantis* to collect fluid and rock samples from the Lost City Hydrothermal Field.
2015. Organic Geochemist. IODP Expedition 357: Atlantis Massif Seafloor Processes: Serpentinization and Life. 47-day sea-bed rock drilling on RRS *James Cook*
2008. Chief Scientist. Metabolisms of the Deep-sea. Metabolisms of deep-sea microbial communities Deep-ocean sampling via R/V *Sproul*.
2008 - 2009. Multiple cruises, sampling in the San Francisco Bay and Delta. Participant. R/V *Polaris*
2005. Visions. Participant. Juan de Fuca Ridge via R/V *Thompson* and ROV *JASON*
2005. Virtual Lost City. Participant. Lost City hydrothermal field via R/V *Ronald H. Brown* and the Institute for Exploration's ROV *Argus* and *Hercules*
2003. Lost City. Participant. Lost City hydrothermal field via R/V *Atlantis* and DSV *ALVIN*
2003. Life in Extreme Environments return cruise. Participant. Main Endeavour Field, Axial Seamount, and the Juan de Fuca flanks via R/V *Thompson* and ROV *JASON*
2002. Life in Extreme Environments. Participant. Main Endeavour Field, Axial Seamount, and the Juan de Fuca flanks via R/V *Thompson* and ROV *JASON*
2001. New Millennium Observatory. Participant. Axial Seamount via R/V *Ronald H. Brown* and ROV *ROPOS*
2000. Tidal Perturbations return cruise. Participant. Main Endeavour Field via R/V *Atlantis* and DSV *ALVIN* and ROV *JASON*
2000. Tidal Perturbations. Participant. Main Endeavour Field via R/V *Atlantis* with DSV *ALVIN* and ROV *JASON*

STUDENTS MENTORED

Graduate Students

Jamison Ward, Ph.D. candidate (7/2025-present)
Aaron Mau, M.S. Mar. Sci. (8/2019-12/2021)
Jessica Frankle, M.S. Geol. Sci. (1/2019-5/2021)
Nicholas Camper, M.S. Geol. Sci. (6/2016-5/2018)
Tran Nguyen, M.S. Mar. Sci. (6/2016-5/2018)
Katherine Hickok, M.S. Geol. Sci. (6/2015-8/2018)

Undergraduate students

Claire Matta, Mar. Sci. (9/2020-6/2023)
Jessica Rodgers, Mar. Sci. (05/2019–2022)
John Freier, Mar. Sci. (01/2018–09/2020)
Cameron Henderson, Mar. Sci. (09/2016 – 05/2019)
Philip Fahy, Mar. Sci. (10/2015-05-2016)
Sedona Edgar, Geol. Sci. (1/2017 – 05/2017)
Hannah Park, Mar. Sci. (09/2014 – 05/2017)
Alexandra Mele, Geol. Sci. (10/2014 – 05/2015)
Russel Kruger (Summer REU 2015)

TEACHING

Presenting Scientific Research (12.703; ~8 grad students, co-taught)
Cultural Geology (GEOL 110; 400 non-majors)
Earth Systems Through Time (GEOL 305; ~30 majors)
Chemical Ocean. (MSC 782; ~16 grad students)
Isotope Biogeochem. (GEOL 715; ~8 grad students)

PROFESSIONAL SERVICE

National Service

2023: Panelist, NSF Panel on impacts of COVID

2021: Board Member, Advisory & Planning Board of NOSAMS

Meeting & Workshop organizer:

2024: AGU Fall Meeting workshop: "Introduction to Radiocarbon: Theory and Best Practices for Ocean and Earth Sciences" provided for 13 people at all career stages

2024: Ocean Sciences Meeting workshop: "Introduction to Radiocarbon: Theory and Best Practices for Ocean and Earth Sciences" provided for approximately 15 people at all career stages

2024: Co-host: MICADAS Workshop, Woods Hole, MA

2019: Primary organizer: Southeastern Biogeochemistry Symposium, Columbia, SC

2014: Session co-organizer, Goldschmidt Conference 2014

Proposal Panel Service: NASA Habitable Worlds Program (1 as Chair, 1 as participant); NSF Chemical Oceanography

Proposal reviewer: NASA, National Science Foundation (Chemical Oceanography, Marine Geology & Geophysics, Geobiology and Low temperature geochemistry), Gordon and Betty Moore Foundation, American Chemical Society, C-DEBI, Lewis and Clark Fund for Exploration and Field Research, Discovery Grants Program, Natural Sciences and Engineering Research Council of Canada

Manuscript reviewer: Nature Geosciences, PNAS, Geology, Geochimica et Cosmochimica Acta, Analytical Chemistry, Radiocarbon, G-cubed, Deep Sea Research, Limnology and Oceanography, Marine Chemistry, Rapid Communications in Mass Spectrometry, Journal of Geophysical Research, Analytica Chimica Acta, Continental Shelf Research, Chemical Geology, Estuary Science, Nature Communications, Scientific Reports, Geophysical Research Letters, Organic Geochemistry, ISME, Environmental Microbiology

Service at the University or Institution level

University / Institution Service:

2023 – present: WHOI Ad Hoc tenure and promotion committees (3 as member, 1 as external chair)

2022 – present: WHOI Deep Submergence Advisory Committee

2023: WHOI Indirect Costs Full Time Equivalent Committee

2022 – 2024: WHOI G&G Annual Review Committee

2020 – 2022: UofSC College of Arts and Sciences Dean's Advisory Committee

2017 – 2020: UofSC Faculty Senator

Departmental Service:

2022 – 2024: MG&G Annual Review Committee

2019 – 2022: Geology and Geophysics (G&G) Program Representative on the SEOE Faculty Committee

2020 – 2022: G&G Undergraduate Students Committee

2014 – 2020: G&G Graduate Studies Committee

2019 – 2022: Faculty Mentor (2 Assistant Professors)

2014 – 2022: Student advisory committees (8 M.S., 3 PhD.)

2014 – 2022: Presentations to prospective undergraduate students and families (3-6 per year)

2015: Round Table Participant: Faculty jobs for geology students

2016: Earth and Ocean Sciences Peer Review Committee

Public Service and Outreach:

2022 – present: Radiocarbon and laboratory tours for high school, college, and graduate students

2023: Hosted McKissick Museum exhibition “The Lost City: Between Art and Science” with contributions from Artist Anna Davidson
2023: “School of Rock” IODP presentation to ~30 science teachers
2022: Featured interview, Audible.com “A Grown-up Guide to Oceans”
2019: Talk to Explorers Club, Greater Piedmont Chapter
2018: TV appearance, Canadian Television Network’s This Morning
2015: Panelist, Climate change theater action, Presbyterian College