

- Accelerating Methane Suppression for Dairy Cows. Shelby Cullom Davis Charitable Fund. 2019-2024. PI Price, Co PIs: Archer, Emerson, Twining. [Total: \$5.13M; Archer: \$2.05M].
- Developing a machine learning-based, high resolution, predictive capacity for monitoring paralytic shellfish toxins along the Gulf of Maine coastline. 2019-2024. NOAA MERHAB: PI Archer, Co-PIs: Record, MacLeod, Kanwit, [Total \$770,000].

RECENT PUBLICATIONS (SINCE 2019)

- **Web of Science** i.d.: H-5490-2012;
- **ORCID** i.d. :<https://orcid.org/0000-0001-6054-2424>
- Genot, B., Grogan, M., Yost, M., Iacono, G., Archer, S. D., & Burns, J. A. (2024). Functional stress responses in Glaucophyta: evidence of ethylene and abscisic acid functions in *Cyanophora paradoxa*. *bioRxiv*, 2023-06. doi.org/10.1101/2023.06.22.546102
- Marín-Samper, L., Arístegui, J., Hernández-Hernández, N., Ortiz, J., Archer, S.D., Ludwig, A., & Riebesell, U. (2024). Assessing the impact of CO₂ equilibrated ocean alkalinity enhancement on microbial metabolic rates in an oligotrophic system. *Biogeosciences*, 2023, 1-29. doi.org/10.5194/egusphere-2023-2409
- Ortiz, J., Arístegui Ruiz, J., Goldenberg, S. U., Fernandez-Mendez, M., Taucher, J., Archer, S. D., ... & Riebesell, U. (2024) Phytoplankton physiology and functional traits under artificial upwelling with varying Si: N. *Frontiers in Marine Science*. Volume 10. doi.org/10.3389/fmars.2023
- Emerson, D., Sofen, L. E., Michaud, A. B., Archer, S. D., & Twining, B. S. (2024). A cost model for ocean iron fertilization as a means of carbon dioxide removal that compares ship-and aerial-based delivery, and estimates verification costs. *Earth's Future*, 12(4), e2023EF003732. doi.org/10.1029/2023EF003732
- Smith, M.M., etc. Angot, H., Chamberlain E.J. , Drost E.S.,.....Archer, S.D.,...(2023). Thin and transient meltwater layers and false bottoms in the Arctic sea ice pack -- recent insights on these historically overlooked features. *Elementa: Science of the Anthropocene* Ms. No. ELEMENTA-D-23-00025R2 doi.org/10.1525/elementa.2023.00025
- Hopkins F.E., Archer S.D., Bell T.G., Suntharalingam P., Todd J.D. (2023) The biogeochemistry of marine dimethylsulfide. *Nature Reviews, Earth and Environment*. 4(6), 361-376. doi.org/10.1038/s43017-023-00428-7
- Ahmed S., Thomas J.L. Angot H., Dommergue A., Archer S.D.,Zilker B. (2023) Modelling the coupled mercury, ozone, and bromine cycles in the central Arctic spring atmosphere during MOSAiC with WRF-Chem. *Elementa. Science of the Anthropocene*. 11(1), 00129.
- Balch W.M, Drapeau D.T., Poulton N., Archer S.D., Cartisano C., Burnell C., Godrijan J. (2023) Osmotrophy of dissolved organic compounds by coccolithophore populations: fixation into particulate organic and inorganic carbon. *Science Advances*. 9, no. 21: eadf6973.
- Tham Y.J., Sarnel N., Iyer S., Boyer M.,Archer S.D., ...Saiz-Lopez (2023) Widespread detection of chlorine oxyacids in the Arctic atmosphere. *Nature Communications #NCOMMS-22-18368C*. doi.org/10.1038/s41467-023-37387-y
- Bartens, J.G.M., Ganzeveld, L.N.,Archer, S.D.....(2023) Dry deposition and the boundary layer budget of ozone over Arctic sea ice during the MOSAiC field campaign. *Elementa. Science of the Anthropocene*. 11 (1) 00086. doi.org/10.1525/elementa.2022.00086
- Yun, J-H, Archer, S.D., Price, N.R. (2022) Valorization of waste materials from seaweed industry: an industry survey based biorefinery approach. *Reviews in Aquaculture* 15(3) 1020-1027. doi.org/10.1111/raq.12748
- Angot H., Blomquist B., Howard D., Archer S.D., ... Schmale, J. (2022) Year-round trace gas measurements in the central Arctic during the MOSAiC expedition. *Scientific Data*. 9: Article 723. doi.org/10.1038/s41597-022-01769-6

- Benavent, N., Mahajan, A.,Archer, S.,.....Saiz-Lopez, A. (2022). Substantial contribution of iodine to Arctic ozone destruction. *Nature Geoscience*. <https://doi.org/10.1038/s41561-022-01018-w>.
- Record, N.R., Evanilla, J., Kanwit, K., Burnell, C., Cartisano, C., Lewis, B. J., ... & Archer, S.D. (2022). Benefits and Challenges of a Stakeholder-Driven Shellfish Toxicity Forecast in Coastal Maine. *Frontiers in Marine Science*, Article 1031. [/doi.org/10.3389/fmars.2022.923738](https://doi.org/10.3389/fmars.2022.923738)
- Archer, SD, Lubelczyk, L., Kunes, M., McPhee, K., Dawydiak, W., Staiger, M., Posman K., Poulton N. (2022) Saturation approach to determine grazing mortality in picoeukaryote and *Synechococcus* populations. *Frontiers in Marine Science*. doi.org/10.3389/fmars.2022.844620.
- Shupe, M., Rex, M., Blomquist, B., Persson, P.O.G., Schmale, J., Uttal, T., Althausen, D., Angot, H., Archer, S., etc. (2022). Overview of the MOSAiC expedition—Atmosphere. *Elementa: Science of the Anthropocene* 10(1). DOI: doi.org/10.1525/elementa.2021.00060
- Deeds, J. R., Stutts, W. L., Celiz, M. D., MacLeod, J., Hamilton, A. E., Lewis, B. J., Archer, S.D... & Lankford, S. K. (2020). Dihydrodinophysistoxin-1 Produced by *Dinophysis norvegica* in the Gulf of Maine, USA and Its Accumulation in Shellfish. *Toxins*, 12(9), 533.
- Hopkins, F. E., Suntharalingam, P., Gehlen, M., Andrews, O., Archer, S. D., Bopp, L., ... & Williamson, P. (2020). The impacts of ocean acidification on marine trace gases and the implications for atmospheric chemistry and climate. *Proceedings of the Royal Society A*, 476(2237), 20190769.
- Hopkins FE, Nightingale PD, Stephens JA, Moore CM, Richier S, Cripps GL, Archer SD. (2020) Dimethylsulfide (DMS) production in polar oceans may be resilient to ocean acidification. *Biogeosciences*. 17: 163–186.
- Grasso I, Archer SD, Burnell C, Tupper B, Rauschenberg C, Kanwit K, Record N. (2019) The hunt for red tides: Deep learning algorithm forecasts shellfish toxicity at site scales in coastal Maine. *Ecosphere*, 10(12): e02960. [10.1002/ecs2.2960](https://doi.org/10.1002/ecs2.2960)
- Goode, AG, Fields DM, Archer SD, Martínez JM. (2019). Physiological responses of *Oxyrrhis marina* to a diet of virally infected *Emiliana huxleyi*. *PeerJ*, 7, e6722.
- Archer SD, Posman KM, DeStefano J, Harrison A, Ledina A, Cheff EM, Witt DM. (2019). A fluorescent approach to determine bromoperoxidase activity in microalgae and planktonic communities using aminophenyl fluorescein. *Frontiers in Marine Science* 6: Article 68.

SYNERGISTIC ACTIVITIES (SINCE 2019)

- May-August 2023. Mentor, NSF Research Experience for Undergraduates. Undergraduate Danielle Polinske, oral presentation: Mud, Marshes and Methane, An investigation into methane and carbon dioxide fluxes within mudflats and salt marshes in Mid-Coast Maine. Polinke, Iacono, Archer. Ocean Sciences Meeting, New Orleans 2024.
- March 2023. Invited Talk. SOLAS Seminar Series V. Archer SD: An attempt to establish the relative contributions of local versus advected sources of DMS in the Central Arctic boundary layer. <https://www.solas-int.org/events/solas-seminar/solas-semianr-v.html>.
- 2022 - present: Co-chair of SCOR Working Group DMS-PRO: Developing Resources for the study of methylated sulfur compound cycling processes in the ocean.
- 2022 - present, Member: Exploring Ocean Iron Solutions Consortium (EXOIS). Invited talk: December 2022. Archer and Oschlies: Ocean iron fertilization: geochemical and atmospheric consequences. <https://oceaniron.org/our-plan/#forums>
- 2019 - present. Member: US Interstate Shellfish Sanitation Conference: (i) Laboratory Committee and (ii) Biotxin Subcommittee.