

CURRICULUM VITA

PATRICIA ANA MATRAI

July 2021

PRESENT POSITION: Emerita Research Scientist

WORK ADDRESS: Bigelow Laboratory for Ocean Sciences
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EDUCATION: B.S., Marine Biology, 1981, Universidad de Concepción, Concepción, Chile
M.S., Oceanography, 1984, Scripps Institution of Oceanography (SIO), University of California, San Diego (UCSD) (under Dr. Elizabeth Venrick)
Ph.D., Biological Oceanography, 1988, SIO, UCSD (under Dr. Richard W. Eppley)

PROFESSIONAL EXPERIENCE:

1981-1982 Research Biologist, Dept. of Marine Biology and Technology, Pontificia Universidad Católica de Chile, Talcahuano, Chile.

1984 - 1988 Research Assistant, SIO, UCSD.

1988 Postdoctoral Researcher, SIO, UCSD.

1988 - 1989 Research Associate, Marine & Atmospheric Chemistry (MAC), Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami (UM)

1989 - 1993 Research Assistant Professor, MAC, RSMAS, University of Miami

1990 - 1995 Adjunct Scientist, Bigelow Laboratory for Ocean Sciences (Bigelow)

1994 Research Associate Professor, MAC, RSMAS, University of Miami

1994 - 1997 Associate Professor, MAC, RSMAS, University of Miami

1995 - 2021 Senior Research Scientist, Bigelow

1996 - 2005 Adjunct Faculty, Department of Biology, University of New England

2000 - 2005 Graduate Faculty, University of Maine, Orono

2007 Interim Director, part time, Bigelow

2011 - 2021 Research Scientist, Colby College

2013 Interim co-Director of Finance and Administration, Bigelow

2021 Emerita Research Scientist, Bigelow

2021 Adjunct Principal Investigator, Bigelow

EDITORIAL RESPONSIBILITIES:

1984-1988 Spanish Editor, California Cooperative Oceanic Fisheries Investigations (CalCOFI), SIO, UCSD.
Reviewer - Arctic, ACS Symposium Series, Argentina ANPCyT and FONCyT, Atmospheric Chemistry and Physics, Australian Research Council, Biogeosciences, Canada Research Chairs Program, Chile CONICYT and FONDECYT, Deep-Sea Research, Ecological Applications, Elementa, Frontiers in Marine Science, Geophysical Research Letters, Global Biogeochemical Cycles, Israeli Science Foundation, Journal of Geophysical Research (Oceans and Atmospheric Sciences), Journal of Marine Systems, Journal of Plankton Research, Journal of Phycology, Limnology and Oceanography, LO-Letters, LO-Methods, Marine Biology, Marine Chemistry, Marine Ecological Progress Series, NSF, NASA, DOE, NOAA, NERC-UK, Remote Sensing of Environment, Research Corporation for Science Advancement, Science, Nature family, Oceanography, Tellus, UK COST, etc.

SCIENTIFIC INTERESTS:

Biological underpinnings of air-sea exchange, precursors and production of marine primary aerosols, oceanic sulfur cycling, biological production and consumption of organic sulfur and halogenated compounds, physiological ecology of phytoplankton, primary production, aquatic respiration, harmful algal blooms, with a current focus in the Arctic Ocean system, and microplastics invertebrate physiology.

PROFESSIONAL SOCIETIES:

American Association of University Women
American Geophysical Union
Association for the Sciences of Limnology and Oceanography
Association of Women in Science
The Oceanography Society

HONORS:

Tinker Foundation Scholarship, 1982-1984
California Edison Scholarship, 1982 and 1983
Antarctic Service Medal of the United States of America, 2011

FUNDED RESEARCH:

2022-2026 (NSF NNA) “Collaborative Research: NNA Research: Global changes, local impacts: Study of glacial fjords, ecosystems and communities in Greenland”, \$963,676, co-PI with M. Cape and others
2020-2023 NSF PLR ANT “2022 Gordon Research Conference on Polar Marine Science”, \$10,000 (to GRC), PI and Co-Chair with K. Meiners.
U.S. funding lead for the above GRC Conference, first postponed to 2021, then 2023.
2020-2021 Bigelow Laboratory Sash A. and Mary M. Spencer Entrepreneurial Fund “Evaluating algal exopolysaccharides as microplastic flocculating agents in wastewater remediation”, \$24,904, collaboration with M. Lomas (PI) and R. Schmedicke.
2020-2021 Ocean Carbon and Biogeochemistry (NASA/NSF) “Coastal Arctic biogeochemical data synthesis in preparation for Arctic-COLORS”, \$33,000 (to NASA Goddard), co-PI with A. Mannino, P. Hernes, R. Spencer and M. Tzortiou.

2020-2020 Bigelow Laboratory Sash A. and Mary M. Spencer Entrepreneurial Fund “Effects of microplastic fibers presence and ingestion on American lobster larvae (*Homarus americanus*)”, \$8,468, PI with D. Fields.

2020-2020 SeaGrant Maine “Effects of microplastic fibers presence and ingestion on American lobster larvae (*Homarus americanus*)”, \$5,000, Co-PI with D. Fields.

Lead for both above lobster projects, in collaboration with graduate and undergraduate students.

2017-2022 NSF PLR ANS “Collaborative Research: Marine Aerosols in the Arctic: Linking surface water chemistry and biology with primary particle production”, \$539,332, Co-PI with K. Pratt, A. Grannas, and A.Ault.

Co-Chief Scientist of the field work (7 weeks) to the North Pole on Icebreaker Oden in summer-fall, co-organizer of the 1st data workshop in March 2019 and foremost, mentor to my 3 junior Co-PIs. Data analyses in progress.

2017-2020 NASA OBB “Primary production changes across the Subarctic Atlantic: The physical and ecological roles of surface advection”, \$797,490, PI with Co-PIs M. Vernet, K. Richardson and P. Wassmann and collaborators S. Belanger, I. Ellingsen.

Lead of international team of researchers, combining modelers and field oceanographers. First publications are out with continued model runs and data analysis in progress. Multiple meeting presentations.

2016-2022 NSF PLR ANT “Antarctic Microbial Networks and DMSP: Linking diversity, biogeochemistry, and functional gene expression”, \$1,093,786, Co-PI with P. Countway.

Co-Chief Scientist of the two field work (10 and 7 weeks in 2017 and 2018, respectively) to US Antarctic Program Palmer Station. Some unique genomics samples still awaiting analysis while preliminary data analysis and meeting presentations are ongoing.

2016-2020 NSF PLR ANS “Collaborative Research: Understanding the response of atmospheric oxidants and CO₂ to dramatic changes in Arctic sea ice”, \$112,399, Co-PI with W.R. Simpson and 3 other Co-PIs.

This project represents the first level of analyses of the 9 years of data generated by the AON O-Buoy Chemical Network project below, of which I was Lead PI. Data analysis and publication were to be separately funded.

2014-2016 NSF PLR “Sweden-US Planning Workshop on joint Arctic Research using the I/B Oden”, \$82,159, PI with Co-PI P. Minnett. One year extension granted due to unspent participant support funds; NSF-approved use for 2016 REU student.

Lead of the presentation to NSF, the organization of the bi-national workshop and the writing of the report that then led to a MOU between US NSF and Swedish funding agencies to share the Icebreaker Oden through 2018.

2014- 2016 IAOGP “Net Environmental benefit analysis tool to assess oil spill response technologies and the environmental effects of oil spills”, \$104,000, Co-PI with C. Aepli.

My expertise on marine surface microlayers led to a collaboration with SRS C. Aepli whom I introduced to Arctic and sea ice research. This has been my sole major basic research project with private sector funding.

2014-2018 NSF PLR ARCSS “Collaborative Research: Understanding Arctic Marine Biogeochemical Response to Climate Change for Seasonal to Decadal Prediction Using Regional and Global Climate System Models”, \$190,397, Co-PI with W. Maslowski and 4 other co-PIs.

A major collaboration to bring ocean and sea ice biogeochemistry into a regional coupled physical ocean- sea ice-atmosphere-land model for the Arctic Ocean (RASM-mBGC). I was the major provider of Arctic biogeochemical data to initialize and validate the model

2014-2017 NASA OBB “Land-Ocean Interactions in the Arctic: An Integrative Field Campaign to Assess the Impacts of Natural- and Anthropogenic Changes to Coastal Ocean Biology, Biogeochemistry and Biodiversity”, \$82,350, co-PI with A. Mannino and 9 other Co-PIs.

A multidisciplinary group of researchers gathered to write a science plan focusing on land-ocean interactions in the near shore Arctic. The plan can be seen at <https://arctic-colors.gsfc.nasa.gov/> and is awaiting full approval by NASA ESS OBB for implementation from 2021 onwards.

2013-2018 NSF OCE “Ocean Acidification: Influence of Ocean Acidification (OA) on biotic controls of DMS emissions”, \$1,290,590, Co-PI with S. Archer and P. Countway. One year extension automatically granted with approved Travel Supplement.

Co-lead and facilitator of this research program on OA by sharing my laboratory and everything in it with a newly recruited scientist (Archer) to Bigelow Laboratory.

2013-2017 NASA OBB “Net Primary Productivity Algorithm Round Robin for the Arctic Ocean”, \$678,647, PI with Co-PIs M. Friederichs and V. Saba. One year extension due to late PD start.

Lead PI for this international, multi-institutional comparison of satellite-derived and earth system model-derived primary production in the Arctic Ocean, with participation of >40 and >20 modeling teams, respectively.

2010-2016 NSF OPP AON “Collaborative Project: The O-Buoy Network of Chemical Sensors in the Arctic Ocean”, \$1,075,621, PI with Co-PIs F. Chavez, D. Perovich, P. Shepson, and W. Simpson. One year extension due to delayed ice breaker cruise time.

Lead PI for the design, construction, testing and deployment of the sole network for atmospheric chemistry of 16 ice-tethered, automated and autonomous O-Buoys for sampling of atmospheric chemical composition and meteorology in the Arctic Ocean. This observing network only collected observations and reported data.

2010-2014 NASA OBB “The Autonomous Polar Productivity Sampling System (APPSS)”, \$445,141, Co-PI with M. Steele.

Co-lead of first deployment of ARGO-type floats outfitted with bio-optical sensors (now BIO-Argo) in Arctic waters; we failed on the Pacific side due to extreme surface density gradient and succeeded in the Atlantic side of the Arctic Ocean, under sea ice and for 3 continuous years.

2009-2013 NSF OPP ARC “Collaborative Research: Impacts of the Changing Seasonality of Wind-driven Mixing on the Arctic System”, \$104,337, Co-PI with L. Rainville, M. Wang, R. Woodgate, A. Mahadevan, and J. Overland.

An interdisciplinary collaboration to assess physical-biological interactions into an eddy-permitting ocean circulation model to be adapted to the Arctic Ocean. I was the sole provider of Arctic biogeochemical data to initialize and validate the model.

2008-2011 NSF OCE “Collaborative Research: Biological and physical controls on DMS production and emission during VOCALS”, \$320,000, PI with Co-PI B. Huebert.

Co-Lead for ship-board analysis of biogenic gases to quantify the emission and formation of marine cloud condensation nuclei and their role in the formation of clouds in the SE Pacific Ocean, where upwelling and coastal eddies dominate seasonally.

2007-2011 NSF OPP ANS “Collaborative Research: Marine Microgels: A Microlayer Source of Summer CCN in High Arctic Open Leads”, \$502,656, PI with Co-PI M. Orellana.

Lead for expedition to the high Arctic (87°N) to quantify the presence of marine primary organic aerosols and their biogenic source. First irrefutable proof of such local emissions.

2007-2010 NSF OPP “SIRG- Collaborative Research: The O-Buoy Project: Engineering and Deployment of a Network of Arctic Ocean Chemical Sensors for the IPY and beyond”, \$633,290, PI with Co-PIs D. Perovich, P. Shepson, W. Simpson and J. Bottenheim.

Lead of a team of 5 senior scientists and 20 technicians and engineers for a proof of concept for the design, testing, building and deployment of an ice-tethered, autonomous and automated sampling system for atmospheric chemistry in the Arctic Ocean.

2006-2010 NSF OPP ARCSS Collaborative Research: Producing an Updated Synthesis of the Arctic’s Marine Primary Production Regime and Its Controls”, \$306,793, PI with Co-PIs L. Codispoti, V. Hill, B. Light, and M. Steele.

Lead for synthesis of all historical available data on primary production in the Arctic Ocean, including direct field measurements, remote sensing-derived estimates and nutrient-derived estimates.

- 2005-2008 NASA "Organic matter metabolism in a coastal ocean ecosystem", \$714,965, Lead PI with M. Sieracki.
- 2004-2007 Maine/NASA DEPCOR "Viral Control of Meso-scale Coccolithophore Blooms in the Gulf of Maine", \$ 145,400, Co-PI, with J. Vaughn, J. Novotny, and W. Balch.
- 2002-2003 NOAA ECOHAB "The ecology and oceanography of toxic *Alexandrium* blooms in the Gulf of Maine", \$25,000, PI.
- 2002-2003 NSF Biocomplexity "Changing Environmental Controls on Coupled Chemical Exchange Between the Ocean, Ice, and Atmosphere in the Arctic - a Workshop Request", \$0, PI.
- 2003-2008 NSF Biocomplexity "Complex molecular to global interactions and feedbacks in the marine DMS cycle", \$1,700,000, Lead PI with 9 additional Senior Investigators.
- 2001-2004 NASA EPSCOR "Viral control of meso-scale coccolithophore blooms in the Gulf of Maine", \$252,804, Co-PI, with J. Vaughn, J. Novotny, and W. Balch.
- 2001-2002 NSF OCE "US SOLAS Workshop". \$20, 515, PI.
- 2001-2002 ONR "US SOLAS Workshop". \$20, 515, PI.
- 2000-2003 NSF OPP "Dimethylsulfide cycling in the summer leads of the central Arctic during AOE 2001". \$416,590, PI.
- 2000-2001 NSF Biocomplexity "Biocomplexity Incubation Activity: Earth system regulation through biogenic sulfur- Molecular to global interactions", \$46,302, PI.
- 2000-2002 NOAA ECOHAB "The ecology and oceanography of toxic *Alexandrium* blooms in the Gulf of Maine", \$104,000, PI.
- 1997-2001 NASA "A study of the impact of oceanic biological processes on the air-sea exchange of methyl bromide: A collaborative proposal for the NASA's MTPE NRA 97-MTPE-01", \$485,315, Co- PI, with J. Butler and E. Saltzman.
- 1997-2000 NSF "Extracellular Carbon and Sulfur Cycling by Arctic Phytoplankton", \$150,000, Co-PI, with M. Vernet.
- 1997-1999 NSF "Methyl bromide production by marine phytoplankton", \$162,468, PI.
- 1997-1998 ONR "Optical and biochemical characteristics of pollen grains in coastal waters of the Gulf of Maine", \$50,000, Co-PI, with M.D. Keller.
- 1993-1995 NSF "Quantitative role of glycine betaine and DMSP in the cellular nitrogen and sulfur budgets of marine phytoplankton", \$138,447, Co-PI, with M.D. Keller and R. Kiene.
- 1993-1995 NASA "Physiological ecology of DMSP and DMS production by representative phytoplankton species", \$380,150, PI.
- 1993-1995 ONR "An Assessment of the Effect of Particulate Scavenging of Radioactive Nuclides Released in the Barents Sea", \$169,999, Co-PI, with D. Kadko.
- 1992-1995 NSF "Phytoplankton organic carbon and sulfur cycling at the marginal ice edge zone", \$247,394, PI, with Co-PI M. Vernet.
- 1992 NOAA "Cycling of methyl iodide between ocean surface and atmosphere in the equatorial Pacific (IGAC/MAGE)", \$40,000, PI.
- Norwegian Marshall Fund "The Role of *Phaeocystis pouchetii* in the sulfur cycling of arctic waters", \$3,200, PI.
- 1991 NOAA "Biogenic Sources and Sinks of DMS in the North Pacific", \$40,000, PI.

- 1990 University of Miami General Research Support Award "Halogen gas production by marine phytoplankton", \$3,500, PI.
- 1989-1992 NASA "Marine Phytoplankton Productivity as a Source of Dimethylsulfide in Surface Ocean Waters and the Atmosphere", \$309,179, Lead PI, with Co-PIs W. Balch and E. Saltzman.
- 1989 ONR "BIOSYNOP: Phytoplankton studies", \$11,760, Co-PI with D. B. Olson.

PUBLICATIONS (postdocs and students underlined):

- 1984 Ahumada, R., R. Morales, A. Rudolph and **P.A. Matrai**. "Coastal upwelling effects on the early diagenesis of sediments in Concepción Bay, Chile." *Bol. Soc. Biol.*, 55:135-146.
- Ahumada, R., A. Rudolph and **P.A. Matrai**. "Oxígeno disuelto y su relación con los nutrientes en la Bahía de Concepción durante un período de surgencia." *Invest. Mar., Valparaíso*, 12:15-26.
- 1986 **Matrai, P.A.** "Distribution of the dinoflagellate *Ceratium* along 28°N in the eastern North Pacific." *J. Plankton Res.*, 8:105-118.
- 1988 **Matrai, P.A.** and R.D. Vetter. "Particulate thiols in coastal marine waters: The effect of light and nutrient on planktonic production." *Limnol. Oceanogr.*, 33:624-631.
- Napp, J. M.**, E.R. Brooks, F.M.H. Reid, **P.A. Matrai** and M.M. Mullin. "Vertical distribution of marine particles and grazers. I. Vertical distribution of food quality and quantity." *Marine Ecol. Progr. Ser.*, 50:45-58.
- Napp, J. M.**, E.R. Brooks, F.M.H. Reid, **P.A. Matrai** and M.M. Mullin. "Vertical distribution of marine particles and grazers. II. Relation of grazer distribution to food quality and quantity." *Mar. Ecol. Progr. Ser.*, 50:59-72.
- 1989 Vetter, R.D., **P.A. Matrai**, B.Javor and J.O'Brien. "Reduced sulfur compounds in the marine environment: Analysis by High-performance liquid chromatography." *In: E. Saltzman and W. Cooper [Eds.], Biogenic Sulfur in the Environment, American Chemical Society*, pp. 243-261.
- Cooper, W.J. and **P.A. Matrai**. "Distribution of dimethyl sulfide in the oceans: A review." *In: E. Saltzman and W.J. Cooper [Eds.], Biogenic Sulfur in the Environment, American Chemical Society*, pp. 140-151
- Matrai, P.A.** and R.W. Eppley. "Particulate organic sulfur in the waters of the Southern California Bight." *Global Biogeochemical Cycles*, 3:89-103.
- Matrai, P.A.** "Determination of organic sulfur in ocean particulates by combustion-fluorescence." *Marine Chemistry*, 26:227-238.
- 1991 **Matrai, P.A.** "Determination of organic sulfur in ocean particulates by combustion-fluorescence." *In: D.C. Hurd and D.W. Spencer (Eds.), Marine Particles: Analysis and Characterization, AGU Geophysical Monograph 63*, pp. 83-86.
- Keller, M.D., D.W. Townsend, S.G. Ackleson, P.M. Holligan, W.M. Balch and **P.A. Matrai**. "Observations of coccolithophore blooms in the Gulf of Maine." *In: Gulf of Maine Scientific Workshop Report, Woods Hole Oceanographic Institution.*
- Ahumada, R., **P.A. Matrai** and N. Silva. "Phytoplankton biomass distribution and relationship to nutrient enrichment during upwelling events off Concepción Bay, Chile." *Bol. Soc. Biol. Concep.* 62:1-13.
- 1993 **Matrai, P.A.** and M.D. Keller. "Dimethylsulfide in a large-scale coccolithophore bloom in the Gulf of Maine." *Continental Shelf Research*, 13:831-843.

- Saltzman, E.S., S.A. Yvon, and **P.A. Matrai**. "Low-level Atmospheric sulfur dioxide measurement using HPLC/Fluorescence detection." *J. Atm. Chemistry*, 17:73-90.
- Matrai, P.A.**, W.M. Balch, D.J. Cooper and E.S. Saltzman. "Ocean Color and Atmospheric DMS: On Their Mesoscale Variability." *JGR-Atmospheres*, 98:23469-23476.
- 1994 **Matrai, P.A.** and M.D. Keller. "Total organic sulfur and dimethylsulfoniopropionate (DMSP) in marine phytoplankton: Intracellular variations." *Marine Biology*, 119:61-68.
- Bates, T., R.P. Kiene, G. Wolfe, **P.A. Matrai**, F. Chavez, K.R. Buck, B. Blomquist, R. Cuhel. "The Cycling of sulfur in surface seawater of the NE Pacific." *JGR-Oceans*, 99:7835-7843.
- 1995 **Matrai, P.A.**, M. Vernet, R. Hood, A. Jennings, S. Sæmundsdóttir and E. Brody. "Light-dependent production of DMS and carbon incorporation by polar strains of *Phaeocystis* spp." *Mar. Biol.*, 124:157-167.
- 1996 **Matrai, P.A.**, D.J. Cooper, D. Olson and E.S. Saltzman. "Oceanic DMS emissions associated with frontal condition across a Gulf Stream meander." *J. of Marine Systems*, 7:1-8.
- 1997 **Matrai P.A.** and M. Vernet. "Dynamics of the vernal bloom in the marginal ice-zone of the Barents Sea: DMS and DMSP budgets". *J. Geophysical Res.*, 102:22965-2297.
- 1998 Vernet, M., **P.A. Matrai** and I. Andreassen. "Synthesis of particulate and extracellular carbon by phytoplankton in the Barents Sea". *J. Geophysical Res.*, 103:1023-1037.
- Sæmundsdóttir, S. and **P.A. Matrai**. "Methyl bromide production by phytoplankton cultures." *Limnol. Oceanogr.*, 43:81-87.
- 1999 Laroche, D., A. F. Vézina, M. Levasseur, M. Gosselin, J. Stefels, M.D. Keller, **P.A. Matrai**, and R.L.J. Kwint. "Dimethylsulfoniopropionate (DMSP) and dimethylsulfide (DMS) exudation in phytoplankton: a Modeling Approach." *Mar. Ecol. Progr. Ser.*, 180:37-49.
- Keller, M.D., R. Kiene, and **Matrai, P.A.** "Production of glycine betaine (GBT) and dimethylsulfoniopropionate (DMSP) in batch cultures of marine phytoplankton." *Mar. Biol.*, 135:237-248.
- Keller, M.D., R. Kiene, and **Matrai, P.A.** "Production of glycine betaine (GBT) and dimethylsulfonio propionate (DMSP) in nitrogen-limited chemostats cultures of marine phytoplankton." *Mar. Biol.*, 135:249-257.
- Kettle, A.J., M.O. Andreae, D. Amouroux, T.W. Andreae, T.S. Bates, H. Berresheim, H. Bingemer, R. Boniforti, G. Helas, C. Leck, M. Maspero, **P. Matrai**, A.R. McTaggart, N. Mihalopolous, B.C. Nguyen, A. Novo, J.P. Putaud, S. Rapsomanikis, G. Roberts, G. Schebeske, S. Sharma, R. Simo, R. Staubes, S. Turner, and Y. Guher. "A global data base of sea surface dimethyl sulfide (DMS) measurements and a simple model to predict sea surface DMS as a function of latitude, longitude, and month." *Global Biogeochem. Cycles*, 13(2):399-444.
- Gabric, A., **P.A. Matrai**, and M. Vernet. "Modelling the production and cycling of DMSP and DMS during the vernal bloom in the Barents Sea." *Tellus*, 51B: 919-937.
- 2001 Gabric, A., Gregg, W., Najjar, R., Erickson, D. and **Matrai, P.A.** "Modeling the biogeochemical cycle of dimethylsulfide in the upper ocean: A review". *Global Change Science*, 3(4):377-392
- 2002 Yvon-Lewis, S.A., Butler J.H., Saltzman E.S., **Matrai P.A.**, King D.B., Tokarczyk R., Moore R.M., and Zhang J-Z. "Methyl bromide cycling in a warm-core eddy of the North Atlantic Ocean". *Global Biogeochemical Cycles*, 16 (4), 1141, doi:10.1029/2002GB001898.
- 2003 Scholes, M., **P.A. Matrai**, and collaborators. "Biosphere-Atmosphere Interactions". In: Brasseur, G., R. Prinn, and L. Barrie [eds.]. "The IGBP Information & Synthesis Series: Atmospheric Chemistry in a Changing World." Springer-Verlag, 300 pp.
- Shepson, P., **P. Matrai**, L. Barrie and J. Bottenheim. "Ocean-Atmosphere-Sea Ice-Snowpack Interactions in the Arctic and Global Change." *EOS*, 84 (36):349, 355.

- 2004 Leck, C., M. Tjernström, **P. Matrai**, E. Swietlicki and K. Bigg. “Can marine micro-organisms influence melting of the Arctic pack-ice?” *EOS*, 85(3): 25, 30, 32.
- Keller, M.D., **P.A. Matrai**, R. Kiene, and W. Bellows. “Responses of coastal phytoplankton populations to nitrogen additions: Dynamics of cell-associated dimethylsulfoniopropionate (DMSP), glycine betaine (GBT) and homarine.” *Canadian J. Fisheries and Aquatic Sciences*, 61:685-699.
- 2005 **Matrai, P.A.**, B. Thompson and M.D. Keller. “*Alexandrium* spp. from eastern Gulf of Maine populations: Circannual excystment of resting cysts.” *Deep-Sea Res. II*, 52: 2560-2568.
- Anderson, D., C. Stock, B. Keafer, A. Bronzino, D. McGillicuddy, **P.A. Matrai**, M. D. Keller, and B. Thompson. “*Alexandrium fundyense* cyst dynamics in the Gulf of Maine”. *Deep-Sea Res. II*, 52:2522-2542.
- Qu, B., A. Gabric and **P.A. Matrai**. “The satellite-derived distribution of chlorophyll-a and its relation to ice cover, radiation and sea surface temperature in the Barents Sea”. *Polar Biology*, 29:196 – 210, doi: 10.1007/s00300-005-0040-2.
- Gabric, A.J., B. Qu, **P.A. Matrai** and A.C. Hirst. “A modeling analysis of the response of dimethylsulphide production in the Arctic Ocean to global warming.” In *Air Pollution XIII, 13th International Conference on Modelling, Monitoring and Management of Air Pollution*, ed. C.A. Brebbia, 16 - 18 May 2005, Cordoba, 696pp.
- Gabric, A.J., B. Qu, **P.A. Matrai** and A.C. Hirst. “The simulated response of dimethylsulphide production in the Arctic Ocean to global warming.” *Tellus B*, 57(5): 391-403, doi: 10.1111/j.1600-0889.2005.00163.x
- 2007 **Matrai, P.A.**, M. Vernet and P. Wassmann. “Relating temporal and spatial patterns of DMSP in the Barents Sea to phytoplankton biomass and productivity.” *J. Mar. Systems*, 67(1-2): 87-101.
- Olli K., P. Wassmann, M. Reigstad, T.N. Ratkova, E. Arashkevich, A. Pasternak, **P.A. Matrai**, J. Knulst, L. Tranvik, and R. Klais. 2006. The fate of production in the central Arctic Ocean – top-down regulation by zooplankton expatriates? *Progr. Oceanogr.*, 72:84-113.
- Matrai, P.A.**, L. Tranvik, C. Leck, and J. Knulst. “Are high Arctic microlayers a potential source of aerosol organic precursors?” *Mar. Chem.*, 108:109–122.
- 2008 Bailey K.E., D.A. Toole, B. Blomquist, R.G. Najjar, B. Heubert, D.J. Kieber, R.P. Kiene, **P.A. Matrai**, G. Westby, and D.A. del Valle. “Dimethylsulfide production in Sargasso Sea eddies”. *Deep-Sea Res. (II)*, 55:1491– 1504.
- Gabric A.J., **P.A., Matrai**, R.P. Kiene, R. Cropp, J. Dacey, G. DiTullio, R. Najjar, R. Simó, D.A. Toole, D.A. del Valle, and D. Slezak. “Factors determining the vertical profile of dimethylsulfide in the Sargasso Sea during summer” *Deep-Sea Res. II*, 55:1505– 1518.
- 2010 Knepp, T.N., J. Bottenheim, M. Carlsen, D. Carlson, D. Donohoue, G. Friederich, **P.A. Matrai**, S. Netcheva, D.K. Perovich, R. Santini, P.B. Shepson, W. Simpson, R. Stehle, T. Valentice, C. Williams, and P.J. Wyss. “Development of an autonomous sea ice tethered buoy for the study of Ocean-Atmosphere-Sea Ice-Snow Pack interactions: the O-buoy”. *Atmos. Meas. Tech.*, 3:249– 261.
- Zhang, J., Y.H. Spitz, M. Steele, C. Ashjian, R. Campbell, L. Berlin, and **P.A. Matrai**. “Modeling the impact of declining sea ice on the Arctic marine planktonic ecosystem.” *J. Geophys. Res. – Ocean* 115, C10015, doi:10.1029/2009JC005387.
- 2011 Hind, A.J., C.D. Rauschenberg, J. E. Johnson, M. Yang and **P.A. Matrai**. “The use of algorithms to predict surface seawater dimethyl sulphide concentrations in the SE Pacific, a region of steep gradients in primary productivity, biomass and mixed layer depth”. *Biogeosciences*, 8:1–16.
- Apollonio, S. and **P.A. Matrai**. “Marine primary production in the Canadian Arctic, 1956, 1961-3”. *Polar Biology*, 34:767–774. doi:10.1007/s00300-010-0928-3.

- Orellana, M., **P. Matrai**, M. Janer, and C. Rauschenberg. "DMSP storage in *Phaeocystis* secretory vesicles". *J. Phycol.*, 47:112-117.
- Orellana, M.V., **P.A. Matrai**, C. Leck, C.D. Rauschenberg, A.M. Lee and E. Coz-Diego. "Marine microgels as a source of cloud condensation nuclei in the high Arctic". *PNAS*, www.pnas.org/cgi/doi/10.1073/pnas.1102457108.
- Arrigo K., **P. A. Matrai**, and G. van Dijken. "Primary productivity in the Arctic Ocean: Impacts of complex optical properties and subsurface chlorophyll maxima on large scale estimates". *J. Geophys. Res. - Oceans*, 116, C11022, doi:10.1029/2011JC007273.
- Bell, T., G. Malin, G. Lee, J. Stefels, S. Archer, M. Steinke and **P.A. Matrai**. "Global DMS Data Inter-Comparability". *Biogeochemistry*, DOI 10.1007/s10533-011-9662-3.
- 2012 Herrmann M., R. Najjar, A. Neeley, M. Vila-Costa, J.W.H. Dacey, G. DiTullio, D. Kieber, R. Kiene, **P. A. Matrai**, R. Simó, and M. Vernet. "Diagnostic modeling of dimethylsulfide production in coastal water west of the Antarctic Peninsula". *Cont. Shelf Res.*, 32:96-109.
- Shepson, P., P.A. Ariya, C. Deal, D. J. Donaldson, T. Douglas, T. Maksym, **P. Matrai**, L. Russell, B. Saenz, J. Stefels, and N. Steiner. "OASIS: Bringing Scientists together from multiple disciplines to study changes and feedbacks in the polar environments." *AGU EOS*, 93(11):117-118.
- Gao, Q., C. Leck, C. Rauschenberg, and **P. Matrai**. "On the chemical dynamics of extracellular polysaccharides in the high Arctic surface microlayer." *Ocean Sci.* 8:401-418.
- 2013 **Matrai, P.A.**, E. Olson, S. Suttle, V. Hill, L. Codispoti, B. Light, and M. Steele. "Synthesis of primary production in the Arctic Ocean: I. Surface waters, 1954-2007". *Progr. Oceanogr.*, 110: 93–106, doi:10.1016/j.pocean.2012.11.004.
- Hill V.J., **P.A. Matrai**, E. Olsen, S. Suttle, M. Steele, L. Codispoti, and R. Zimmerman. "Synthesis of integrated primary production in the Arctic Ocean: II. *In situ* and remotely sensed estimates, 1999-2007". *Progr. Oceanogr.*, 110:107-125, doi:10.1016/j.pocean.2012.11.005.
- Codispoti, L., V. Kelly, V. Hill, B. Light, **P.A. Matrai**, and M. Steele "Synthesis of primary production in the Arctic Ocean: III Nitrate and phosphate based estimates of net community production". *Progr. Oceanogr.*, 110:126-150, doi:10.1016/j.pocean.2012.11.006.
- Matrai, P.A.** and Apollonio, S. "New estimates of microalgae production based upon nitrate reductions under sea ice in Canadian shelf seas and the Canada Basin of the Arctic Ocean". *Mar. Biol.*, doi:10.1007/s00227-013-2181-0.
- Galí, M., R. Simó, M. Vila-Costa, C. Ruiz-González, J.M. Gasol, and **P.A. Matrai**. "Diel patterns of oceanic dimethylsulfide (DMS) cycling: microbial and physical drivers". *Global Biogeochem. Cycles*, 27:1–17, doi:10.1002/gbc.20047.
- 2014 Gabric, A., B. Qu, and **P.A. Matrai**. "Investigating the coupling between phytoplankton biomass, aerosol optical depth and sea-ice cover in the Greenland Sea". *Dynamics of Atmospheres and Oceans*, 66:94-109.
- Tjernström, M., C. Leck, C. E. Birch, J. W. Bottenheim, B. J. Brooks, I. M. Brooks, L. Bäcklin, R. Y.-W. Chang, E. Granath, M. Graus, A. Hansel, J. Heintzenberg, A. Held, A. Hind, S. de la Rosa, P. Johnston, J. Knulst, G. de Leeuw, L. di Liberto, M. Martin, **P. A. Matrai**, T. Mauritsen, M. Müller, S. J. Norris, M. V. Orellana, D. A. Orsini, J. Paatero, P. O. G. Persson, G. Qiuju, C. Rauschenberg, Z. Ristovski, J. Sedlar, M. D. Shupe, B. Sireau, A. Sirevaag, S. Sjogren, O. Stetzer, E. Swietlicki, M. Szczodrak, P. Vaattovaara, N. Wahlberg, M. Westberg, and C. R. Wheeler. "The Arctic Summer Cloud-Ocean Study (ASCOS): Overview and experimental design". *Atmospheric Chemistry and Physics, Arctic Summer Cloud Ocean Study (ASCOS), (ACP/OS/AMT Inter-Journal SI), Atmos. Chem. Phys.*, 14:2823–2869.
- Halfacre, J. W., T. N. Knepp, P. B. Shepson, C. R. Stephens, K. A. Pratt, B. Li, P. K. Peterson, S. J. Walsh, W. R. Simpson, **P. A. Matrai**, J. W. Bottenheim, S. Netcheva, D. K. Perovich, and

- A. Richter. Temporal and spatial characteristics of ozone depletion events from measurements in the Arctic. *Atmos. Chem. Phys.*, 14:4875–4894.
- 2015 Tremblay, J.-É., L. G. Anderson, **P. Matrai**, P. Coupel, S. Bélanger, C. Michel, M. Reigstad. Global and regional drivers of nutrient supply, primary production and CO₂ drawdown in the changing Arctic Ocean. *Progress in Oceanography*, doi:10.1016/j.pocean.2015.08.009.
- Lee, Y. J., **P. A. Matrai**, M. A. M. Friedrichs, V. S. Saba, D. Antoine, M. Ardyna, I. Asanuma, M. Babin, S. Belanger, M. Benoit-Gagne, E. Devred, M. Fernandez-Mendez, B. Gentili, T. Hirawake, S.-H. Kang, T. Kameda, C. Katlein, S.H. Lee, Z. Lee, F. Melin, M. Scardi, T.J. Smyth, S. Tang, K.R. Turpie, K.J. Waters, and T.K. Westberry. An assessment of ocean color model estimates of primary productivity in the Arctic Ocean. *J. Geophys. Res. Oceans*, FAMOS SI, 120:6508–6541, DOI 10.1002/2015JC011018. [Most accessed article in 2015 at JGR-Oceans]
- 2016 Lee, Y. J., **P. A. Matrai**, M. A. M. Friedrichs, V. S. Saba, O. Aumont, M. Babin, E.T. Buitenhuis, M. Chevallier, L. de Mora, M. Dessert, J.P. Dunne, I. Ellingsen, D. Feldman, R. Frouin, M. Gehlen, T. Gorgues, T. Ilyina, M. Jin, J.G. John, J. Lawrence, M. Manizza, C.E. Menkes, C. Perruche, V. Le Fouest, E. Popova, A. Romanou, A. Samuelsen, J. Schwinger, R. Séférian, C.A. Stock, J. Tjiputra, L.B. Tremblay, K. Ueyoshi, M. Vichi, A. Yool, and J. Zhang. Net primary productivity estimates and environmental variables in the Arctic Ocean: An assessment of coupled physical-biogeochemical models. *J. Geophys. Res.-Oceans*, 121:8635-8669, DOI 10.1002/2016JC011993.
- 2017 Gabric, A., **P. Matrai**, G. Jones, J. Middleton. The nexus between sea ice and polar emissions of marine biogenic aerosols. *Bull. Amer. Meteor. Soc.* doi:10.1175/BAMS-D-16-0254.1.
- 2018 Archer, S.D., K. Suffrian, K. Posman, L.T. Bach, **P.A. Matrai**, P.D. Countway, A. Ludwig, U. Riebesell. Processes that contribute to decreased dimethyl sulfide production in response to ocean acidification in subtropical waters. *Front. Mar. Sci.* 5:245. doi: 10.3389/fmars.2018.00245.
Also In: Achterberg E.P., Taucher J., Riebesell U. and Back L.T. [Eds.]. 2020. Impacts of CO₂ perturbation on the ecology and biogeochemistry of plankton communities during a simulated upwelling event: A mesocosm experiment in oligotrophic subtropical waters. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88966-031-5
- Jin, M., Deal, C., Maslowski, W., **Matrai, P.**, Roberts, A., Osinski, R., Lee, Y.J., Frants, M., Elliott, S., Jeffery, N. and Hunke, E. Effects of model resolution and ocean mixing on forced ice-ocean physical and biogeochemical simulations using global and regional system models. *J. Geophys. Res. Oceans*, 123:358-377. DOI: 10.1002/2017JC013365
- Mayot, N., **Matrai, P.A.**, M. Steele, K. Johnson, S. Riser, D. Swift. Assessing phytoplankton activities in the marginal ice zone of the Greenland Sea over an annual cycle. *J. Geophys. Res. Oceans*. <https://doi.org/10.1029/2018JC014271>.
- Woods, M.N., Stack, M.E., Fields, D.M., Shaw, S.D. and **Matrai, P.A.** Microplastic fiber uptake, ingestion, and egestion rates in the blue mussel (*Mytilus edulis*). *Marine Pollution Bulletin* 137:638-645.
- 2019 Valente, A., S. Sathyendranath, V. Brotas, S. Groom, M. Grant, M. Taberner, D. Antoine, R. Arnone, W.M. Balch, K. Barker, R. Barlow, S. Bélanger, J.-F. Berthon, Ş. Beşiktepe, Y. Borsheim, A. Bracher, V. Brando, E. Canuti, F. Chavez, A. Cianca, H. Claustre, L. Clementson, R. Crout, R. Frouin, C. García-Soto, S.W. Gibb, R. Gould, S. Hooker, M. Kahru, M. Kampel, H. Klein, S. Kratzer, R. Kudela, J. Ledesma, H. Loisel, **P. Matrai**, D. McKee, B. G. Mitchell, T. Moisan, F. Muller-Karger, L. O'Dowd, M. Ondrusek, T. Platt, A.J. Poulton, M. Repecaud, T. Schroeder, T. Smyth, D. Smythe-Wright, H.M. Sosik, M. Twardowski, V. Vellucci, K. Voss, J. Werdell, M. Wernand, S. Wright, and G. Zibordi. A compilation of global bio-optical in situ data for ocean-colour satellite applications – *Earth Syst. Sci. Data*, 11, 1037–1068, 2019 <https://doi.org/10.5194/essd-11-1037-2019>.
- Vernet, M., Ellingsen, I.H., Seuthe, L., Slagstad, D., Cape, M.R., **Matrai, P.A.** Importance of phytoplankton advection in the Atlantic Water Inflow to the Arctic Ocean. *Frontiers in Marine Science*, <https://doi.org/10.3389/fmars.2019.00583>.

Thomas, J.L., Stutz, J., Frey, M.M., Bartels-Rausch, T., Altieri, K., Baladima, F., Browse, J., Dall'Osto, M., Marelle, L., Mouginot, J., Murphy, J.G., Nomura, D., Pratt, K.A., Willis, M.D., Zieger, P., Abbatt, J., Douglas, T.A., Facchini, M.C., France, J., Jones, A.E., Kim, K., **Matrai, P.A.**, McNeill, V.F., Saiz-Lopez, A., Shepson, P., Steiner, N., Law, K.S., Arnold, S.R., Delille, B., Schmale, J., Sonke, J.E., Dommergue, A., Voisin, D., Melamed, M.L. and Gier, J., 2019. Fostering multidisciplinary research on interactions between chemistry, biology, and physics within the coupled cryosphere-atmosphere system. *Elem Sci Anth*, 7(1), p.58. DOI: <http://doi.org/10.1525/elementa.396>.

2020

Mayot, N., A. Arjona, S. Bélanger, C. Marchese, I. H. Ellingsen, T. Jaegler and **P. Matrai**. “Open-ocean phytoplankton production patterns associated with sea ice: A Greenland Sea analysis”. *J. Geophys. Res.-Oceans*, 125, e2019JC015799. <https://doi.org/10.1029/2019JC015799>.

Woods M.N., T.J. Hong, D. Baughman, G. Andrews, D.M. Fields and **P.A. Matrai**. Effects of microplastic fibers presence and ingestion on American lobster larvae (*Homarus americanus*). *Mar. Poll. Bull.*, 157, 111280.

Nghiem, S.V., R.M. Kirpes, J. Liu, K.A. Pratt, **P. Matrai**, A. Grannas, and H. Wernli. “Observations of Arctic sea ice leads and open water during the Microbiological-Ocean-Cloud Coupling in the high Arctic campaign”. Proceedings of IEEE International Geoscience and Remote Sensing Symposium, September 26 – October 2, 2020, Waikoloa, Hawaii, USA. TU2.R9.6. https://igarss2020.org/view_paper.php?PaperNum=3233

Wassmann, P., Carmack, E.C., Bluhm, B.A., Duarte, C., Berge, J., Brown, K., Grebmeier, J.M., Holding, J., Kosobokova, K., Kwok, R., **Matrai, P.**, Agusti, S.R., Babin, M., Bhatt, U., Eicken, H., Polyakov, I., Rysgaard, S. and Huntington, H. “Towards a unifying pan-Arctic perspective: A conceptual modelling toolkit”. *Progress in Oceanography*, 102455

Ardyna, M., C.J Mundy, N. Mayot, L. Matthes, L. Oziel, C. Horvat, E. Leu, P. Assmy, V. Hill, **P. Matrai**, M. Gale, I.A. Melnikov, K.R. Arrigo. “Under-ice phytoplankton blooms shedding light on the 'invisible' part of Arctic primary production?” From the 4th pan-Arctic Symposium on ‘Towards a unifying pan-Arctic perspective of the contemporary and future Arctic Ocean’, October 20-26, held in Motovun, Croatia. *Frontiers in Marine Science*, <https://doi.org/10.3389/fmars.2020.608032> and <https://www.frontiersin.org/research-topics/7353/towards-a-unifying-pan-arctic-perspective-of-the-contemporary-and-future-arctic-ocean>

2021

Jackson R. L., A. J. Gabric, **P. A. Matrai**, M. T. Woodhouse, R. Cropp, G. B. Jones, E. S. M. Deschaseaux, Y. Omori, E. L. McParland, H. B. Swan and H. Tanimoto. “Parameterizing the impact of seawater temperature and irradiance on dimethylsulfide (DMS) in the Great Barrier Reef and the contribution of coral reefs to the global sulfur cycle”. *J. Geophys. Res. Oceans*, 126(3), e2020JC016783.

Vernet, M., I. H. Ellingsen, C. Marchese, S. Bélanger, M. Cape and **P. A. Matrai**. “Net primary production and bloom initiation around Greenland”. *Progress in Oceanography*, 10.1016/j.pocean.2021.102655.

In Review

Holding, J.M., K.A. Brown, H.P. Huntington, U.S. Bhatt, P. Wassmann, S. Rysgaard, I. Polyakov, P.A. Matrai, K. Kosobokova, R. Kwok, J. Grebmeier, H. Eicken, V. Eguíluz, E. Carmack, B. Bluhm, J. Berge, M. Babin, S. Agustí, C.M. Duarte. An Interactions Network of the Arctic Marine Socio-Ecosystem. Submitted to *Frontiers in Marine Science*, June 2021.

In prep

Graham, K. A., G. Friedrich, C. D. Rauschenberg, C. R. Williams, J. W. Bottenheim, F. P. Chavez, J. W. Halfacre, C. D. Holmes, D. K. Perovich, P. B. Shepson, W. R. Simpson, P. P. Tans, and **P. A. Matrai**. Variability of Atmospheric CO₂ Over the Arctic Ocean. To be submitted to J. Geophys. Res. Atmosphere (with co-authors), June 2021

Kirpes, R.M., S. Haas, C.D. Rauschenberg, **P.A. Matrai**, A. Remenapp, V. Boschi, A. G. Grannas, A.A. Ault and K.A. Pratt. "Factors controlling the chemical composition and mixing state of coastal North Atlantic sea spray aerosol". In prep., ACS Earth & Space Chemistry.

Vernet, M., I. H. Ellingsen, and **P. A. Matrai**. "Contribution of advection to primary production in the Arctic Water Outflow to the sub-arctic Atlantic Ocean". In prep., Biogeosciences.

Aeppli, C. and **P. Matrai**. Short-term impact of oil slicks on surface water microbial community in Arctic conditions. In prep.

Matrai, P. A., C. Rauschenberg, A. Hind, M. V. Orellana. Patterns of DMS and DMSP cycling in high Arctic Ocean waters. Limnol. Oceanogr. In prep.

Steele, M. and P.A. **Matrai**. An ice oden in the Greenland Sea – climatic effects and consequences. In prep.

Orellana, M.V., J. Caballero, A. Lee, C. Leck, **P.A. Matrai**, A. Madan, and H. Collins Fringerprinting the clouds. In prep.

And many more...

OTHER PUBLICATIONS:

- 1981 **Matrai, P.A.** "Distribution of the phytoplankton biomass and its relationship to the nutrient distribution during an upwelling event off Concepción Bay, Chile (36° 40'S; 73° 02' W in October 1979." Thesis for Licenciatura (B.S.), Universidad de Concepción, Concepción, Chile. 55p.
- 1988 **Matrai, P.A.** "Phytoplankton production of organic sulfur in the ocean surface waters." Ph.D. Thesis, Scripps Institution of Oceanography, University of California, San Diego, 147pp.
- 1992 Townsend, D.W., M.D. Keller, T.L. Cucci, E. Haugen, W.K. Bellows, J. Brown, J.J. Cullen, W. M. Balch, **P.A. Matrai**, K.A. Kilpatrick, S. Cass and L. Custals. "Results of R/V Cape Hatteras Cruise 5-14 July 1991 Gulf of Maine." Bigelow Laboratory for Ocean Sciences, Tech. Dept. No. 91.
- 1993 Newell, R.E., A.M. Thompson, D.D. Davis, P. Lagos and **P.A. Matrai**. "Pacific Exploratory Measurements-East (PEM-East), a natural complement to PEM-West for NASA/GTE."
Vernet, M. and **P.A. Matrai**. Organic carbon and sulfur cycling in *Phaeocystis pouchetii* blooms in northern Norwegian fjords. Report for workshop "On the trophic fate of *Phaeocystis pouchetii*", University of Tromsø, Tromsø, Norway, May 11-31, 1992.
- 1994 **Matrai, P.A.** Review of "Dimethyl Sulphide: Oceans, Atmosphere and Climate" G. Restelli and G. Angeletti [eds.], 1994 for Limnol. Oceanogr., 39:1497.
- 1996 **Matrai, P.A.**, J. Dacey, D. Erickson, E. Saltzman, T. Bates, J. Penner, and G. Wolfe. DMS climatology: seasonal-to-interannual, regional-to-global natural variability. A NASA-sponsored workshop on Ocean Biology, DMS, and the Earth's radiative budget. Held at Bigelow Laboratory for Ocean Sciences, August 19-20, 1996.
- 2002 Burkhill, P., J. Hall, R. Constanza, R. Ganeshram, W. Jenkins, K-K. Liu, C. Marrassa, **P. Matrai**, P. Monfray, B. Opdike, S. Sathyendranath, J. Steele and D. Wallace. A Draft Framework for Future research on Biological and Chemical Aspects of Global Change in the Ocean; an IGBP/SCOR Collaboration. Internationally peer reviewed, evaluated by SCOR and IGBP, 61 pp.

- Liss, P., P. Boyd, E. Cortijo, K. Denman, B. Huebert, T. Jickelss, T. Johannessen, G. Komen, D. Kumar, **P. Matrai**, W. Miller, U. Platt, K. Richardson, P. Schlosser, M. Uematsu, I. Wainer, and D. Wallace. Surface Ocean – Lower Atmosphere Study (SOLAS) Science Plan. Internationally peer reviewed and accepted by SCOR, IGBP, CACGP and WCRP, 88 pp. Can be found at <http://www.solas-int.org>.
- Wanninkhof, R., R. Dickerson, D. Erickson, III, P. Falkowski, W. Keene, K. Johnson, D. Lenschow, **P. Matrai**, D. McGillicuddy, W. McGillis, J. Penner, A. Pszenny. The United States Surface Ocean – Lower Atmosphere Study (US SOLAS) Workshop Report and Recommendations. Community reviewed, 34 pp. Can be found at http://www.aoml.noaa.gov/ocd/solas/workshop_report.doc.
- 2003 Codispoti L. and OAI SSC, including **P. Matrai**. Investigating the Arctic Marine Environment During a Period of Rapid Change: Development, Accomplishments and Outlook for OAI, Arctic Research of the United States.
- 2004 Shepson, P., **P. Matrai**, J. Bottenheim. and OASIS Community. Ocean-Atmosphere- Sea Ice-Snowpack (OASIS) Interactions Program Science Plan. Community reviewed, 35 pp. Can be found at <http://oasishome.net/>.
- 2005 **Matrai, P.** Women in Oceanography. *Oceanography* 18(1):166.
- 2009 Czoski A., J. Olsonbaker, and T. Tanner. The Important Little Life of Dylan Diatom. Animation. Funded by NSF. Science advisors: L. Codispoti, V. Hill, B. Light, **P. Matrai**, and M. Steele. http://www.youtube.com/watch?v=JETH0_-0v6k.
- 2014 **Matrai, P.** Women in Oceanography. *Oceanography* 27(4):171.
- Hofmann, E., M. St. John, H. Benway, I. Allen, M. Austen, J. Mathis, **P. Matrai**, D. McGillicuddy, M. J. Perry, M. Roman, M. Zawoysky. A Collaborative International Research Program on the Coupled North Atlantic-Arctic System Science Plan. Arlington, VA, 14-16 April 2014. http://www.whoi.edu/website/NAtl_Arctic/
- 2015-2019 **Matrai, P.**, C. Leck, P. Minnett, L. Anderson. U.S-Swedish Planning Workshop on Joint Arctic Research using the I/B *Oden*. Sigtuna, Sweden. 27pp. <http://polar.se/dok/oden-arctic-report-final.pdf>
- Mannino A., C. Del Castillo, M. Friedrichs, P. Hernes, **P. Matrai**, J. Salisbury, M. Tzortziou (alphabetical order). Arctic-COLORS: Arctic-COastal Land Ocean inteRactionS. A Science Plan for a NASA Field Campaign in the Coastal Arctic. NASA. 84 pp. http://arctic-colors.gsfc.nasa.gov/docs/ArcticCOLORS_Final.pdf
- 2017 EARTH'S LIVING OCEAN. The 2017-2027 Advanced Science Plan FOR NASA'S Ocean Biology and Biogeochemistry Research. Working Group: M. Behrenfeld, H. Dierssen, J. Dunne, M. Long, A. Mannino, **P. Matrai**, F. Muller-Karger, R. Najjar, A. Romanou, C. Rousseaux, and M. Tzortziou. NASA. 71 pp. NASA OBB. https://cce.nasa.gov/pdfs/OBB_AdvSciPlan_DRAFT_20170402.pdf
- Fassbender, A.J., H.I. Palevsky, T.R. Martz, A.E. Ingalls, M. Gledhill, S.E. Fawcett, J.A. Brandes, L.I. Aluwihare and the invited participants of COME ABOARD (incl. **P. Matrai**) and DISCO XXV. "Perspectives on Chemical Oceanography in the 21st century: Participants of the COME ABOARD Meeting examine aspects of the field in the context of 40 years of DISCO." *Marine Chemistry* 196 (2017): 181-190.
- 2021 NSF Advisory Committee on Environmental Research and Education (AC-ERE) (incl. **P. Matrai**). "Environmental Change and Human Security Research Directions for the National Science Foundation". <https://www.nsf.gov/ere/ereweb/advisory.jsp>.

MEDIA:

2001 North Pole articles in various papers

- 2002 "The smell of the sea", DownEast Magazine, September, p. 47
- 2005 Women in Oceanography and Sciences, Boothbay Register, April
- 2006 Palmer Station, Antarctica, Coastal Journal, January
- 2006 "Bet's Show" Boothbay Harbor Community TV, 1h show, February
- 2006 "Arctic Ocean- Sea ice, clouds and microalgae", Café Cientifique, Boothbay Harbor Community TV, 1h show, August, invited speaker
- 2008 "Ocean Iron Fertilization", Café Cientifique, Boothbay Harbor Community TV, 1h show, July, invited speaker
- 2010 www.heartheanswer.com "[What do microscopic ocean organisms have to do with cloud formation?](#)"
- 2010 www.heartheanswer.com "[How do scientists study the relationship between clouds, the atmosphere, and marine organisms?](#)"
- 2012 "A silver lining to Arctic clouds", feature article, IGBP Global Change magazine, October 2012, 79:8-11
- 2015 "Maine and the changing Arctic", Maine Public Broadcasting Network "Maine Calling", April 9, 1h, invited guest, <http://news.mpbn.net/post/maine-and-changing-arctic>
- 2015 "Arctic holds opportunities for Maine", The Working Waterfront, 28(4), June, www.workingwaterfront.com
- 2018 "Maine scientist is leading expedition to the top of the world to uncover climate complexities", Maine Public Radio "All Things Considered", July 31, <https://www.mainepublic.org/post/maine-scientist-leading-expedition-top-world-uncover-climate-complexities>

SEMINARS AND PRESENTED PAPERS (Matrai, unless underlined):

- 1981 "Fertilidad potencial en las aguas de la Bahía de Concepción", with R. Ahumada. Presented paper, Jornadas de Ciencias del Mar annual meeting, Montemar, Chile,
- 1982 "Driving processes of the dissolved oxygen distribution in Concepción Bay during the upwelling period", with R. Ahumada and A. Rudolph. Presented paper, Jornadas de Ciencias del Mar annual meeting, Montemar, Chile, December.
- 1984 "An upwelling event off Concepción Bay, Chile in October 1979", with R. Ahumada and N. Silva. Presented paper, CalCOFI Conference annual meeting, Idyllwild, California, October.
"Distribution of the dinoflagellate *Ceratium* along 28°N in the eastern North Pacific." Presented paper, winter AGU/ASLO meeting, San Francisco, December.
- 1986 "Sulfur-containing compounds in marine phytoplankton." Presented paper, winter AGU/ASLO meeting, San Francisco, December.
- 1987 "Marine phytoplankton production of reduced sulfur-containing compounds: Metabolic and physiological insights." Paper presented, ACS annual meeting, New Orleans, September.
- 1988 "Particulate organic sulfur in the Southern California Bight." Presented paper, Ocean Sciences meeting, AGU/ASLO, New Orleans, January.
"Phytoplankton production of organic sulfur in marine waters." Biology seminar, Florida International University, October.
"Phytoplankton production of organic sulfur in ocean surface waters." Presented paper, DISCO VIII (Dissertations Symposium in Chemical Oceanography), Honolulu, November.
"Particulate organic sulfur in the waters of the Southern California Bight." Presented paper, winter AGU/ASLO meeting, San Francisco, December.

- 1990 "Variability of phytoplankton productivity, and seawater and atmospheric concentrations of dimethylsulfide in shelf waters of the Western Atlantic." Presented paper with E.S. Saltzman and W.M. Balch, winter AGU/ASLO meeting, New Orleans, February.
- "Variations in intracellular amounts of total organic sulfur and dimethylsulfoniopropionate (DMSP) in marine phytoplankton." Presented paper with M.D. Keller, winter AGU/ASLO meeting, New Orleans, February.
- 1991 "Measurements of dimethyl sulfide (DMS) and dimethyl sulfonio propionate (DMSP) in mesoscale coccolithophore blooms in the Gulf of Maine." Presented paper with M.D. Keller. American Chemical Society.
- "Can we predict the local/global distribution of dimethylsulfide?" Presented paper with W.M. Balch, D.J. Cooper and E.S. Saltzman. Primary Productivity and Biogeochemical Cycles in the Sea, Brookhaven Symposia in Biology No. 37, June.
- "Can we predict the local/global distribution of dimethylsulfide?" Invited seminar, Bigelow Laboratory for Ocean Sciences, July.
- "Biogenic sources and sinks of dimethylsulfide (DMS)-marine sulfur and climate." Presentation at the Cooperative Institute for Marine and Atmospheric Studies (CIMAS), RSMAS, University of Miami, November.
- "The cycling of sulfur in surface seawater during PSI-3." Presented paper with T.S. Bates, R.P. Kiene, G.V. Wolfe, B.W. Blomquist, F.P. Chavez and R.L. Cuhel, winter AGU meeting, San Francisco, December.
- "DMS and DMSP in surface waters as a function of bacterioplankton and major protist groups." Presented paper with F. P. Chavez, K.R. Buck, C.E. Zenker, J. Phinney, L. Richardson, R. Kiene and T.S. Bates, winter AGU meeting. San Francisco, December.
- "Particulate fluxes of reduced organic sulfur in the North Pacific during PSI-3." Presented paper with L. Custals, winter AGU meeting, San Francisco, December.
- 1992 "Frontal enhancement of oceanic dimethylsulfide concentrations across the Gulf Stream." Presented paper with D. J. Cooper, D. Olson and E.S. Saltzman. ASLO, Santa Fe, February.
- "DMS production during a Phaeocystis bloom." Invited seminar, Bigelow Laboratory for Ocean Sciences, July.
- "Oceanic phytoplankton: Physiological and ecological aspects of DMS/DMSP." Invited presentation, NASA's "Global Aerosols and Ocean Biogeochemistry Workshop", Orlando, September.
- 1993 "Light-dependent production of DMS and carbon incorporation by polar Phaeocystis." Presented paper with M. Vernet, R. Hood, A. Jennings, S. Sæmundsdóttir and E. Brody. TOS, Seattle, April.
- 1994 "Organic Sulfur Cycling at the Marginal Ice Edge Zone." Presented paper with A. Jennings, AGU/ASLO meeting in San Diego, February.
- "Methyl iodide in the Eastern Pacific Ocean." Presented paper with E.S. Saltzman and D. King, AGU/ASLO meeting in San Diego, February.
- "Physiological aspects of the production of the compounds glycine betaine (GBT) and its sulfur analog, dimethylsulfoniopropionate (DMSP) in marine phytoplankton". Presented paper with M.D. Keller and R. Kiene, ASLO/PSA meeting in Miami, June.
- "DMS-DMSP cycling during the vernal phytoplankton bloom at the marginal ice edge zone of the Barents Sea." Invited seminar, Bigelow Laboratory for Ocean Sciences, August.
- 1995 "Scavenging of radioactive nuclides by Phaeocystis pouchetii and Arctic diatoms." Presented paper with D. Kadko, Arctic Nuclear Waste Assessment Program Workshop, ONR/Gore-Chernomyrdin Environmental Committee, WHOI, Woods Hole, MA, May.

- "Light-dependent production of DMS and carbon incorporation by polar strains of *Phaeocystis* spp." Presented paper, First International DMSP Symposium, Mobile, AL, June.
- "Phytoplankton production of methyl bromide: Agriculture to ocean connection". Invited seminar, Bigelow Laboratory for Ocean Sciences, August.
- "Physiological Ecology of DMSP and DMS production by phytoplankton". Presented paper, NASA Aerosol Interdisciplinary Program Workshop, Columbia, MD, October.
- 1996 "Carbon and sulfur cycling at the ice edge in Arctic waters: Diatoms or *Phaeocystis*?" Presented paper with M. Vernet, ASLO/AGU Ocean Sciences, San Diego, CA, February.
- "Particulate carbon cycling at the Marginal Ice Zone in the Barents Sea in late spring". Presented paper with M. Vernet, P. Wassmann, I. Andreassen, G. Pedersen, B. Hansen, ASLO/AGU Ocean Sciences, San Diego, CA, February.
- "Scavenging of radioactive nuclides by *Phaeocystis pouchetii* and Arctic diatoms." Presented paper with D. Kadko, Arctic Nuclear Waste Assessment Program Workshop (ANWAP), ONR, Snowbird, Utah, May.
- "Database of seasurface dimethylsulfide concentrations." Presented multiauthored (15) paper, AGU, San Francisco, CA, December.
- 1997 "Production of glycine betaine (GBT) and dimethylsulfoniopropionate (DMSP) in batch cultures of marine phytoplankton". Presented paper with M.D. Keller and R. Kiene, ASLO Aquatic Sciences, Santa Fe, NM, February.
- "Production of glycine betaine (GBT) and dimethylsulfoniopropionate (DMSP) in nitrogen-limited chemostats cultures of marine phytoplankton". Presented paper with M.D. Keller and R. Kiene, ASLO Aquatic Sciences, Santa Fe, NM, February.
- "Phytoplankton production of dimethylsulfide (DMS) and dimethylsulfoniopropionate (DMSP) as a function of irradiance and nitrate-limitation. Presented paper, ASLO Aquatic Sciences Meeting, Santa Fe, NM, February.
- "Dynamics of the vernal bloom in the marginal ice-zone of the Barents Sea: DMS and DMSP budgets". Invited seminar, Institut Maurice Lamontagne, Rimouski, Quebec, Canada, April.
- "Modeling of and dimethylsulfoniopropionate (DMSP) and dimethylsulfide (DMS) production by arctic phytoplankton in the Barents Sea". Presented paper with D.J. Erickson and M. Vernet, NSF/ARCSS/OAII All Hands meeting and planning workshop, Virginia Beach, MD, May
- "Biological production of hydrogen sulfide: Why do it?" Invited presentation, Chemical Oceanography Gordon Conference, Kimball Union Academy, Meriden, NH, August
- "Modeling DMS production in the Barents Sea Region". Presented paper with D.J. Erickson, K.R. Rivera, C. Seuzaret, and M. Vernet, Fall AGU meeting, San Francisco, December.
- 1998 "Production of the gas methyl bromide by marine phytoplankton: A survey". Presented paper, ASLO/AGU Ocean Sciences meeting, San Diego, February.
- "Dimethylsulfoniopropionate (DMSP) and dimethylsulfide (DMS) exudation in phytoplankton: a Modeling Approach". Presented paper with D. Laroche, A.F. Vézina, M. Levasseur, and M. Gosselin, ASLO/AGU Ocean Sciences meeting, San Diego, February.
- "An Investigation into the use of SeaWiFS Data to Study the Biogeochemical Cycling of Methyl Bromide". Invited paper with S A Yvon-Lewis, J H Butler, E S Saltzman, D B King, R Tokarczyk, K Sullivan, B Yocis, W Groszko³, and H Wright, Fall AGU meeting, San Francisco, December
- 1999 "Methyl bromide production during spring bloom in the Gulf of Maine, USA". Presented paper with B Yocis, and W Groszko, ASLO, Santa Fe, February.

- “Oceanic biological production of methyl bromide”. Presented paper with Yocis, B., Groszko, W., and Wright, H., ASLO, Santa Fe, February.
- “Physiological Responses of Phytoplankton populations in the Gulf of Maine to nitrogen additions: Dynamics of dimethyl sulfoniopropionate (DMSP) and glycine betaine (GBT) production”. Presented paper with Keller, M.D. and R. Kiene, ASLO, Santa Fe, February.
- “Modeling biological DMS production in the Barents Sea during the vernal bloom”. Presented paper with A. Gabric and M. Vernet, Barents Sea and northern Norwegian Fjords Workshop, Tromsø, Norway, April.
- “The Interplay of Physics and Biology in DMS Production: Examples From The Southern Ocean And Barents Sea”. Presented paper with A. Gabric, PW Whetton, and M Vernet, 2nd. International Symposium on Biological and Environmental Chemistry of DMS(P) and Related Compounds, Haren, The Netherlands, August.
- 2000 “Methyl bromide production in coastal and open ocean waters”. Presented paper with B. Yocis and E. Loiseau, ASLO, San Antonio, January.
- “Dimethyl sulfide: from phytoplankton to global climate”. Invited seminar, University of Southern Maine, March.
- “Dimethyl sulfide: from phytoplankton to global climate”. Invited seminar, University of New England, October.
- “Temperature-controlled germination of cysts of the toxic dinoflagellate *Alexandrium tamarense* from Bay of Fundy, Canada”. Presented paper with T. Armstrong, M. Harris, B. Thompson, and the late M. Keller, Symposium on Harmful Marine Algae, WHOI, Woods Hole, MA, December.
- “Annual excystment of *Alexandrium* hypnozygotes from eastern Gulf of Maine populations”. Presented paper with B. Thompson, and the late M. Keller, Symposium on Harmful Marine Algae, WHOI, Woods Hole, MA, December.
- “*Alexandrium* cyst dynamics in the Gulf of Maine”. Presented paper with D.M. Anderson, B. A. Keafer and the late M. Keller, Symposium on Harmful Marine Algae, WHOI, Woods Hole, MA, December.
- 2002 “Ice-Edge Blooms in the Barents Sea”. Presented paper with M. Vernet and P. Wassmann, AGU/ASLO Ocean Sciences, Honolulu, Hawaii, February.
- “Physiological responses of coastal phytoplankton populations to nitrogen addition dynamics of DMSP and GBT production”. Presented paper with M. Keller, R. Kiene and W. Bellows, Third International Symposium on Biological and Environmental Chemistry of DMSP(P) and related Compounds, Rimouski, Quebec, September.
- Water-to-air transfer of primary particles in the central Arctic in summer”, Presented paper with C. Leck and K. Bigg, 7th IGAC Conference, Crete, Greece, September
- “*Alexandrium fundyense* from eastern Gulf of Maine populations: Circannual excystment and temperature-controlled germination of resting cysts”. Presented paper with B. Thompson and M. Keller, 10th International Conference of Harmful Algae, St. Petersburg, October
- “Production of dimethylsulfide in the Arctic Ocean and sensitivity to climate”. Invited paper presented at the “C flux and climate change: The Nordic contribution to a panarctic perspective” workshop, Sigulda, Latvia, November
- “Role of the marine biota in releasing photochemically active species such as organo-halogens and DMS: those bugs! Invited paper presented at the “Arctic Ocean-sea ice-snowpack-atmosphere chemical exchange and links to climate change” workshop, W. Lafayette, Indiana, November.
- 2003 “AOE-01 Biology Highlights”. Presented paper with P. Wassmann, K. Olli, M. Reigstad, J. Ikalvako, L. Tranvik, T. Roine, J. Knulst, T. Ratkova and L. Maroney. AOE-01 PI workshop, Stockholm, January.

- 2004 “Phytoplankton and climate change: Beyond CO₂”. Invited seminar, Maine Maritime Academy, Castine, Maine, April.
- “A modeling analysis of the response of dimethylsulphide production in the Arctic Ocean to global warming”. Presented paper with Gabric, A.J., B. Qu and A.C. Hirst. Envirosoft Conference, Ancona (Italy), June.
- “Formation of atmospheric particles from biogenic precursors: Can we extrapolate from the Arctic to the world’s oceans?” Invited paper to the 1st SOLAS Open Science Conference, Halifax, Canada, October.
- 2005 “Phytoplankton and climate change: Beyond CO₂”. Invited seminar, UNE, Maine, February.
- “Phytoplankton and climate change: Beyond CO₂”. Invited seminar, Bowdoin College, Maine, February.
- “Complex molecular to global interactions and feedbacks in the marine DMS cycle: I- Subtropical gyre”. Presented paper with J. Dacey, G. DiTullio, D. Erickson, A. Gabric, W. Gregg, R. Kiene, D. Kieber, R. Najjar, R. Simo, NSF Biocomplexity All PI meeting, Arlington, VA, 3-5 March
- “Complex molecular to global interactions and feedbacks in the marine DMS cycle: I- Subtropical gyre”. Presented paper with J. Dacey, G. DiTullio, D. Erickson, A. Gabric, W. Gregg, R. Kiene, D. Kieber, R. Najjar, R. Simo, ASLO Summer meeting, Santiago de Compostela, June 18-25
- 2006 “Modeling the marine DMS/DMSP cycle in a subtropical gyre”. Presented paper with DiTullio G., A. Gabric, D. Kieber, R. Kiene, R. Simo, J. Dacey, R. Najjar, G. Westby, D. Slezak, and D. Toole. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Biogeochemical cycling of DMSP and DMS in two contrasting mesoscale eddies in the Sargasso Sea near Bermuda”. Presented paper with Kiene R.P., D. Slezak, D.A. del Valle, D.A. Toole, G. Westby, K. Bailey, D.J. Kieber, J. Dacey, G. DiTullio, R. Najjar, and R. Simó. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Diagnosis of dimethylsulfide production in Sargasso Sea Eddies”. Presented paper with K.E. Bailey, R.G. Najjar, D.A. Toole, D.A. del Valle, G. Westby, B. Blomquist, D.J. Kieber, R.P. Kiene, D. Slezak, and G. DiTullio. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Education and public outreach outside of traditional academic settings: Lessons from a small, independent research institution”. Presented paper with A. DeCharon, D. Fields, J. Goes, A. Manahan, P. Matrai, N. Poulton, C. Roesler, M. Sieracki, and R. Wahle. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Organic carbon metabolism in a coastal ocean ecosystem”. Presented paper with M. Sieracki, N. Poulton and C. Rauschenberg. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Isolation of *Emiliana huxleyi* viruses from the Gulf of Maine”. Presented paper with J.M. Vaughn, J.F. Novotny, C.L. Vining, W.M. Balch, P. Matrai, J.J. Goes, D.T. Drapeau and D. Kneifel. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Microlayer organic composition in the high Arctic: Marine biogenic precursors of atmospheric particles? Presented paper with C. Leck, K. Bigg, L. Tranvik and J. Knulst. AGU/ASLO/TOS/ERF 2006 Ocean Sciences Meeting, 20-24 February 2006, Honolulu, Hawaii
- “Respiration in a coastal sea” Presented paper with M. Sieracki, NASA Ocean Biology and Biogeochemistry Ocean Color meeting, 11-13 April 2006, Newport, RI.
- “DMSP: An indicator of viral control of natural phytoplankton populations in the Gulf of Maine” Presented paper with W.M. Balch, J.M. Vaughn and J.F. Novotny, 3rd DMSP Conference, 2-5 May 2006, Norwich, UK.

“Microlayer Organic Composition in the High Arctic: Marine Biogenic Precursors of Atmospheric Primary Particles?” Invited paper with C. Leck, K. Bigg, L. Tranvik and J. Knulst, Dutch National SOLAS/IMBER/Geotraces, 9 May 2006, Amsterdam, The Netherlands.

“The nexus between sea-ice, DMS derived aerosols and climate change”, Presented paper with Gabric, A.J. and Jones, G., SCAR Conference 2006, July 12-14, 2006, Hobart, Australia.

2007

“Carbon metabolism in a temperate coastal, river ecosystem”, Presented paper with N. Poulton, C. Rauschenberg and M. Sieracki, U.S. North American Carbon Program (NACP) Investigators Meeting, 22-26 January 22-26, Colorado Springs, CO

“Evidence for mucous trapping of gaseous dimethylsulfide during blooms of colonial *Phaeocystis antarctica* in the Ross Sea”. Presented paper with D. Slezak, R.P. Kiene, D.J. Kieber, and A. Relinger, ASLO Aquatic Sciences, 5-9 February 2007, Santa Fe, NM.

“Carbon metabolism in a temperate coastal, river ecosystem” Presented paper with N. Poulton, C. Rauschenberg and M. Sieracki, NASA Ocean Biology and Biogeochemistry Ocean Color meeting, 11-13 April 2007, Seattle, WA.

“Seasonal Cycling of DMSP, DMS and DMSO off the Western Antarctic Peninsula”, Presented paper with G. Westby, M. Vila-Costa, K. McElroy, A. Neely, J. Dacey, G. DiTullio, D.J. Kieber, R.P. Kiene, R. Najjar, R. Simó, M. Vernet and H. Ducklow, 3rd SOLAS Conference, 6-9 March 2007, Xiamen, China.

“Collaborative Research: Producing an Updated Synthesis of the Arctic’s Marine Primary Production Regime and Its Controls”. Presented paper with L. Codispoti, M. Gosselin, V. Hill, B. Light, and M. Steele, ARCSS Synthesis Workshop, 2-4 October 2007, Alexandria, VA

“O-buoys: self-contained, autonomous buoys for long-term observations of atmospheric chemical species in the polar marine boundary layer.” Presented paper with J.W. Bottenheim, U. Friess, D.K. Perovich, P.B. Shepson, and W.R. Simpson, European Geosciences Union 2007 General Assembly, 2007, Vienna

"The Collaborative O-Buoy Project: Deployment of a Network of Arctic Ocean Chemical Sensors for the IPY and beyond", presentation by D. Perovich, Arctic Ocean Network workshop, Boulder, CO, March 2007

"The Collaborative O-Buoy Project: Deployment of a Network of Arctic Ocean Chemical Sensors for the IPY and beyond", poster, Arctic Science Summit Week, Hanover, NH, March 2007

2008

“Gross biological production of dimethylsulfide (DMS) at two coastal sites west of the Antarctic Peninsula”. Presented paper with M. Herrmann, R. Najjar, K. McElroy, A. Neeley, M. Vila-Costa, G. Westby, J. Dacey, G. DiTullio, D. Kieber, R. Kiene, P. Matrai, R. Simó, and M. Vernet, ASLO/AGU/TOS Ocean Sciences meeting, March 2008, Orlando, FL

“Primary productivity patterns in the Arctic: The 10 year SeaWiFS record”. Presented paper with V. Hill, E. Olson, R. Zimmermann, ASLO/AGU/TOS Ocean Sciences meeting, March 2008, Orlando, FL

“Effects of environmental stressors and the response of and from dimethylsulfoniopropionate (DMSP)”. Presented paper with M.A. Coffroth and G. Jackson, 11th International Coral Reef Symposium, July 2008. Fort Lauderdale/Broward County, FL

“Microlayer Organic Composition in the High Arctic: Marine Biogenic Precursors of Atmospheric Primary Particles”? Invited seminar, Chemistry Department, April, Bowdoin College, Brunswick, ME

“Organic Matter Metabolism in a Coastal Ocean Ecosystem” Presented paper with M. Sieracki, N. Poulton, C. Rauschenberg, NASA Carbon Cycle and Ecosystems Joint Science Workshop April 28 – May 2, 2008, Adelphi, MD

2009

“Primary Productivity patterns in the Arctic: The 10 year SeaWiFS record”. Presented paper with V. Hill, D. Zimmerman, E. Olson, NASA Carbon Cycle and Ecosystems Joint Science Workshop April 28 – May 2, 2008, Adelphi, MD

“The influence of sea ice on Arctic Ocean primary production: Regional responses”. Presented paper with V. Hill, E. Olson, R. Zimmerman, Ocean Optics Conference XIX, 6-10 October 2008, Castelvechio Pascoli, Italy

“Development of an Autonomous Buoy for Year-Round Measurement of Ozone, CO₂, and BrO Over the Arctic Ocean” Presented poster with T. Knepp, P. Shepson, R. Santini, P. Wyss, M. Carlson, J. Davison, J. Bottenheim, S. Netcheva, C. Williams, D. Perovich, W. Simpson, D. Carlson, R. Stehle, T. Valentic, F. Gernot, F. Chavez, C. Rauschenberg, Fall AGU, 6-10 December, San Francisco, CA.

"The Collaborative O-Buoy Project: Deployment of a Network of Arctic Ocean Chemical Sensors for the IPY and beyond", presentation by D. Perovich and all O-Buoy PIs, Arctic Ocean Network workshop, Boulder, CO, March 2008

“Satellite-derived respiration vs. primary production in coastal waters”. Presented paper with C. Rauschenberg, N. Poulton, M. Sieracki, ASLO Aquatic Sciences meeting, 26-30 January 2009, Nice, France

“Synthesis of Arctic Ocean primary production”. Presented paper with Olson E., Hill V., Codispoti L., Kelly V., Light B., Steele M., Wermold W., Zimmerman R., ASLO Aquatic Sciences meeting, 26-30 January, Nice, France

“Storage of DMS and DMSP in secretory granules of *Phaeocystis antarctica*” Presented paper with C. Rauschenberg and M. Orellana, ASLO Aquatic Sciences meeting, 26-30 January, Nice, France

“Effects of acidification on preservation of DMSP in seawater and phytoplankton cultures: evidence for rapid cleavage of DMSP in samples containing *Phaeocystis* spp.” Presented paper with C.M. Smith, D.A. del Valle, D. Slezak, D. J. Kieber and R.P. Kiene, ASLO Aquatic Sciences meeting, 26-30 January, Nice, France

”Development and Results from an Autonomous Buoy for Year-Round Measurement of Ozone, BrO and CO₂ above the Arctic Ocean”. Poster with P. B. Shepson and the OBUoy’s Team, EGU General Assembly, 19-24 April, Vienna, Austria

“A synthesis of Arctic Ocean primary production”. Invited seminar, U. Laval, 28 April Quebec, QB, Canada

“The Arctic Summer Cloud-Ocean Study - ASCOS” Presented paper with I.M. Brooks, M. Tjernstrom, C. Leck, P.O.G. Persson, M. Shupe, C.E. Birch, B.J. Brooks, T. Mauritsen, J. Sedlar, A. Sirevaag, S. Norris, UK Arctic Science Conference, 13-15 July, Southampton, UK

“An Atmospheric CO₂ Measurement System for Arctic Buoy Deployments”. Presented paper with G. Friederich and F. Chavez, 8th International Carbon Dioxide Conference, 13-19 September, Jena, Germany http://www.igwagp.uni-jena.de/ICDC8/poster/t4/017/T4_017.pdf

“A microlayer source of summer CCN in high Arctic open leads”. Invited presentation, with M. Orellana, C. Rauschenberg, A. Hind, and C. Leck, Fall AGU, 14-18 December, San Francisco.

“Surface ocean production and emission of biogenic DMS and dissolved organic material in high arctic and sub-tropical regions”. Invited presentation, with B. J. Huebert, C. Rauschenberg, A. Hind, C. Leck, T. S Bates, D. Covert, P. Quinn, M. Yang. Fall AGU, 14-18 December, San Francisco.

“Development of an Autonomous Buoy for Year-Round Measurement of O₃, CO₂, and BrO Over the Arctic Ocean”. Poster with T. Knepp, J. Bottenheim, D. Carlson, M. Carlson, F. Chavez, J. Davison, F. Gernot, S. Netcheva, D. Perovich, C. Rauschenberg, R. Santini, P. Shepson, W. Simpson, R. Stehle, T. Valentic, C. Williams, P. Wyss. Arctic Ocean Network (AON) Workshop, 30 Nov. - Dec. 2, Boulder, CO

- “Production of Seawater DMS and Related Compounds, measurements from the NOAA Ship Ronald Brown”. Presentation with A. Hind and C. Rauschenberg. Second VOCALS Meeting,, July, Seattle.
- “Application of Algorithms to Predict Seawater Dimethyl Sulfide (DMS) Concentration in the SE Pacific”. Poster with A.J. Hind, C.D. Rauschenberg, J. E. Johnson, M. Yang and P.A. Matrai. Fall AGU, December, San Francisco.
- 2010 “The Collaborative O-Buoy Project: Deployment of a Network of Arctic Ocean Chemical Sensors for the IPY and beyond “. Poster with D. Perovich, P. Shepson, W. Simpson, J. Bottenheim, State of the Arctic Conference, March 16-19, Miami, FL.
- “Development of an Autonomous Buoy for Year-Round Measurement of O₃, CO₂, and BrO Over the Arctic Ocean”. Poster with T. Knepp, J. Bottenheim, D. Carlson, M. Carlson, F. Chavez, J. Davison, F. Gernot, S. Netcheva, D. Perovich, C. Rauschenberg, R. Santini, P. Shepson, W. Simpson, R. Stehle, T. Valentic, C. Williams, P. Wyss. State of the Arctic Conference, March 16-19, Miami, FL.
- “Marine Microgels in a High Arctic Ice Core”. Poster with C. D. Rauschenberg, A. J. Hind, M. V. Orellana. AGU/ASLO/TOS Ocean Sciences, 22-26 February, Portland, OR.
- “The Autonomous Polar Productivity Sampling System during ICESCAPE in the Chukchi and Beaufort Seas”. Poster with M. Steele, D. Swift, and S. Riser, NASA OCRT Meeting, 11-13 May, New Orleans, LA
- “Molecular Compositions of Exopolysaccharides in the High Arctic Open Lead Surface Microlayer in Summer – A Contribution to the Arctic Summer Cloud Ocean Study (ASCOS)”. Presentation with Q.J. Gao, C. Leck, P. Matrai, M. Orellana, U. Nilsson, IPY Oslo Conference, 8-11 June, Oslo, Norway.
- “Long term Measurements of Ozone, Bromine Monoxide and Carbon Dioxide over the Frozen Arctic Ocean Surface: First data from O-Buoy Deployments”. Poster with J. W. Bottenheim, P. A. Matrai, S. Netcheva, D. K. Perovich, P. B. Shepson, W. R. Simpson, and F. Chavez, Fall AGU, December, San Francisco.
- 2011 “Marine microgels and cloud formation in the high Arctic”. Invited talk with M.V. Orellana, C. Leck, C. Rauschenberg, A.M. Lee and E. Coz, ASLO Aquatic Sciences meeting, February, San Juan, Puerto Rico.
- “The Autonomous Polar Productivity Sampling System for ICESCAPE”. Poster with M. Steele, D. Swift, and S. Riser, ICESCAPES PI workshop, March, Palo Alto, CA.
- “Production and prediction of DMS in SE Pacific surface waters”. Poster with A.J. Hind, C.R. Rauschenberg, J.E. Johnson, M. Yang, and B. Huebert, VOCALS PI workshop, March, Miami, FL.
- “Marine microgels and cloud formation in the high Arctic”. Invited talk with M.V. Orellana, C. Leck, C. Rauschenberg, A.M. Lee and E. Coz, Gordon Research Conference Polar Marine Sciences, March, Ventura, CA.
- “On the significance of surface active polysaccharides in the high Arctic open lead surface Microlayer in summer”. Presentation with Q.J. Gao, C. Leck, P. Matrai, M. Orellana, and U. Nilsson, EGU, 3-8 April, Vienna, Austria.
- “Marine microgels and cloud formation in the high Arctic”. Invited talk with M.V. Orellana, C. Leck, C. Rauschenberg, A.M. Lee and E. Coz, COST Sea Ice Biogeochemistry workshop, 12-14 April, Amsterdam, Netherlands.
- “Development of an Autonomous Buoy (the “O-Buoy”) for Long Term Studies of O₃, CO₂, and BrO Over the Arctic Ocean”. Presentation with P. Matrai, J. W. Bottenheim, F. Chavez, D. Perovich, P. B. Shepson, W. R. Simpson, M. Carlsen, G. Friederic3, S. Netcheva, R. Oglesbee, R. Santini, B. Tupper, T. Valentic, C. Wahl, C. Williams, P. J. Wyss and J. Zimmermann. Students

and postdocs: D. Carlson, D. Donohoue, W. Halfacre, P. Joyce, T. N. Knepp, IABP workshop, 1-3 June, Victoria, Canada.

“The Autonomous Polar Productivity Sampling System (APPSS).” Poster with M. Steele, D. Swift, S. Riser and K. Johnson. NASA Carbon Cycle and OCRT Meetings, 3-6 October, Alexandria, VA

“Tropospheric Halogens: Sources, Multiphase Chemical Processing, and Impacts”. Poster with J.W. Halfacre, P.B. Shepson, S. Netcheva, W.R. Simpson, T.N. Knepp, K.A. Pratt, P.M. Matrai, J.W. Bottenheim, D.K. Perovich, M.E. Baldwin, J.D. Fuentes. Fall AGU (A49), 5-9 December, San Francisco, CA

“Impacts of the Changing Seasonality of Wind-driven Mixing on the Arctic System.” Poster with L. Rainville, R. Woodgate, J. Overland, A. Mahadevan, P. Matrai, and M. Wang. Fall AGU, 5-9 December, San Francisco, CA

2012

“Dimethylsulfoniopropionate (DMSP) release during mesozooplankton grazing: A grazing deterrent?” Presentation with Vermont, A. I., Matrai, P. A, Fields, D., Shema, S., and Rauschenberg, C. TOS/AGU/ASLO Ocean Sciences, Salt Lake City, UT, 21-25 February

“The autonomous polar productivity sampling system (APPSS).” Poster with Steele, M.; Swift, D.; Riser, S.; Johnson, K. TOS/AGU/ASLO Ocean Sciences, Salt Lake City, UT, 21-25 February

“DMSP in holocene sediments as a proxy for paleoproductivity”. Presentation with Vernet, M.; Cape, M.; Matrai, P. A.; Gle, C.; Leventer, A.; Jeong, S.; Domack, E.; Christ, D.; Brachfeld, S.; Natter, C. TOS/AGU/ASLO Ocean Sciences, Salt Lake City, UT, 21-25 February

“Wind- and eddy-enhanced productivity at the ice edge: Model-based process studies in the Beaufort Sea”. Presentation with Mahadevan, A., Woodgate, R., Matrai, P., Wang, M., Rainville, L. TOS/AGU/ASLO Ocean Sciences, Salt Lake City, UT, 21-25 February

“Sea Ice Biogeochemistry: Building a community to take the research forward”. Poster with L. Miller, J. Stefels, and N. Steiner. IPY 2012 Conference, Montreal , 22-27 April

“Could marine microorganisms prevent the observed sea ice-melt in the Arctic?” Keynote talk by C. Leck, M Orellana and the ASCOS Team, SOLAS Open Science Conference 2012, Elam, WA, 7-10 May

“Sequencing of marine microgels in the high Arctic”. Presentation by M. Orellana, Caballero, C. Leck, SOLAS Open Science Conference 2012, Elam, WA, 7-10 May

“Sequencing of marine microgels in the high Arctic”. Poster with J. Caballero, M.V. Orellana, A. Lee, A. Madan, Q. Gao, P. Matrai, C. Leck, S. de la Rosa, SOLAS Open Science Conference 2012, Elam, WA, 7-10 May

“Primary organic aerosols in the high Arctic.” Invited talk with C. Leck and M. Orellana, IGBP SC Science workshop, Bergen, Norway, 24 May

“DMSP in holocene sediments as a proxy for paleoproductivity”. Poster with Vernet, M.; Cape, M.; Gle, C., Leventer, A., Jeong, S., Domack, E., Christ, D., Brachfeld, S., Natter, C. SCAR session 17, Portland, OR, July 16-17

“Marine primary organic aerosols over polar waters: a biological connection”. Invited presentation, Conference on Chilean-US Partnership in Ocean Science, Concepcion, Chile, August 8-10

“Studies of the propagation of bromine chemistry in the Arctic: from the sea ice to open leads and across the tundra”. Presentation with P. Shepson et al., IGAC International Science Conference, China, September 17-21

“Clouds over the high Arctic: Microgels, primary organic aerosols and that never ending biology”. Invited presentation, Colby College Chemistry Department Seminar Series, Waterville, ME, October 26.

“Clouds over the high Arctic: Microgels, primary organic aerosols and that never ending biology”. Invited presentation, Coastal School for Girls, Freeport, ME, October 31.

“Primary organic aerosols in the high Arctic: All that biology!” Invited presentation, Dalhousie University Oceanography Department, Halifax, NS, Canada, November 15.

“The O-Buoy Chemical Network”. Poster with C. R. Williams; Carlton D. Rauschenberg, Fall AGU, 3-7 December, San Francisco, CA

“A year-long journey across the Arctic Ocean: the story of the chemical composition of the air as recorded by O-Buoy # 4”. Poster with S. Netcheva; J.W. Bottenheim; M.S. Carlsen; F. Chavez; D.K. Perovich; P. Shepson; W.R. Simpson; T.A. Valentic, Fall AGU, 3-7 December, San Francisco, CA

“Long-term seasonal observations over the transitioning Arctic Ocean pack-ice: The O-Buoy Chemical Network”. Invited presentation with J.W. Bottenheim; F. Chavez; G. Friederich; J.W. Halfacre; S. Netcheva; D.K. Perovich; P.K. Peterson; C.D. Rauschenberg; P. Shepson; W.R. Simpson; T.A. Valentic; S.J. Walsh; C.R. Williams, Fall AGU, 3-7 December, San Francisco, CA

“Temporal and spatial characteristics of surface ozone depletion events from measurements over the Arctic Ocean”. Presentation with J.W. Halfacre; T.N. Knepp; C.R. Stephens; K.A. Pratt; P. Shepson; W.R. Simpson; P.K. Peterson; S.J. Walsh; J.W. Bottenheim; S. Netcheva; D.K. Perovich; A. Richter, Fall AGU, 3-7 December, San Francisco, CA

“Fingerprinting the Clouds”. Presentation with M.V. Orellana; J. Caballero; A.M. Lee; C. Leck; A. Madan; H. Collins, Fall AGU, 3-7 December, San Francisco, CA

2013 “Integrated primary and community production in the Arctic Ocean: In situ and remotely sensed estimates”. Invited presentation, Arctic Frontiers, 15-18 January, Tromsø, Norway

“Autonomous observations of Arctic phytoplankton activity: An annual cycle in ice-covered waters.” Presentation with Steele, M.; Swift, D.; Riser, S.; and Johnson, K., ASLO Aquatic Sciences, 19-22 February, New Orleans, LA

“Primary production in the Arctic Ocean: Future changes in physics, nutrients and carbon”. Invited presentation, 14th Swiss Global Change Day, 16 April, Bern, Switzerland

“Autonomous observations of Arctic phytoplankton activity: The first annual cycle in ice-covered waters.” Poster with Steele, M.; Swift, D.; Riser, S.; Johnson, K., and Breckenridge, L.; International Ocean Colour Symposium, 6-11 May, Frankfurt, Germany

“Primary production in the Arctic Ocean: Future changes in physics, nutrients and carbon”. Invited presentation, Bigelow Laboratory for Ocean Sciences, 5 June, East Boothbay, ME

“Primary production in the Arctic Ocean: Future changes in physics, nutrients and carbon”. Invited presentation, 2nd OASIS workshop, 16-20 June, Telluride, CO

“Investigation of the influence of the sea surface microlayer on ozone deposition rates”. Presentation with Archer, S.; Moore, K., Air-Sea Gas Flux Climatology; Progress and Future Prospects Workshop, 24-27 Sept. 2013, Ifremer, Brest, France.

“A brief introduction to the PPARR5 adventure: A net primary production algorithm round robin focused on the Arctic Ocean”. Invited presentation, 2nd Forum for Arctic Modeling and Observing Synthesis Meeting (FAMOS), 22-25 October 2013, Woods Hole, MA

“Investigation of the influence of the sea surface microlayer on ozone deposition rates”. Presentation with K. Moore and S. Archer, Fall AGU, 9-13 December 2013, San Francisco, CA.

“Time Lapse Photography From Arctic Buoys”. Presentation with T. A. Valentic and J. E. Woods, Fall AGU, 9-13 December 2013, San Francisco, CA.

2014 “Fingerprinting the clouds.” Presentation with Orellana, M. V.; Caballero, J.; Lee, A. M.; and Leck, C., Ocean Sciences Meeting, 24-28 February 2014, Honolulu, HI.

“Primary production algorithm round robin for the Arctic Ocean.” Poster with Lee, Y. J.; Friedrichs, M.A.; and Saba, V. S. Ocean Sciences Meeting, 24-28 February 2014, Honolulu, HI.

“Phytoplankton activity in the Greenland Sea: Bio-Float observations in ice-covered waters.” Poster with Steele, M.; Swift, D.; Riser, S. and Johnson, K., Ocean Sciences Meeting, 24-28 February 2014, Honolulu, HI.

“Rapid changes in Arctic biogeochemistry and marine ecosystems: Primary Productivity”. Invited presentation at ‘A Planning Workshop for an International Research Program on the Coupled North Atlantic-Arctic System’, 14-16 April 2014, Arlington, VA

“O-Buoy deployments”. Invited presentation at ‘Workshop on Near-slope observations in the Eurasian and Makarov Basins of the Arctic Ocean (NABOS)’, 23-24 April 2014, Arlington, VA.

“Recent interannual variability in satellite-derived phytoplankton biomass, aerosol optical depth and sea-ice extent in the Greenland Sea”. Presentation with A.J. Gabric and B. Qu, 4th iLEAPS Science Conference, 12-16 May 2014, Nanjing, China.

“Arctic Productivity Round Robin”. Invited presentation, NASA OBB, 5-7 May, Washington, D.C.

“Arctic sea ice, primary productivity, and climate change”. Invited presentation, Ocean Carbon and Biogeochemistry (OCB) Summer Workshop, 21-24 July 2014, Woods Hole, MA

“Net Primary Productivity Algorithm Round Robin (PPARR) – Ocean Color-based Models for the Arctic Ocean”. Invited presentation, FAMOS workshop, with Y. Lee, M. Friedrichs, and V. Saba, 22-24 October 2014, Woods Hole, MA.

“Patterns of phytoplankton and bacterial production in the marginal ice zone northwest of Svalbard”. Presentation with M. Vernet, M. Cape, L. Seuthe, M. Lund Paulsen and M. Reigstad, ArcticNet Conference, 8-10 December 2014, Ottawa, Canada.

“Long-Term Observations of Atmospheric CO₂, O₃ and BrO over the Transitioning Arctic Ocean Pack-Ice: The O-Buoy Chemical Network”. Presentation with P. Matrai and the O-Buoy Team, Arctic Change 2014 Conference, Session T14, 9-12 December, Ottawa, Canada.

“Net Primary Productivity Algorithm Round Robin (PPARR) – Ocean Color-based Models for the Arctic Ocean”. Presentation with Y. Lee, M. Friedrichs, and V. Saba, Arctic Change 2014 Conference, Session T27, 9-12 December, Ottawa, Canada.

"Arctic-COLORS (Coastal Land Ocean Interactions in the Arctic) – a NASA field campaign scoping study to examine land-ocean interactions in the Arctic". Presentation with A. Mannino, C. del Castillo, M. Friedrichs, P. Matrai, P. Hernes, J. Salisbury, M. Tzourtiou, , Arctic Change 2014 Conference, Session T27, 9-12 December, Ottawa, Canada.

“A Comparison of Arctic Ozone Depletion Event Characteristics from Coastal- and Ocean-based Observations”. Presentation with JW Halfacre, PB Shepson, P Peterson, WR Simpson, JW Bottenheim, S Netcheva, A Richter, SV Nghiem, DK Perovich, Fall AGU, 15-19 December 2014, San Francisco, CA.

"Arctic-COLORS (Coastal Land Ocean Interactions in the Arctic) – a NASA field campaign scoping study to examine land-ocean interactions in the Arctic". Presentation with P. Hernes, M. Tzourtiou, J. Salisbury, A. Mannino, P. Matrai, M. Friedrichs, C. del Castillo, Fall AGU, 15-19 December 2014, San Francisco, CA.

2015 "Arctic-COLORS (Coastal Land Ocean Interactions in the Arctic) – a NASA field campaign scoping study to examine land-ocean interactions in the Arctic". Presentation with A. Mannino, P. Hernes, M. Tzourtiou, J. Salisbury, P. Matrai, M. Friedrichs, C. del Castillo, 5th NACP Principal Investigators Meeting, 26-29 January 2015, Washington, D.C.

“PPARR-5 Arctic Ocean: A Net Primary Productivity Algorithm Round Robin – Ocean Color and Regional Climate Models”. Presentation with Y. Lee, P. Matrai, Friedrichs, V. Saba. ASLO Aquatic Sciences, 23-27 February, Granada, Spain.

“Long-term observations of atmospheric CO₂, O₃ and BrO over the transitioning Arctic Ocean pack-ice: The O-Buoy chemical network”. Poster with P. Matrai, J. W. Bottenheim, F. Chavez, D. Perovich, P. B. Shepson, W. R. Simpson, S. Netcheva, C. Rauschenberg, C. Williams, T. Valentice, M. Carlsen, M. Everly, G. Friederich, R. Oglesbee, R. Stehle, C. Wahl, P. J. Wyss, J. Zimmermann. Students: W. Halfacre, P. Peterson, S. Walsh, P. Joyce, T. Knepp. Gordon Conference on Polar Marine Sciences, 15-19 March, Il Ciocco, Italy.

“An Assessment of Ocean Color Model Estimates of Net Primary Productivity in the Arctic Ocean”. Poster with Y. Lee, P. Matrai, M. Friedrichs, V. Saba and the modeling Teams, 20-23 April, NASA Carbon Cycle and Ecosystems Joint Science Workshop, College Park/Hyatsville, MD.

“An Assessment of Ocean Color Model Estimates of Net Primary Productivity in the Arctic Ocean”. Poster with Y. Lee, P. Matrai, M. Friedrichs, V. Saba and the modeling Teams, Arctic Science Summit Week / ICARP III, 23-30 April, Toyama, Japan.

“Marine biogenic aerosols and cloud formation in the high Arctic: It all began with Howard’s weekly seminar”. Invited talk, 29 April, University of Miami, Physics Dept., Miami, FL

“Laboratory investigation of the influence of surface-active organics on rates of ozone deposition to seawater”. Presentation with K. Moore, P. Matrai and S.D. Archer. The 7th International Symposium on Gas Transfer at Water Surfaces, 18-21 May 2015, Seattle, WA.

"Arctic-COLORS (Coastal Land Ocean Interactions in the Arctic) – a NASA field campaign scoping study to examine land-ocean interactions in the Arctic”. Presentation with A. Mannino, P. Hernes, M. Tzourtiou, C. del Castillo, J. Salisbury, M. Friedrichs, P. Matrai, International Ocean Colour Science (IOCS), June 15-18, San Francisco, CA

"Arctic-COLORS (Coastal Land Ocean Interactions in the Arctic) – a NASA field campaign scoping study to examine land-ocean interactions in the Arctic”. Presentation with A. Mannino, C. del Castillo, M. Friedrichs, P. Hernes, P. Matrai, J. Salisbury, M. Tzourtiou, Ocean Carbon Biogeochemistry Workshop, July 20-23, Woods Hole, MA.

“An assessment of net primary productivity estimates using coupled physical-biogeochemical models in the Arctic Ocean”. Invited presentation with Lee, Y.J., P.A. Matrai, M.A.M. Friedrichs, V.S. Saba, and the modeling teams, 4th Forum for Arctic Ocean Modeling and Observational Synthesis, November 4-6, Woods Hole, MA.

“Long-term observations of atmospheric CO₂, O₃ and BrO over the transitioning Arctic Ocean pack-ice: The O-Buoy Chemical Network”. Presentation with P. Matrai, J. W. Bottenheim, F. Chavez, W. Halfacre, D. Perovich, P. Peterson, P. B. Shepson, W. R. Simpson, S. Netcheva, C. Rauschenberg, C. Williams, T. Valentice, M. Carlsen, M. Everly, G. Friederich, P. Joyce, T. Knepp, R. Oglesbee, R. Stehle, C. Wahl, S. Walsh, P. J. Wyss and J. Zimmermann, Arctic Observing Network All Hands Conference, November 17-19, Seattle, WA.

“Autonomous "OBuoy" observations of the Arctic atmosphere”. Presentation with W. Simpson, P. Matrai, F. Chavez, P. Shepson, D. Perovich, P. Peterson, J. Halfacre, and the Obuoy Team, , Arctic Observing Network All Hands Conference, November 17-19, Seattle, WA.

“Interpretation of O-Buoy results through laboratory studies of halogen release from frozen surfaces”. Poster with Halfacre, J., P. Shepson, J. Slade, P. Matrai, W. R. Simpson, J. Bottenheim, D. Perovich. *Arctic Observing Open Science Meeting*, Seattle, WA, November 2015.

“Overview of the O-Buoy Project for the study of Ozone Depletion Events over the Arctic Ocean”. Oral presentation with Halfacre J. W., P. Matrai, J. W. Bottenheim, F. Chavez, D. Perovich, P. B. Shepson, W. R. Simpson, S. Netcheva, C. Rauschenberg, C. Williams, T. Valentice, M. Carlsen, G. Friederich, R. Oglesbee, C. Wahl, P. J. Wyss, J. Zimmermann, P. Peterson, S. Walsh, P. Joyce, T. Knepp and the O-Buoy Team. *Joint Ocean Ice Study 2015: Lunchtime Seminar Series*, Louis S St Laurent, Beaufort Sea, October 2015.

“The Effect of Changes in Polar Sea Ice on Emissions of Marine Aerosols”. Invited presentation with P. Matrai and A.J. Gabric, Fall AGU, December 14-18, San Francisco, CA.

2016

“Effects Of Oil And Dispersants On Microbial Community In Arctic Sea Surface Layer”. Presentation with C. Aepli, Arctic Frontiers, January 24-29, Tromsø, Norway.

“Impact of bacterial DMS production on [DMS/P] under ocean acidification (KOSMOS_GC_2.0): insights from the subtropics”. Poster with K. Suffrian, K. Posman, P.A. Matrai, P. D. Countway, S.D. Archer and the Scientific Team of KOSMOS, Ocean Sciences, February 22-26, New Orleans, LA.

“An assessment of net primary productivity estimates using coupled physical-biogeochemical / earth system models in the Arctic Ocean”. Presentation with Lee, Y.J., P.A. Matrai, M.A.M. Friedrichs, V.S. Saba, and the modeling teams, Ocean Sciences, February 22-26, New Orleans, LA.

“North Atlantic-Arctic Biological Flows?” Invited presentation by P. Matrai, NASA Hyperwall Science Stories Presentation Series, Ocean Sciences, 23 February 2016, New Orleans, LA.

“The O-Buoy Chemical Network for Long Term Studies of O₃, CO₂, and BrO over the Arctic Ocean”. Presentation with P. Matrai, J. W. Bottenheim, F. Chavez, D. Perovich, P. B. Shepson, W. R. Simpson, S. Netcheva, C. Rauschenberg, C. Williams, T. Valentice, M. Carlsen, G. Friederich, R. Oglesbee, C. Wahl, P. J. Wyss and J. Zimmermann. *Students*: W. Halfacre, P. Peterson, D. Carlson, S. Walsh, P. Joyce, T. Knepp, Ocean Sciences, February 22-26, New Orleans, LA.

“Curvaceous models of primary productivity: In search of a tight fit for the Arctic Ocean”. Invited presentation, March 31, Princeton University, Princeton, NJ.

“An assessment of net primary productivity model estimates in the Arctic Ocean”. Presentation by Y.J. Lee, P.A. Matrai, M.A.M. Friedrichs, V.S. Saba, and the modeling teams, *NASA OCRT*, 2-4 May 2016, Silver Spring, MD.

“Linking bacterial and gene composition dynamics to ocean acidification-mediated changes in DMSP metabolism in the Northeast Atlantic”. Poster with S. Archer, P. Countway, K. Suffrian, K. Posman, T. Hornick, P. Matrai, ISME16, August 21-26, Montreal, Canada.

“Ménage à trois: Work, love, life”. Invited presentation, Ocean Optics XXIII, October 23-28, Victoria, B.C., Canada.

“Arctic Primary Productivity”. Invited presentation by Y.J. Lee, 5th *Forum for Arctic Ocean Modeling and Observational Synthesis*, 1-4 November 2016, Woods Hole, Massachusetts. <https://youtu.be/rrlgLIUWTk>

“Assessment of net primary production estimates using coupled physical-biogeomical/Earth System models in the Arctic Ocean”. Presentation by Y.J. Lee, P.A. Matrai, M.A.M. Friedrichs, V.S. Saba, and the modeling teams, 5th *Forum for Arctic Ocean Modeling and Observational Synthesis*, 1-4 November 2016, Woods Hole, Massachusetts. <https://youtu.be/gXTOfkDqzNA>

2017

“Importance of phytoplankton advection in the Atlantic Water Inflow to the Arctic Ocean”. Presentation with M. Vernet, I. Ellingsen, D. Slagstad, L. Seuthe, M. R. Cape, P.A. Matrai. Arctic Frontiers, January 25-27, Tromsø, Norway.

“Bloom stage characteristics in an Atlantic-influenced Arctic marine ecosystem”. Presentation with M. Reigstad, L. Seuthe, I. Ellingsen, M. Lund Paulsen, C. Duarte, K. Olli, S. Kristiansen, P. Matrai, A. Randelhoff, M. Sanz-Martin, C. Svensen, J.-E. Tremblay, M. Vernet, J. Wiktor. Arctic Frontiers, January 25-27, Tromsø, Norway.

“Micro/nano-plastics and the polar [?] marine microbial food webs?” Invited presentation, Palmer Station Seminar Series, January 24, W. Antarctic Peninsula.

“Phytoplankton growth in the presence of microplastics”. Presentation with S. Peart and P. Matrai, ASLO Aquatic Sciences, Feb 26- Mar 3, Honolulu, HI.

“Arctic-COLORS”. Presentation with Mannino, A. and the Arctic-COLORS Team, 2017 Joint NACP and AmeriFlux Principal Investigators Meeting, Network Field Activities and Intensive Experimental Campaigns, March 26-20, Bethesda, MD.

“Arctic Ocean Net Primary Productivity Estimates: Assessments of Ocean Color- based and Coupled Physical-biogeochemical Models”. Presentation by Y.J. Lee, P.A. Matrai, M.A.M. Friedrichs, V.S. Saba, and the modeling teams, 20-24 March 2017, *Polar Marine Science Gordon Research Seminar*, Ventura, California.

"Short-term impact of oil slicks on surface water microbial community in Arctic conditions". Presentation with C. Aeppli and P.A. Matrai, 20-24 March 2017, *Polar Marine Science Gordon Research Conference*, Ventura, California.

“Coordinating interdisciplinary and international research through CATCH (The Cryosphere and ATmospheric CHEmistry)”. Presentation with J.L. Thomas et al., EGU General Assembly 2017-12411, April 23-28, Vienna, Austria.

“Quantitatively relating air mass history and meteorology to boundary layer ozone depletion events over the Arctic Ocean”. Presentation with J. W. Halfacre, P. B. Shepson, S. V. Nghiem, B. Li, P. K. Peterson, W. R. Simpson, J. W. Bottenheim, S. Netcheva, D. K. Perovich, P. A. Matrai, K. A. Pratt., EGU General Assembly 2017, April 23-28, Vienna, Austria.

“Coordinating interdisciplinary and international research through CATCH (The Cryosphere and ATmospheric CHEmistry)”. Presentation with J.L. Thomas, K. Pratt et al., 2017 PACES Workshop, June 27-29, Victoria, B.C., Canada.

“Investigation of Microplastic fiber uptake, ingestion, and egestion rates in blue bussels (*Mytilus edulis*)”. Presentation with M. Woods, M. Stack, D. Fields, P. Matrai, Regional Association for Research on the Gulf of Maine (RARGOM) Annual Science Meeting, October 12, Portland, ME.

“Light and perception of light in a changing Arctic”. Invited presentation, 4th pan-Arctic Symposium on ‘Towards a unifying pan-Arctic perspective of the contemporary and future Arctic Ocean’, October 20-26, Motovun, Croatia.

“Quantifying the Relationship between Ozone and Meteorology during the Arctic Spring”. Presentation with M.V. Cesler-Maloney, J.W. Halfacre (mentor), P.B. Shepson, P.K. Peterson, W.R. Simpson, C. Holmes, B. Li, J.W. Bottenheim, S. Netcheva, D. Perovich, P.A. Matrai, Indiana University Undergraduate Research Conference (IIURC21), November 20, Bloomington, IN
Won Best Overall Project

“Spatiotemporal variabilities of phytoplankton activity in the Greenland Sea”. Presentation with N. Mayot, P. Matrai, M. Steele, K. Johnson, S. Riser, D. Swift, ArcticNet Annual Scientific Meeting, December 12-14, Quebec City, QC, Canada.

“Arctic-COLORS - Land-ocean interactions in the Arctic: An integrative field campaign to assess the impacts of natural- and anthropogenic changes to coastal ocean biology, biogeochemistry and biodiversity.” Presentation with A. Mannino, M. Friedrichs, P. Hernes, P. Matrai, J. Salisbury, M.A. Tzortziou, C. Del Castillo, ArcticNet Annual Scientific Meeting, December 12-14, Quebec City, QC, Canada.

“Are phytoplankton blooms of the sub-arctic seas of the North Atlantic controlled by boundary current eddies?” Presentation with S. Bélanger, C. Marchese, A. Théberge, L.-P. Nadeau, I. Yashayaev, P. Matrai, ArcticNet Annual Scientific Meeting, December 12-14, Quebec City, QC, Canada.

2018

“Global research challenges and CATCH - The Cryosphere and ATmospheric Chemistry”. Presentation with Thomas J. and the CATCH Implementation Team (incl. P. Matrai), PCI2018, January 8-12, Zurich, Switzerland

“ Ocean Acidification Drives Shifts in Functional Gene Abundance and Expression of Bacterial DMSP Catabolism”. Presentation with K.M. Posman, K. Suffrian, P.D. Countway, and S.D. Archer, AGU/ASLO/TOS Ocean Sciences, February 11-16, Portland, OR.

"The Impact of DMSP Supply Rates on the Diversity and Function of Antarctic Microbial Communities during Continuous Cultivation". Presentation with P.D. Countway, C.

Rauschenberg, K.A. Moore, and S.G. Peart, AGU/ASLO/TOS Ocean Sciences, February 11-16, Portland, OR.

“Antarctic summer viral abundance near Palmer Station”. Presentation with S.G. Peart and P.D. Countway, AGU/ASLO/TOS Ocean Sciences, February 11-16, Portland, OR.

“Use of imaging flow cytometry (FlowCam) in the study of microplastics”. Presentation with H. Nelson, M. Woods, C. Lorenz, G. Gerdt, R. DiMauro, D. Fields, P. Matrai, AGU/ASLO/TOS Ocean Sciences, February 11-16, Portland, OR.

“Microplastic fiber uptake, ingestion, and egestion rates in the blue mussel (*Mytilus edulis*)”. Presentation with M. Woods, M. Stack, D. Fields, P. Matrai, Sixth International Marine Debris Conference, March 12-16, San Diego, CA.

“Use of imaging flow cytometry (FlowCam) in the study of microplastics”. Presentation with H. Nelson, M. Woods, C. Lorenz, G. Gerdt, R. DiMauro, D. Fields, P. Matrai, Sixth International Marine Debris Conference, March 12-16, San Diego, CA.

“Global research challenges and CATCH - The Cryosphere and ATmospheric Chemistry”. Presentation with Dall'Osto M. and the CATCH Implementation Team (incl. P. Matrai), Polar18, June 15-26, Davos, Switzerland.

“Pan-Arctic integration of light-driven ecosystem processes”. Presentation with Assmy P., E. Leu, J. Berge, M. Babin, P. Matrai, C.J. Mundy, G. Neukermans, M. Sejr, J. Stroeve, J.-É. Tremblay, A. Waite, M. Vancoppenolle, Polar18, June 15-26, Davos, Switzerland.

“Assessing phytoplankton activities in the seasonal ice zone of the Greenland Sea over an annual cycle”. Presentation with N. Mayot, P. Matrai, I. H. Ellingsen, M. Steele, K. Jonhson, S. C. Riser and D. Swift, OCB summer workshop, June 25-28, 2018, Woods Hole, MA.

“The relationship between environmental variables and springtime boundary layer ozone over the Arctic Ocean”. Presentation with J.W. Halfacre, P.B. Shepson, M.V. Cesler-Maloney, W. Swanson, W.R. Simpson, K.A. Graham, C.D. Holmes, S.V. Nghiem, B. Li, S. Netcheva, D.K. Perovich and P. Matrai, V43E-3760 Fall AGU, December 10-14, Washington, D.C.

“Arctic-COLORS (Arctic-COastal Land Ocean inteRactionS) Field Campaign Scoping Study Update and Plans”. Presentation with A. Mannino, M. A. M. Friedrichs, P. Hernes, J. Salisbury II, M. Tzortziou, C. E. Del Castillo and Arctic-COLORS Team, A23G-1666 Fall AGU, December 10-14, Washington, D.C.

2019

“Inverse modeling of CO₂ fluxes using O-Buoys, a multi-year dataset of surface observations from the Arctic Ocean”. Presentation with K. A. Graham, C. D. Holmes, B. Byrne, D. Jones, W. Simpson, P. Matrai, F. Chavez, and D. Perovich, American Meteorological Society, January 6-10, Phoenix, AZ.

“DMSP influences functional gene abundance in Antarctic bacterial communities.” Presentation with S.M. Greenlee, P.A. Matrai and P.D. Countway, ASLO Aquatic Sciences, Feb 23- March 2, San Juan, PR.

“Seasonal Impact of continuous DMSP Supply Rates on the Diversity and Function of Antarctic Microbial Communities”. Presentation with P.A. Matrai, P. D. Countway, C. D. Rauschenberg, K. Romano Young, K. A. Moore, S. G. Peart, ASLO Aquatic Sciences, Feb 23- March 2, San Juan, PR.

“Open-ocean phytoplankton production patterns associated with sea ice: A Greenland Sea analysis”. Presentation with N. Mayot, P. Matrai, A. Arjona, S. Bélanger, C. Marchese, and T. Jaegler, ASLO Aquatic Sciences, Feb. 24- March 1, 2019, San Juan, PR.

“The role of sea ice extent on phytoplankton phenology in the Greenland Sea”. Presentation with A. Arjona, N. Mayot and P. Matrai, ASLO Aquatic Sciences, Feb. 24- March 1, 2019, San Juan, PR.

“Seasonal Impact of continuous DMSP Supply Rates on the Diversity and Function of Antarctic Microbial Communities”. Presentation with P.A. Matrai, P. D. Countway, C. D. Rauschenberg, K. Romano Young, K. A. Moore, S. G. Peart, Polar Oceans Gordon Research Conference, March 18-22, 2019, Il Ciocco, Italy.

“Synthesis of Arctic Ocean biogeochemistry”. Invited presentation, Arctic 2018 MOCCHA-ACAS-ICE workshop, 27-29 March 2019, Stockholm, Sweden.

“Evidence for a link between the phytoplankton spring bloom in the Greenland Sea and Arctic sea ice export.” Presentation with N. Mayot, P. Matrai, A. Arjona, S. Bélanger, T. Jaegler, C. Marchese, IOCS, March 2019, Busan, South Korea.

“Phytoplankton dynamics in the Greenland Sea.” Presentation with N. Mayot, P. Matrai, Université Laval Conference, 5 April 2019, Quebec, Canada.

“Evidence for a link between the phytoplankton spring bloom in the Greenland Sea and Arctic sea ice export.” Presentation with N. Mayot, P. Matrai, A. Arjona, S. Bélanger, T. Jaegler, C. Marchese, OCB summer workshop, June 24-28, 2019, Woods Hole, MA.

2020 “Weather Blur: Connecting students, scientists, and communities to their local weather data”. Presentation with N. Becker, M.B. Curtis, R. Clark Uchenna, R. Kermish-Allen, S. Dickson, P. Matrai. 29th Conference on Education, American Meteorological Society, January 12-16, Boston, MA.

“DMSP-Controlled Diversity and Function of Antarctic Marine Microbial Communities”. Presentation with P. Matrai and P. Countway, Ocean Sciences, February 16-21, San Diego, CA.

“Effects of Microplastic Fibers on American Lobster Larvae (*Homarus americanus*)”. Presentation with T. Hong, M. Woods, D. Fields and P. Matrai, AGU/ASLO/TOS Ocean Sciences, February 16-21, San Diego, CA.

“Springtime Export of Arctic Sea Ice Shapes the Phytoplankton Production in the Greenland Sea”. Presentation with N. Mayot, P. Matrai, A. Arjona, S. Belanger, C. Marchese, T. Jaegler, M. Ardyna and M. Steele, AGU/ASLO/TOS Ocean Sciences, February 16-21, San Diego, CA.

“Observations of Arctic sea ice leads and open water during the Microbiological-Ocean-Cloud Coupling in the high Arctic (MOCCHA) campaign.” Presentation with S.V. Nghiem, R.M. Kirpes, J. Liu, K.A. Pratt, P. Matrai, A. Grannas, A. Baccarini, J. Schmale, and H. Wernli, IEEE International Geoscience and Remote Sensing Symposium, July 19-24, virtual.

“Modeling interannual variations and spatial gradients of atmospheric CO₂ over the Arctic Ocean”. Presentation with K.A. Graham, C.D. Holmes, F.P. Chavez, J.W. Halfacre, and P.A. Matrai. 2020 Fall AGU, 7-11 December, virtual.

2020 March – 2021 December: “The year of Covid-19” when meetings were cancelled, postponed or held virtually

2021 “Spatial variability in rates of primary production and onset of the spring bloom in Greenland sjelf waters”. Presentation with M. Vernet and I. Ellingsen, ASLO Aquatic Sciences Meeting, 22-27 June, virtual.

2022 “Fram Strait: The Arctic gateway to the North Atlantic””. Invited presentation, 5th pan-Arctic Symposium on ‘Towards a unifying pan-Arctic perspective of the contemporary and future Arctic Ocean’, date to be determined [postponed from November 2020 and 2021].

2023 “Integrating Ocean Physics and Biogeochemistry to Assess Polar Ecosystem Sensitivity to Rapid Change” Co-Chair, Gordon Research Conference on Polar Marine Science, to be held in Il Ciocco, Italy; date to be determined [postponed from May 2021].

STAFF:

1990-1993 Lilian Custals (Lic. Chemistry), Research Technician
1993-1995 Amy Jennings (M.S.), Research Technician
1995-2000 Brian Yocis (M.S. Chemistry), Research Associate

1998 Wayne Groszko (Ph.D., Dalhousie Univ.), Postdoctoral Research Scientist
 2001-2005 Lisa Maroney (M.S. Oceanography), Research Technician
 2005-2019 Carlton Rauschenberg (M.S. Oceanography), Senior Research Associate
 2008-2011 Andrew Hind (Ph.D., U. East Anglia), Postdoctoral Research Scientist
 2012-2013 Luke Breckenridge (B.S. Math), Data Analyst
 2013-2016 Younjoon Lee (Ph.D., Stony Brook U.), Postdoctoral Research Scientist
 2013-2016 Kerstin Suffrian (Ph.D., AWI), Postdoctoral Research Scientist
 2014 Jasper Nutt (B.E. Engineering), Data Analyst and programmer (part time)
 2015-2016 Julia Middleton (B.S. Math & Chemistry), Data Analyst and programmer (part time)
 2017-2019 Nicolas Mayot (Ph.D., U. Pierre et Marie Curie), Postdoctoral Research Scientist

PARTICIPANT:

1993 - U.S. JGOFS Arabian Sea Planning Meeting. Washington, D.C. November
 1995 - IGBP 1st Congress, Germany, May.
 1996 - Arctic Nuclear Waste Assessment Program Workshop (ANWAP), ONR, Snowbird, Utah, May.
 1997 - NSF/ARCSS/OAII All Hands Meeting and Planning Workshop, Virginia Beach, VA, May
 1998 - GASEX-98 Planning Meeting, Miami, FL, February
 - SOLAS organizing workshop, East Anglia, UK, December
 1999 - IGBP 2nd Congress, Japan, May.
 - Bigelow Summer Course Series, “Phytoplankton Ecology”, taught by Dr. Ramon Margalef, August
 - ARCSS/OAII All Hands Meeting, Virginia Beach, VA, October
 2000 - Gulf of Maine-ECOHAB PI workshop, UNH, Dover, New Hampshire, January.
 - SOLAS Open Science Workshop, Damp, Germany, February
 - IGAC Synthesis and Integration Workshop, Lead Author, Aspen, April
 - CACGP Future of Atmospheric Chemistry Workshop, Aspen, May
 - SCOR Future of Ocean Biogeochemistry Workshop, Plymouth, UK, September.
 - Dimethyl sulfide Biocomplexity Incubation Workshop, Lead Convenor, Boothbay Harbor, November.
 - Arctic Ocean Expedition 2001- Cruise planning workshop, Landskrona, Sweden, November.
 2001 - Gulf of Maine-ECOHAB PI workshop, UNH, Dover, New Hampshire, January.
 - SCOR-IGBP Future of Ocean Biogeochemistry Science Plan workshop, Baltimore, February.
 - US SOLAS Open Science Workshop, Potomac, MD, May.
 - Arctic Safety workshop, Stockholm, Sweden, May.
 - Modeling of biogeochemical cycling of methyl bromide, Boothbay Harbor, ME, June.
 - SCOR-IGBP Future of Ocean Biogeochemistry Science Plan workshop, Barcelona, December.
 - International SOLAS SSC meeting, San Francisco, December.
 2002 - Gulf of Maine-ECOHAB PI workshop, UNH, Dover, New Hampshire, March.
 - Arctic Ocean Expedition 2001- First PI workshop, Stockholm, April
 - International SOLAS executive committee and National Representatives meeting, Amsterdam, June.
 - Invited Chair for presentation and discussion on SOLAS at the Third International Symposium on Biological and Environmental Chemistry of DMSP(P) and related Compounds, Rimouski, Canada, 26-28 September.
 - Gulf of Maine-ECOHAB PI workshop, UNH, Dover, New Hampshire, October.
 2003 - Arctic Ocean Expedition 2001- Second PI workshop, Stockholm, January.
 - International SOLAS Implementation Strategy writing and executive session, University of East Anglia, Norwich, UK, February.
 - NSF Biocomplexity. First PI workshop, Arlington, VA, May.
 - Gulf of Maine-ECOHAB PI workshop, U Maine, Orono, ME, July.
 - Modeling of DMS/DMSP cycling in the Arctic working group, Scripps Institution of Oceanography, La Jolla, CA, September
 - Arctic Ocean Expedition 2001- Third PI workshop, Sweden, December.

- 2004
 - DMS Biocomplexity. First PI workshop, Charleston, SC, March.
 - ARCSS/OAII SSC Meeting, Cambridge, MD, March
 - Core Competencies Course, Society for Organizational Learning, Bedford, MA, April
- 2005
 - OASIS Implementation Plan workshop, Rome, January
 - NSF Biocomplexity. Second PI workshop, Arlington, VA, March.
 - ARCSS AC Meeting, Cambridge, MD, February
 - PAUC Meeting, Denver, July
- 2006
 - ASLO Board, Honolulu, HI, February
 - SOLAS SSC Executive Committee, Honolulu, HI, February
 - SOLAS SSC, Amsterdam, May
 - Dutch SOLAS/IMBER/Geotraces workshop, Amsterdam, May
 - ASLO Board, Victoria, CA, June
 - PAUC Meeting, Denver, June
 - NASA ESS Advisory Sub-committee, Washington, DC, July
 - NSF Biocomplexity. Third PI workshop, Penn State, State College, PA, September
 - NASA ESS Advisory Sub-committee, Adelphi, MD, September (by telecon)
 - NSF Biocomplexity. PI modeling workshop, SIO, La Jolla, CA, December
- 2007
 - ASLO Board, Santa Fe, NM, February
 - SOLAS SSC, Xiamen, China, March
 - NSF OPP O-Buoy PI workshop, Cold Region Research and Engineering Laboratory (CRREL), Hanover, NH, March
 - NSF OPP IPY Review panel, Arlington, June
 - Maine State House, testimony for LD 793 for a State and Research Library consortia, May
 - NASA ESS Advisory Sub-committee, Washington, DC, June
 - NSF OPP Arctic primary production synthesis PI workshop, BLOS, Boothbay Harbor, ME, June
 - ASLO Board, Montreal, Canada, August
 - NSF ASCOS PI Workshop, U Stockholm, Stockholm, Sweden, September
 - The Island Institute, NSF ITEST Community of Rural Education, Stewardship, and Technology (CREST) project, 1-day advisory board workshop, Vinelhaven, ME
 - ASLO Strategic Planning Ad-hoc committee, Chair, September-December (many telecons)
 - NSF ARCSS SASS PI workshop, Alexandria, VA, October
 - NSF ARCSS Arctic Human Dimension PI workshop, Alexandria, VA, October
 - NSF OPP O-Buoy PI workshop, CRREL, Hanover, NH, October
 - Maine R&D Bond Marine Coalition meeting, Belfast, ME, November
 - Maine Seagrant, BLOS representative, annual advisory board meeting, Belfast, ME, October
- 2008
 - NASA ESS Advisory Sub-committee, Washington, DC, January
 - NSF OPP Arctic primary production synthesis PI workshop, UW, Seattle, WA, January
 - ASLO Board, Orlando, FL, March
 - NSF OCE VOCALS PI workshop, Boulder, CO, March
 - The Island Institute, NSF CREST Advisory Committee, March
 - NOAA Postdoc in Climate and Global Change Review Panel, Boulder, CO, March
 - NSF ASCOS PI Workshop, Landskrona, Sweden, April
 - NASA Ocean Color research Team (OCRT) and Carbon workshops, Maryland, May
 - NSF OPP O-Buoy PI workshop, CRREL, Hanover, NH, May
 - The Island Institute, NSF CREST Advisory Committee, December
- 2009
 - NASA ESS Advisory Sub-committee, Washington, DC, January
 - ASLO Board, Nice, France, January
 - NSF OPP O-Buoy PI workshop, CRREL, Hanover, NH, March
 - NOAA Postdoc in Climate and Global Change Review Panel, Boston, MA, March
 - NSF ASCOS All Hands Workshop, Lund, Sweden, April
 - NSF OPP ANS, ARCSS Review panel, Arlington, April
 - NASA OCRT workshop, NY, NY, May
 - NSF VOCALS Rex Ocean Team workshop, BLOS, Boothbay Harbor, ME, May
 - NASA ESS Advisory Sub-committee, Washington, DC, October
 - NSF OCE Chemical Oceanography Review panel, Arlington, VA, November

- NSF AON PI workshop, Boulder, CO, December
- NSF AON ADI workshop, Boulder, CO, December
- 2010
 - NOAA Postdoc in Climate and Global Change Review Panel, telecon, March
 - ASLO Board, Portland, OR, February
 - ASLO Board, Santa Fe, NM, June
 - NASA Carbon Monitoring System, Boulder, CO, July
 - The Island Institute, NSF GEO STORMS Advisory committee, September
 - Hazardous Materials Shipping Training, Bigelow, September
 - Bigelow Board of Trustees and Advisory Board, September
 - NSF ASCOS All Hands Workshop, Leeds, UK, October
 - NSF O-Buoy Chemical Networks All Hands Workshop, Purdue U., Lafayette, IN, November
- 2011
 - ASLO Board, San Juan, Puerto Rico, February
 - IGBP SC, Washington, DC, March
 - COST SOLAS Sea Ice Biogeochemistry Workshop, Royal Netherlands Academy of Arts and Sciences, Amsterdam, April
 - UNOLS/NSF stable and radioisotope workshop, NSF, Arlington, VA, October
 - NASA OCRT workshop, Alexandria, VA, October
- 2012
 - ASLO Board, Salt Lake City, UT, February
 - NSF AON ADI/PI workshop, Anchorage, AK, March
 - IGBP SC, Bergen, Norway, May
 - Norwegian Global Change Science Day, Bergen, Norway, May
 - US Arctic GEOTRACES workshop, Arlington, VA, June
 - ASLO Evaluation workshop, Washington, DC, June
 - ONR Chile R/V Cabo de Hornos collaborative use workshop, Concepcion, Chile, August
 - 3rd pan-Arctic Symposium ‘Overarching perspectives of contemporary and future ecosystems in the Arctic ocean’, Motovun, Croatia, October
- 2013
 - Moore Foundation “Fogs-as-a-system” Workshop, Organizing Committee, Millbrook, NY, January
 - ASLO Board, New Orleans, LA, February
 - 14th Swiss Global Change Day, Bern, Switzerland, April
 - IGBP SC, Bern, Switzerland, April
 - NASA OCRT, Frankfurt, May
 - ASLO Board, Washington, D.C., June
 - Forum for Arctic Ocean Modeling and Observational Synthesis (FAMOS) workshop, Woods Hole, MA, October
- 2014
 - IGBP Anthropocene workshop, Greenbelt, VA, January
 - ASLO Board, Honolulu, HI, February
 - IGBP SC, Bangalore, India, April
 - NSF/European Union North Atlantic workshop, Washington, DC, April
 - NSF NABOS, 23-24 April 2014, Arlington, VA
 - Open Workshop: Observations of upper-ocean and sea-ice interactions in the eastern Arctic Ocean, 24–25 April 2014, Arlington, VA
 - NASA OCRT, Washington, DC, May
 - OCB Summer Workshop, July; session co-organizer
 - IASC workshop in prep for ICARP III, Woods Hole, MA, October
 - NASA Arctic COLORS workshop, Goddard Space Flight Center, Greenbelt, MD, November
- 2015
 - ASLO Board, Granada, Spain, February
 - Carbon Bridge (Arctic) science workshop, Il Ciocco, Italy, March
 - Gordon Conference Polar Marine Sciences, Session Leader and Presenter, March
 - NSF/Swedish Polar Research Secretariat “Collaborative science on I/B Oden”, co-Chair, March/April
 - Workshop honoring Dr. Howard Gordon’s Lifetime Achievements, Miami, FL, Invited speaker, April
 - IGBP SC, Vienna, Austria, April/May

- 2016
- Arctic Council, Portland, ME, September
 - NSF Advisory Committee (AC) on Environmental Research and Education (ERE), Arlington, VA, September
 - NSF OCE Chemical Oceanography COME ABOARD Workshop, October
- 2017
- NSF AC ERE, Arlington, VA, March
 - OCB Summer Workshop, June
 - NASA Galway on Arctic-N. Atlantic advection PI workshop, Trondheim, Norway, August
 - NSF AC ERE, Alexandria, VA, November
 - Regional Arctic System Model (RASM)-mBGC bi-annual workshop, Boulder, CO, November
 - Arctic Change Conference, Québec City, Québec, Canada, December
- 2018
- NSF AC ERE, Alexandria, VA, April (by phone)
 - OCB Summer Workshop, June
 - NSF AC ERE, Alexandria, VA, October
 - ASLO Aquatic Sciences Organizing Committee, San Juan, PR, October
- 2019
- Gordon Research Conference Polar Marine Science, Il Ciocco, Italy, March
 - Arctic Ocean 2018 MOCCHA expedition data analysis workshop, March
 - OCB Summer workshop, June; Land-Ocean Interaction panel
 - US House of Representatives, Committee on Appropriations, Subcommittee on Interior, Environment, and Related Agencies: Hearing on Marine Debris – Impacts on Ecosystems & Species, Witness <https://appropriations.house.gov/events/hearings/marine-debris-impacts-on-ecosystems-and-species>, Washington, D.C., (9/19/19)
 - OCB/ OAIC “Ocean-Atmosphere Interactions: Scoping directions for U.S. research” workshop, Sterling, VA, October
 - NSF AC ERE, Alexandria, VA (multiple conference calls), November
 - OCB “Ocean-Atmosphere Interactions Workshop”, The Woodlands, Sterling, VA, October
- 2020
- AGU/ASLO/TOS Ocean Sciences meeting Session Co-Chair (Session ID: 85256; Session Title: Production and cycling of organosulfur and volatile organic carbon compounds: where is the field now and how do we move forward?; Topic Area: Chemical Tracers, Organic Matter and Trace Elements), with D. Kieber (SUNY-Rochester), R. Simo (ICM-CSIC, Spain) and N. Levine (USC), San Diego, CA, February
 - NSF AC ERE, multiple video-conference calls in January-May; annual virtual meeting June
 - ArcticOcean 2018-MOCCHA expedition Sept-Dec weekly to bi-weekly virtual seminars (instead of the planned fall workshop in Stockholm) for synthesis of results, Univ of Stockholm; Drs. Paul Zieger, Matthew Salter and others; program schedule available at <https://stockholmuniversity.zoom.us/j/62519770148?pwd=d29lK2w0NGNGaFhCdWo2RUVGeEFIZz09>
 - BEPSII virtual workshop, August (<https://sites.google.com/site/bepsiiwg140/news/online-joint-bepsiievice-meeting-2020?authuser=0>)
 - ArcticChange 2020 meeting (Canada), December (<https://arcticnetmeetings.ca/ac2020/home>)
- 2021
- ArcticOcean 2018-MOCCHA expedition, Jan-May monthly virtual seminars for synthesis of results, Univ of Stockholm; Drs. Paul Zieger and Mike Lawler; program schedule available at <https://stockholmuniversity.zoom.us/j/62519770148?pwd=d29lK2w0NGNGaFhCdWo2RUVGeEFIZz09>
 - OCB Summer Workshop, virtual, June 14-17.

SERVICE:
International:

1994-1999 Member of Scientific Steering Committee for the International Global Atmospheric Chemistry Project (IGAC) of the International Geosphere-Biosphere Program (IGBP). Vice-Chair during 1998-1999.

1998-2001 IGAC Synthesis and Integration Working Committee
 1998-2000 Surface Ocean Lower Atmosphere (SOLAS) International Planning Committee.
 2000 International SOLAS Prospectus Writing Committee
 2001 Subcommittee for Ocean Research (SCOR)/IGBP committee on Future of Ocean Biogeochemistry
 2001-2007 Member and Vice-Chair of Scientific Steering Committee for International SOLAS
 2006-2007 3rd International SOLAS Conference Organizing Committee
 2005-2008 ASLO Member At Large
 2008-2014 ASLO Treasurer
 2011-2015 IGBP Steering Committee member
 2014-present ASLO Finance Committee member
 2015 NSF/Swedish Polar Research Secretariat “Collaborative science on I/B Oden” workshop, co-Chair
 2016-2018 The Cryosphere and Atmospheric Chemistry (CATCH) Leadership Team member
 2019-2021 Gordon Research Conference Polar Marine Science Co-Chair [to be Chair in 2023]
 2020-present Marine Chemistry Editorial Board member
 2021-present ASLO John Martin Award Committee, Chair

National:

1990 Office of Naval Research (ONR) Dimethylsulfide meeting for a prospective research initiative, invited participant, September, Miami, FL.
 1991 Department of Energy (DOE)'s Ocean Margins Program, Panel Reviewer, October, Washington, DC.
 1992-1995 NASA's GTE/PEM East ad hoc study committee member. Organized first workshop at RSMAS, December.
 1993-1995 Arctic Research Consortium of the United States - UM/RSMAS alternate representative
 1998 National Science Foundation (NSF) Geochemistry and Biogeochemistry Review Panel.
 1999- 2004 NSF Office of Polar Programs (OPP) Ocean-Atmosphere-Ice Interactions (OAI), Scientific Steering Committee
 1999 NSF Chemical Oceanography Review Panel.
 2000-2009 U.S. SOLAS Planning Committee
 2000-2015 ARCSS/OAI Ocean Atmosphere Snowpack Ice Study (OASIS) Planning committee, now under SOLAS and IGAC
 2005-2007 Palmer Area Users Committee (PAUC)
 2006-2009 NASA Earth Sciences Division Advisory sub-committee
 2006-2007 Grant management advisory panel to the NSF ITEST Community of Rural Education, Stewardship, and Technology (CREST) project, The Island Institute, Rockland, ME
 GasEx 3 Southern Ocean Ad-hoc Organizing Committee
 2007 NSF OPP IPY Review Panel
 2007-2010 NOAA Postdoctoral Program in Climate and Global Change Scientific Steering Committee
 2008 NSF OPP ARCSS and ANS Review Panel
 2009-2010 NASA Aerosol/Cloud/Ecosystems (ACE) mission Ocean-Aerosol Ocean Science Working Group (SWG)
 2009 NASA Geostationary Coastal and Air Pollution Events (GEOCAPE) mission SWG
 2009 NSF OCE Chemical Oceanography Review Panel
 2009 NSF Arctic Ocean Network (AON) Design and Implementation (ADI) Task Force
 2011 UNOLS/NSF stable and radioisotope workshop and report

2013-2014	Moore Foundation "Fogs-as-a-system" Workshop and report, Organizing Committee
2014	NSF/EU North Atlantic workshop and report, Organizing Committee
2015	Woods Hole Oceanographic Institute (WHOI) Institutional Review Committee (first ever for WHOI)
2015-2017	NASA Ocean Biology and Biogeochemistry Decadal Plan Writing Team
2016-2020	NSF Advisory Committee on Environmental Research and Education (AC-ERE)
2019-present	NSF AC-ERE Security Subcommittee
2019	NSF Office of Polar Programs Review Panel
2019-present	NASA Oceans World (NOW) Steering Committee
2020	NSF OCE Chemical Oceanography Review Panel
2021	NASA Ocean Biology and Biogeochemistry Panel

Institutional Committee and Administrative Responsibilities:

1991	UM/RSMAS MAC Search Committee for Organic Chemist
1991-1995	UM/RSMAS Library Committee
1991-1995	UM/RSMAS Coastal Ocean Science Task Group
1995-1996	Bigelow Search Committee for Director
1995-1998	Bigelow Policy Handbook Committee
1996-2002	Bigelow Facilities Committee
1996-2003	Bigelow/UNE MS program Committee
1997-1998	Bigelow Search Committee for Principal Investigator
1998-2001	Bigelow "PI" Committee
2000-2009	Bigelow Budget Committee
2000-2012	Bigelow Building Committee
2001-2002	Bigelow Long Range Plan- Research- Committee, Chair
2003-2006	Bigelow Library Committee, Chair
2003-2004	Bigelow Research Implementation Committee
2003	Bigelow Financial Officer Search Committee
2003-2005	Bigelow Seminar Series
2004-2005	Bigelow Search Committee for Principal Investigator
2004-2006	Bigelow ICOMS
2005-2008	Bigelow Facilities Committee
2006-2007	Bigelow Facilities Manager and Construction Contractor
2007	Bigelow Search Committee for Director, co-Chair
2007	Bigelow Interim Director
2009-2010	Bigelow Library Committee
2009-2015	Bigelow Personnel Committee, Chair
2010	Bigelow Financial Accountant Search Committee
2010-2012	Bigelow Education - Colby Semester Program Ad Hoc Committee
2013	Bigelow Interim Co-Director of Finance and Administration
2013-2014	SRS Representative to Bigelow Board of Trustees
2015-present	Bigelow Budget Committee; Chair since 2017
2015-2018	Bigelow Library Liason to SRS Committee
2021	Bigelow URGE Team (DEI activity)

Community Activities: In addition to multiple tours and individual presentations per year at Bigelow.

1988-94	Participating Scientist in the Boston Museum of Science. "Science-by-Mail" program with 4th and 5th graders; Florida students as of 1992.
1989	Career Day at Pharr Kelsy Elementary School, Miami.

- 1994 Council for Undergraduate Research, invited panelist for 2 sessions on Women in Science, Bates College, June, Lewiston, ME
- 1995 Maine Research and Internships for Teachers and Students (MERITS) Physics and Math for 8th grade students, invited speaker, Bates College, July, Lewiston, ME
- 1996 MERITS Teachers program, invited speaker, Bigelow Laboratory for Ocean Science (BLOS), May, W. Boothbay Harbor, ME
- 1996 MERITS High School Science Program (instructor), BLOS, May, W. Boothbay Harbor, ME
- 1998 Nor'Easter Ocean Bowl, Science Judge, University of New England, BLOS, University of New Hampshire, Biddeford, ME
- 1998-00 Board of Directors, Village Montessori Elementary School, independent, non-profit
- 1998 Damariscotta Montessori School, 2nd grade, Sally Johns (teacher): At sea internet/web experience, March 13-21 and May 5-24.
- 1999 Nor'Easter Ocean Bowl, Science Judge, University of New England, BLOS, University of New Hampshire, Dover, NH
- 1999 Science teacher, Village Montessori Elementary School, 4-6th grade
- 2000 Nor'Easter Ocean Bowl, Science Judge, University of Maine, BLOS, University of New Hampshire, Orono, ME
Hosting 5th grader in my lab from Great Salt Bay (GSB) Elementary School, Damariscotta, ME, Phoenix/Gifted and Talented Program
- 2000-2005 Committee member, Phoenix/Gifted and Talented Enrichment Program, Great Salt Bay Elementary School, Damariscotta, ME
- 2001 Nor'Easter Ocean Bowl, Science Judge, University of New England, BLOS, University of New Hampshire, Biddeford, ME
- 2002 Wavenock Power Squadron, invited speaker, Arctic Ocean Expedition 2001
Boothbay Harbor Congregational Church, invited speaker, Arctic Ocean Expedition 2001
GSB Elementary School, Damariscotta, ME, 2nd grade, Mrs. Sue Young teacher, invited speaker, Arctic life seen during the Arctic Ocean Expedition 2001
"The smell of the sea", article in DownEast Magazine/ Along the waterfront, September
- 2003 8th grade GSB Elementary School,"On the job" lab visits, May
Ask A Scientist 03, 8th grade Science Teacher Dan Chuhta, Massabesic Junior High School, MSAD #57, Waterboro, Maine; Projects; Ask a Scientist
- 2004 8th grade GSB Elementary School,"On the job" lab visits, May
NASA Explorers Mentor with 4th graders, GSB Elementary School, Damariscotta, ME, Ms. Alison McMillan teacher, January- March
Lincoln Academy Career Day, Invited Speaker, September
- 2005 Nor'Easter Ocean Bowl, Science Judge, University of New England, BLOS, University of New Hampshire, Durham, NH
Mainely Women in Science High School Career Fair, Invited Speaker, Colby College, April
8th grade GSB Elementary School,"On the job" lab visits, May
8th grade Career Day at Maranacook Middle School, Readfield, ME, September
- 2006 Board member, Damariscotta Montessori School (K-8)
- 2006 Edgecomb Unitarian Universalist Fellowship "Following science to Antarctica", March
"Lunch Bunch In Antarctica", K-4 and 5-8th grades, GSB Elementary School, Damariscotta, ME, Ms. Alison McMillan teacher, March
"Introduction to Oceanography" field visit, University of Maine, Augusta, Gretchen Hull, 3 groups of 9 students, March
8th grade GSB Elementary School,"On the job" lab visits, May

- Bigelow's Café Scientifique "Arctic Ocean- Sea ice, clouds and microalgae", Opera House, Boothbay Harbor, ME, August
- Coastal Club, "Complex molecular to global interactions and feedbacks in the marine DMS cycle: I- Subtropical gyre (Sargasso Sea, July- Aug 2004), II- Polar region (Antarctic Peninsula, Oct 05-March 06)", September
- GSB Elementary School, Lunch Bunch organizer (theme = Science), Ms. Alison McMillan teacher, October 06-March 07
- 2007 "Introduction to Oceanography" field visit, University of Maine, Augusta, Gretchen Hull, 3 groups of 6 students, April
- "Polar Ecosystems", K-5 and 6-8th grades, Southport Elementary School, Southport, ME, Ms. Misty Marston teacher, November
- 2007-2010 Damariscotta Montessori School, Nobleboro, ME, Board of Directors
- 2008 Bigelow's Café Scientifique "Ocean iron fertilization as a way to reduce global carbon dioxide – what's the controversy", Opera House, Boothbay Harbor, ME, July
- "Ocean iron fertilization as a way to reduce global carbon dioxide – what's the controversy", Icebreaker Oden crew and scientists, August
- 2010 www.heartheanswer.com "[What do microscopic ocean organisms have to do with cloud formation?](http://www.heartheanswer.com)"
- www.heartheanswer.com "[How do scientists study the relationship between clouds, the atmosphere, and marine organisms?](http://www.heartheanswer.com)"
- Bigelow's Café Scientifique "O-Buoy: Chemistry on Ice", Opera House, Boothbay Harbor, ME, June
- STORMS - Teacher training; collaboration with Island Institute educators and Maine island/coastal school teachers, Darling Center, Walpole, ME, December
- 2010- 2013 Damariscotta Montessori School, Nobleboro, ME, Board of Directors, Chair
- 2011 STORMS - Final teacher and student workshop and presentations, Orono, ME, May
- ASLO Aquatic Sciences meeting Minority Students mentor, San Juan, PR
- GSB Elementary School Phoenix program (5 students) visit to my lab (Teacher Alison McMillan)
- 2012- present Weather Blur Learning Community Initiative, Advisory Scientist, in collaboration with the Island Institute, then Maine Math & Science Alliance and Maine island schools (continuation of STORMS project)
- 2012 Coastal School for Girls, Freeport, ME, career discussion
- Ocean Sciences meeting Minority Students mentor, Salt Lake City, UT, February
- 2013 ASLO Aquatic Sciences meeting Minority Students mentor, New Orleans, LA, February
- 2014 Ocean Sciences meeting Minority Students mentor, Honolulu, HI, February
- 2015 Bigelow's Tiny Giants show, Boston, MA, January
- ASLO Aquatic Sciences meeting Minority Students mentor, Granada, Spain, February
- MPBN Maine Calling (live radio show) on the Arctic - invited guest. Contact: Jennifer Rourke, April
- Bowdoin Peary-MacMillan Arctic Museum; meeting and reception with Six Yup'ik and Iñupiat members of the Arctic Marine Mammal Coalition. Contact: Susan Kaplan, April
- Mid-coast Audubon Society, Camden Library. Contact: Kathy Cartwright, April
- Bigelow's Café Scientifique "Investigating a rapidly changing Arctic Ocean", Opera House, Boothbay Harbor, ME, July
- 2015- present Damariscotta Montessori School, Nobleboro, ME, Board of Directors
- 2016 Penobscot River Watershed Association, Belfast Library, Belfast, ME, March
- Bigelow's Café Scientifique "Just how much micro and nano plastics are we ingesting when we eat seafood?", Bigelow Laboratory for Ocean Sciences, E. Boothbay, ME, August
- 2017 North Haven School, ME, 4th graders, visit to Bigelow Laboratory, March

- Maine Coastal Islands National Wildlife Refuge Visitor Center, “Microplastics in Seafood - Just how many are being ingested?”, Rockland, ME, April
- PechaKucha Night Midcoast Maine, “Investigating a rapidly changing Arctic Ocean”, Belfast, ME, June, <https://www.facebook.com/events/1872349406339694>
- North Haven School, ME, 4th graders, field visit, December
- 2018 North Haven School, ME, 4th and 9th-11th graders, visit to Bigelow Laboratory, February
- North Haven School, ME, 4th and 9th-11th graders, field visit, November
- 2019 North Haven School, ME, 4th and 9th-11th graders, visit to Bigelow Laboratory, May
- Bigelow’s Café Scientifique “Investigating a rapidly changing Arctic Ocean”, Bigelow Laboratory for Ocean Sciences, E. Boothbay, ME, July
- 2020- present Drinkwater School, Northport, ME – microplastics investigation with teachers Abby Plummer and Ian Collins as part of MMSA WeatherBlur project
- 2020 Bigelow’s mini-Café Scientifique “Microplastics and lobster larvae”, Bigelow Laboratory for Ocean Sciences, virtual presentation, June
- 2021 Collaboration and mentoring with Radical Plastics, Inc.

REVIEWING (last 3 yrs. only):

Manuscripts and Proposals:

- 2018 NASA, NSF, J. Marine Systems, GBC, Elementa, Biogeosciences; reduced load due to field work
- 2019 NSF, JGR-Oceans, GRL, AIMS Env. Science, Remote Sensing & Engineering, LO-Letters, Arctic, Frontiers in Marine Science, Geophysical Research Letters
- 2020 German Research Foundation, NSF, LO-Methods, Frontiers Marine Science, Helmholtz Association, ESSD, Remote Sensing of the Environment
- 2021 Nature Scientific Reports, NSF, NASA, JGR-Oceans, Biogeochemistry

Advancement (last 3 yrs. Only):

- 2018 Columbia U./Lamont-Doherty
- 2019 Bard College
- 2020 University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory; WHOI

TEACHING:

- 1990-1993 Biological Oceanography - Bio-Optics seminar, jointly with University of Miami Physics Department. Weekly, non-credit.
- 1990 UM/RSMAS MAC representative in Marine Biology and Fisheries comprehensive examinations for first year graduate students.
- 1991-1995 Guest lecturer in Biological Oceanography for non-majors (MBF 503), 2 lectures, UM/RSMAS.
- 1992-1995 Guest lecturer in MBF 503 and Analytical Methods in Chemical Oceanography (MAC 610), 2 lectures each, UM/RSMAS.
- 1993 Invited lecturer at the Center for Great Lakes Studies, University of Wisconsin at Milwaukee, REU program, July 15-21.
- 1995 General Oceanography (MSC 111) for Marine Sciences undergraduates, 2 lectures per week, UM.
- 1995-2005 Oceanography (BI-360), 3 lectures and 1 lab per week, University of New England
- 1995-2005 Gulf of Maine Seminar Series, 1 lecture, University of New England

- 1997 “Phytoplankton of the Arctic Environment”, Graduate course in Bigelow Laboratory's Summer Course Series, taught jointly with Dr. Maria Vernet (SIO), 21 July- 1 August.
- 2000-2002 Ecology (BI-350), 3 lectures and 1 lab per week, University of New England. Taught in alternate years with Oceanography.
- 2002 Invited lecturer at NSF/OPP “Teacher Experiencing the Arctic/Antarctic” Training workshop, August 8-10, CRREL, Hannover, NH
- 2012-2013 The Ocean Environment (ES/BIO 383) Instructor, 4 lectures and 2 labs per week for 4 weeks, Colby College Semester at Bigelow Laboratory
- 2014 Unity College, Guest Lecturer for Marine Sciences course, Unity, ME, November
- 2015 The Ocean Environment (ES/BIO 383) Instructor, 4 lectures and 2 labs per week for 4 weeks, Colby College Semester at Bigelow Laboratory
- 2015 Unity College, Guest Lecturer for Marine Sciences course, Unity, ME, November
- 2019 The Ocean Environment (ES/BIO 383) Instructor, 3 lectures for 1 week, Colby College Semester at Bigelow Laboratory
- 2020 The Ocean Environment (ES/BIO 383) Instructor, shared equally with C. Mitchell, Colby College Semester at Bigelow Laboratory

Post-doctoral, student and K-12 Teacher Mentoring/Supervision:

- 1993-1996 Advisor for M.S. graduate student Stefania Sæmundsdóttir, MBF, University of Miami (UM)
- 1993-1996 Ph.D. Thesis committee for Daniel King, MAC, UM
- 1994-1997 Ph.D. Thesis committee for Maia McGuire, MBF, UM
- 1994 Advisor for Ph.D. graduate student Evan Howell, MAC, UM
- 1995 Research experience for Andrew Tucker, undergraduate, UM
- 1996 Undergraduate internship by Jessica Nelson, University of New England (UNE)
- 1997 Undergraduate internship and REU by Heather Wright, UNE
- 1998 Undergraduate internships by Jennifer Langille, Eileen Loiseau and Heather Wright, UNE
Post-doctoral advisor for Wayne Groszko, Bigelow Laboratory
- 1999 Undergraduate internship and REU by Rebecca Quinn, Bates College
- 2000 Undergraduate internships and REU by Matthew Harris and Tamiaka Armstrong, UNE
- 2000- 2001 M.S. thesis committee for Stephanie Bennett, University of Maine, Orono
- 2001 Undergraduate internship and REU by Kelly McCrum, UNE.
Teacher Experience in the Arctic (TEA) Supervision of Dena Rosenberger (Chemistry, El Capitan High School, Grossmont, CA) during I/B Oden cruise to the Arctic, June 29- August 29, 2001.
- 2002 Undergraduate internship and REU by Kerry Weber, UNE.
Wiscasset High School senior-to-be, Andrew Theriault, internship working with ECOHAB samples, July- August.
TEA teacher training workshop, CCREL, Hanover, NH, August 5-7
- 2003 Undergraduate internship and REU by Kerry Weber, UNE on DMSP biochemistry, May-June.
- 2004 Undergraduate internship and REU by Kerry Weber, UNE on DMSP biochemistry at sea, June-July.
- 2005-2006 Undergraduate internship by Kerry McElroy, SUNY Syracuse on residency at Palmer Station, Antarctica, October-January.
- 2008 High school internship by Jared Snell, Wiscasset HS, ME on macroalgal remediation of elevated seawater CO₂ concentrations.
- 2008-2011 Post-doctoral advisor for Andrew Hind, Bigelow Laboratory
- 2009 REU by Anna Czoski, University of Washington, Jan.-June
External Examiner Ph.D. thesis, Martine Lizotte, Universite de Laval, Quebec, QB, Canada

2009-2010 External Examiner, M.Sc. Thesis, Lenin Florez, Universidad de Concepcion, Concepcion, Chile

2010 REU by Angel Mojarro, Brown University, June-August
 Bigelow Post-Doctoral Mentoring Program: Publication Ethics, March
 Bigelow Post-Doctoral Mentoring Program: Data Management and Ownership, April
 External Examiner Ph.D. thesis, Barbara Johnson, Griffith University, Brisbane, Australia

2011 REU by Alex Vermont, Northern Arizona University, June-August

2012 REU by Marie Neidig, University of Southern Maine, June-August

2013 REU by Kara Voss, University of Miami, June-August

2013-2014 Honors Thesis Co-Advisor, Kathryn Moore, Colby College – Chemistry (at Bigelow)

2013-2016 Post-doctoral advisor for Younjoo Lee, Bigelow Laboratory

2013-2016 Post-doctoral Co-advisor for Kerstin Suffrian, Bigelow Laboratory

2014 REU by Steven Blanchard, Southern Maine Community College, June-August

2015 REU by Caitlin Keady, Bates College, June-August (mentored by PD Dr. Younjoo Lee)

2016 REU by Stephanie Peart, Stockton University, June-August

2017 Internship by Stephanie Peart, Stockton University, June-August

2017-2019 Post-doctoral advisor for Nicolas Mayot, Bigelow Laboratory

2017 External Examiner Ph.D. Thesis, Christian Marchese, U. Quebec- Rimouski, December

2019 REU by Theresa J. Hong, Penn State, June-August
 Internship by Madelyn Woods, University Maine Orono, June-August

2020 virtual REU by Estelle Baldwin, Colby College, June-July
 Semester independent research by Eliza Goodell, Colby College Semester at Bigelow Laboratory, Sept.-Nov.

2021 virtual Jan Plan research by Eliza Goodell, Oberlin College, January

FIELD TIME OF MATRAI LAB:

<u>Year</u>	<u>Date</u>	<u>Area</u>	<u>Research Vessel</u>	<u>Cruise Name</u>
1979	October	S. Pacific - Ba. Concepción	Tobago	Surgencia
1983	June	S. California Bight	D. S. Jordan	Sea Mount-1
1984	July	S. California Bight	E. B. Scripps	Sea Mount-2
1984	August	S. California Bight	D. S. Jordan	
1986	July	S. California Bight	E. B. Scripps	Eumenides I
1986	July	S. California Bight	E. B. Scripps	Eumenides II
1986	August	Saanich Inlet	Barnes	Saanich
1986	September	S. California Bight	Sproul	SCBS-26
1987	January	S. California Bight	Sproul	SCBS-27
1987	August	S. California Bight	Sproul	SCBS-28
1989	April 19 - 28	N. Atlantic	Iselin	BIOSYNOP-2
1989	August 1 - 31	N. Atlantic	Atlantis 2	NASA-1
1990	July 6 - 13	Gulf of Maine	Cape Hatteras	GOM 90
1991	April 15 - 30	N. Pacific	Discoverer	PSI-3
1991	July 5 - 12	Gulf of Maine	Cape Hatteras	GOM 91
1992	Feb 12 - March 14	Eq. Pacific	Vickers	IGAC/MAGE
1992	May 11 - 31	Norwegian arctic fjords	Hyas	Arctic 92
1993	May 12 - 31	Barents Sea	J. Mayen	Arctic 93
1995	June 15-26	Gulf of Maine	Cape Hatteras	CH-0795
1998	March 13-21	Gulf of Maine	Cape Hatteras	CH-0498
1998	May 10-July 7	North Atlantic	Ron Brown	RB-98-02/4
1999	March 16-May 24	Norwegian arctic fjords	Hyas	Balsfjord 99
1999	June 28-July 5	Gulf of Maine	E. Link	EL-0699
1999	July 2-15	Barents Sea	J. Mayen	ALV 3
1999	Sept. 9-Oct.23	North Pacific	Ron Brown	RB-9906
2001	July 14- Aug.29	High Arctic	I/B Oden	AOE-2001
2004	July 10-Aug 6	Saragasso Sea	S. Johnson	Matrai-07-04
2005	monthly, 1 day	Gulf of Maine	Gulf Challenger	Kennebec River
2005	Oct 20- Nov 24	W Antarctic Peninsula	L. Gould/Palmer Stn.	B-048-P
2006	monthly, 1 day	Gulf of Maine	Gulf Challenger	Kennebec River
2007	4 cruises, 1 day	Gulf of Maine	Gulf Challenger	Kennebec River
2008	3 cruises, 1 day	Gulf of Maine	Gulf Challenger	Kennebec River
2008	Aug.1- Sept 9	High Arctic	I/B Oden	ASCOS
2008	Sept. 24- Dec. 3	East S. Pacific	Ron Brown	VOCALS REx
2010	Aug. – Sept.	Beaufort Gyre	L. St. Laurent	O-Buoy Network
2011	July – Aug.	Beaufort Gyre	L. St. Laurent	O-Buoy Network
2012	April	North Pole ice camp	aircraft	O-Buoy Network
2012	Aug. – Sept.	Beaufort Gyre	L. St. Laurent	O-Buoy Network
2013	Aug. – Sept.	Beaufort Gyre	L. St. Laurent	O-Buoy Network
2013	Aug. – Sept.	E. Siberian Sea	I/B A. Fedorov	O-Buoy Network
2014	Sept. – Oct.	Beaufort Gyre	L. St. Laurent	O-Buoy Network
2015	May	Svalbard	aircraft/snowmobile	IOGP
2015	Aug. – Sept.	E. Siberian Sea	I/B A. Fedorov	O-Buoy Network
2015	Aug. – Sept.	Beaufort Gyre	L. St. Laurent	O-Buoy Network
2016-17	Dec. – Feb.	W. Antarctic Peninsula	Palmer Station	ANT DMSP
2018	Mar. – May	W. Antarctic Peninsula	Palmer Station	ANT DMSP
2018	July – Sept.	High Arctic	I/B Oden	MAIA/MOCCHA

ABBREVIATIONS

AC	Advisory Committee
AGU	American Geophysical Union
ANS	Arctic Natural Sciences, NSF PLR
ANT	Antarctic Program, NSF PLR
AON	Arctic Observing Network, NSF PLR
ARC	Arctic Program, NSF OPP
ARCSS	Arctic System Science, NSF PLR
ASLO	Association of Scientists for Limnology and Oceanography
BLOS	Bigelow Laboratory for Ocean Sciences
DEPSCOR	Defense Established Program to Stimulate Competitive Research
DMS	Dimethyl sulfide
DMSO	Dimethyl sulfoxide
DMSP	Dimethyl sulfoniopropionate
ECO HAB	Ecology and Oceanography of Harmful Algal Blooms
ERE	Environmental Research and Education, NSF
ESS	Earth Systems Science Division, NASA
IAOGP	International Association of Oil and Gas Producers
IGAC	International Global Atmospheric Chemistry Study
IGBP	International Geosphere Biosphere Programme
IPY	International Polar Year
JGOFS	Joint Global Ocean Flux Study
NASA	National Aeronautical and Space Administration
NOAA	National Oceanographic and Atmospheric Administration
NSF	National Science Foundation
OAH	Ocean Atmosphere Ice Interactions, NSF
OBB	Ocean Biology and Biogeochemistry, NASA
OCE	Division of Ocean Sciences, NSF
ONR	Office of Naval Research
OPP	Office of Polar Programs (old acronym), NSF
PAUC	Palmer (Station) Area User Committee
PI	Principal Investigator(s)
PLR	Office of Polar Programs (new acronym), NSF
SCOR	Scientific Committee on Oceanic Research
SOLAS	Surface Ocean Lower Atmosphere Study
SSC, SC	Scientific Steering Committee
TOS	The Oceanography Society
UNOLS	University-National Oceanographic Laboratory System