Heather Kim, PhD

Assistant Scientist II
James E. and Barbara V. Moltz Early Career Science Fellow
Department of Marine Chemistry and Geochemistry
Woods Hole Oceanographic Institution
MS 25, 266 Woods Hole Road, Woods Hole, MA 02543
hkim@whoi.edu | (508) 289-3444 | https://kimlab.whoi.edu/

EDUCATION

Ph.D., Earth and Environmental Sciences, Columbia University, New York, NY 2013–2017
Advisor: Prof. Hugh Ducklow
M.S., Oceanography, University of Rhode Island, Kingston, RI 2010–2012
Advisor: Prof. Susanne Menden-Deuer
B.S., Earth and Environmental Sciences, Seoul National University, Seoul, South Korea 2007–2010

PROFESSIONAL EXPERIENCE

Assistant Scientist II, Woods Hole Oceanographic Institution, Woods Hole, MA 2024–Present
Assistant Scientist I, Woods Hole Oceanographic Institution, Woods Hole, MA 2019–2024
Postdoctoral Researcher, University of Virginia, Charlottesville, VA 2017–2019
Advisor: Prof. Scott Doney
Postdoctoral Researcher, Lamont-Doherty Earth Observatory, Columbia University, NY 2017
Advisor: Prof. Hugh Ducklow

AWARDS AND FELLOWSHIPS

James E. and Barbara V. Moltz Early Career Science Fellow, WHOI 2025
Faculty Affiliate, NSF Center for Chemical Currencies of a Microbial Planet 2024–2026
Faculty Fellow, NSF Center for Chemical Currencies of a Microbial Planet 2022–2024
Antarctica Service Medal, United States Antarctic Program 2016
Summer Course Participant, NSF Center for Microbial Oceanography: Research and Education 2014
Dean's Fellow, Columbia University, Graduate School of Arts and Sciences 2013
Travel Award, NOAA 2012

RESEARCH INTERESTS

Biogeochemical modeling; Microbial oceanography; Marine carbon dioxide removal; Machine learning

PUBLICATIONS IN PEER-REVIEWED JOURNALS

Total published or under review = 31, First, corresponding or senior author = 17

(Underlined: supervised students, postdocs, or technicians; dagger (†): corresponding authorship)

Under Review

Connors, E. J.†, Waite, N., Chamberlain, E. J., Stammerjohn, S., Goodell, E., Eveleth, R., Dierssen, H., Munro, D., Turner, T., Bowman, J., Schofield, O., and **Kim, H. H.**† Unveiling drivers of Antarctic primary production using machine learning. *Limnol. Oceanogr. Lett.*

Mao, S.†, Maas, A. E., Luo, Y.-W., Laufkötter, C., Ji, R., Blanco-Bercial, L., and **Kim, H. H.**† Modeling allometry-based diel vertical migration-mediated respiratory flux: Implications for carbon export at the Bermuda Atlantic Time-series Study site. *Geophysical Research Letters.*

Horner T. J., Mete, Ö, Costa, K. M., Dunlea, A. G., Hayes, C. T., **Kim, H. H.**, Leavitt, W. D., Middleton, J. T., Shiller, A. M., Whitmore, L. M., and Crockford, P. W. Barium in seawater: Kinetic control or thermodynamic equilibrium? *Science Advances.*

Published and In Press

Kim, H. H.†, Wolfe, W., Lawrence, E., Doney, S., Moran, M. A., Freilich, M., Krinos, A., Yang, M., Covert, M., Braakman, R., Scott, H., Segrè, D., Litchman, E., Weissman, J. L., and Agmon, E.

Metabolic network modeling of heterotrophic bacteria for ocean biogeochemistry. *Proceedings of the National Academy of Sciences*. *In Press.*

Kenney, M. A., Kopp, R. E., Samaras, C., and U.S. Climate Assessment Scientists incl. **Kim, H. H.** (2026). Research priorities for robust climate assessments in the United States. Earth's Future, 14, e2025EF007336. https://doi.org/10.1029/2025EF007336; concurrently published in Bulletin of the American Meteorological Society. https://doi.org/10.1175/BAMS-D-26-0305.1. (U.S. Climate Collection; developed by former Sixth National Climate Assessment [NCA6] authors.)

Marx, L., Rheuban, J. E., McCorkle, D. C., Murray, C. S., Guo, Y., Wang, Z. A., Michel, A. P. M., Chen, K., **Kim, H. H.**, and Subhas, A. V. (2026). The Ecological Activity Index tool for mapping potential ecosystem exposure to ocean alkalinity enhancement. *Communications Sustainability*, 1(1), 117. https://doi.org/10.1038/s44458-026-00123-w

Subhas, A. V., Rheuban, J. E., Kostel, K., Marx, L., Morkeski, K., Hayden, M. G., Lanagan, T., Dean, C., Burkitt-Gray, M., Guo, Y., McCorkle, D. C., Murray, C. S., Wang, Z. A., Michel, A. P. M., **Kim, H. H.**, Chen, K., Yager, J. A., Collins, J., Cape, M., Martin, E., Kleisner, K., and Mason, J. G. (2026). Field notes on public communication and engagement for the LOC-NESS Ocean Alkalinity Enhancement field trial. *ICES Journal of Marine Science*, 83(6), fsag114, https://doi.org/10.1093/icesjms/fsag114

Chamberlain, E. J.†, Boulton, W., Connors, E. J., Calianos, T., Bowman, J., Creamean, J., Mock, T., and **Kim, H. H.**† (2026). From microbial diversity to functional potential using dimensionality reduction. *Frontiers in Microbiology*, 17, https://doi.org/10.3389/fmicb.2026.1786397

Murray, C. S., Marx, L., Aluru, N., Wang, Z. W., Chen, K., **Kim, H. H.**, Michel, A., McCorkle, D. C., Rheuban, J. E., and Subhas, A (2026). The effects of elevated seawater pH and total alkalinity following dosing of sodium hydroxide in *Calanus finmarchicus*. *ICES Journal of Marine Science*, 83. https://doi.org/10.1093/icesjms/fsag057

Czajka, C. R., Turner, J. S., Stammerjohn, S., **Kim, H. H.**, Schofield, O., Saenz, B. T., and Doney, S. C (2026). Modeling upper ocean ecosystem dynamics in response to interannual sea-ice variability in the Western Antarctic Peninsula. *Journal of Geophysical Research: Biogeosciences*, 131, e2025JG009428. https://doi.org/10.1029/2025JG009428

Rheuban, J. E., **Kim, H. H.**, Chen, K., Lima, I. D., McCorkle, D. C., Michel, A. P. M., Wang, Z. A., and Subhas, A. V. (2025). Carbonate system site selection characteristics for ocean alkalinity enhancement in the U.S. Northeast Shelf and Slope. *Journal of Geophysical Research: Biogeosciences*, 130, e2025JG009063. https://doi.org/10.1029/2025JG009063

Kim, H. H.†, Mao, S., Archibald, K. M., Terhaar, J., and Thomason, R. M. (2025). Bacterial control of metabolic balance in the Sargasso Sea near Bermuda: Insights from data-assimilative biogeochemical modeling. *Journal of Geophysical Research: Biogeosciences*, 130, e2025JG008919. https://doi.org/10.1029/2025JG008919

Subhas, A. V., Rheuban, J. E., Wang, Z. A., McCorkle, D. C., Michel, A. P. M., Marx, L., Dean, C. L., Morkeski, K., Hayden, M. G., Burkitt-Gray, M., Elder, F., Guo, Y., **Kim, H. H.**, and Chen, K. (2025). A tracer study for the development of in-water monitoring, reporting, and verification (MRV) of ship-based ocean alkalinity enhancement. *Biogeosciences*, 22, 5511-5534. https://doi.org/10.5194/bg-22-5511-2025

Guo, Y.†, Chen, K., Subhas, A. V., Rheuban, J. E., Wang, Z. A., McCorkle, D. C., Michel, A., and **Kim, H. H.**† (2025). Site selection for ocean alkalinity enhancement informed by passive tracer simulations. *Communications Earth & Environment*, 6, 535. https://doi.org/10.1038/s43247-025-02480-1

Collins, J. R., Cape, M. R., Boenish, R. E., Benitez-Nelson, C. R., Doney, S. C., Fujita, R., Gaines, S. D., Gruby, R. L., Jin, D., **Kim, H. H.**, Kleisner, K. M., Mariani, G., Moore, L. A., Pershing, A. J., Rader, D. N., Roman, J., Saba, G. K., Sanchirico, J. N., Saul, S., Savoca, M. S., and A. Waller (2025). The biogeochemistry of natural climate solutions based on fish, fisheries, and marine mammals: A review of current evidence, research needs, and critical assessment of readiness. *Global Biogeochemical Cycles*, 39(7), e2024GB008393. https://doi.org/10.1029/2024GB008393

Turner, J. S., Munro, D. R., Fay, A., Stammerjohn, S., **Kim, H. H.**, Schofield, O., and Dierssen, H. (2025). Seasonal variability of surface ocean carbon uptake and chlorophyll-a concentration in the West Antarctic Peninsula over two decades. Geophysical Research Letters, 52(4), e2024GL112446. https://doi.org/10.1029/2024GL112446

Tegler, L. A., Horner, T. J., Galy, V., Bent, S. M., Wang, Y., **Kim, H. H.**, Mete, Ö. Z., and Nielsen, S. G. (2024). Distribution and drivers of organic carbon sedimentation along the continental margins. *AGU Advances*, 5(4), e2023AV001000. https://doi.org/10.1029/2023AV001000

Turner, J. S., Dierssen, H., Schofield, O., **Kim, H. H.**, Stammerjohn, S., Munro, D. R., and Kavanaugh, M. (2024). Changing phytoplankton phenology in the marginal ice zone west of the Antarctic Peninsula. *Marine Ecology Progress Series*, 734, 1-21. https://doi.org/10.3354/meps14567

Mete, Ö. Z., Subhas, A. V., **Kim, H. H.**, Dunlea, A. G., Whitmore, L. M., Shiller, A. M., Gilbert, M., Leavitt, W. D., and Horner, T. J. (2023). Barium in seawater: dissolved distribution, relationship to silicon, and barite saturation state determined using machine learning. *Earth System Science Data*, 15, 4023-4045. https://doi.org/10.5194/essd-15-4023-2023

Kim, H. H.†, Laufkötter, C., Lovato, T., Doney, S. C., and Ducklow, H. W. (2023). Projected 21st-century changes in marine heterotrophic bacteria under climate change. *Frontiers in Microbiology*, 14, 1049579. https://doi.org/10.3389/fmicb.2023.1049579

Cimino, M. A., Conroy, J. A., Connors, E., Bowman, J., Corso, A., Ducklow, H., Fraser, W., Friedlaender, A., **Kim, H. H.**, Larsen, G. D., Moffat, C., Nichols, R., Pallin, L., Patterson-Fraser, D., Roberts, D., Roberts, M., Steinberg, D. K., Thibodeau, P., Trinh, R., Schofield, O., and Stammerjohn, S. (2023). Long-term patterns in ecosystem phenology near Palmer Station, Antarctica, from the perspective of the Adélie penguin. *Ecosphere*, 14(2), e4417. https://doi.org/10.1002/ecs2.4417

Kim, H. H.†, Bowman, J. S., Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., and Doney, S. C (2022). Modeling polar marine ecosystem functions guided by bacterial physiological and taxonomic traits. *Biogeosciences*, 19, 117-136. https://doi.org/10.5194/bg-19-117-2022

Kim, H. H.†, Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., and Doney, S. C (2021). WAP-1D-VAR v1.0: Development and evaluation of a one-dimensional variational data assimilation model for the marine ecosystem along the West Antarctic Peninsula. *Geoscientific Model Development*, 14, 4939-4975. https://doi.org/10.5194/gmd-14-4939-2021

Kim, H.†, D. E. Lee, and H. W. Ducklow (2019). Winter extratropical cyclones as a potential driver of a long-term decline of bacterial production in the Sargasso Sea near Bermuda. *Geophysical Research Letters*, 46(10), 5404-5412. https://doi.org/10.1029/2018GL081243

Kim, H.†, D. E. Lee, and H. W. Ducklow (2018). Mixing regime-dependent causality between phytoplankton and bacteria in the subtropical North Atlantic Ocean ecosystem. *Marine Ecology Progress Series*, 600, 41-53. https://doi.org/10.3354/meps12643

Kim, H.†, H. W. Ducklow, D. Abele, E. M. R. Barlett, A. G. J. Buma, M. P. Meredith, P. D. Rozema, O. M. Schofield, H. J. Venables, and I. R. Schloss (2018). Inter-decadal variability of phytoplankton biomass along the coastal West Antarctic Peninsula. *Philosophical Transactions of the Royal Society A*, 376(2122), 20170174. https://doi.org/10.1098/rsta.2017.0174

Kim, H.† and H. W. Ducklow (2016). A decadal (2002-2014) analysis for dynamics of heterotrophic bacteria in an Antarctic coastal ecosystem: Variability and physical and biogeochemical forcings. *Frontiers in Marine Science*, 3(214), 1-18. https://doi.org/10.3389/fmars.2016.00214

Kim, H.†, S. C. Doney, R. A. Iannuzzi, M. P. Meredith, D. G. Martinson, and H. W. Ducklow (2016). Climate forcing for dynamics of dissolved inorganic nutrients at Palmer Station, Antarctica. *Journal of Geophysical Research: Biogeosciences*, 121(9), 2369-2389. https://doi.org/10.1002/2015JG003311

Kim, H.†, Y. H. Kim, S.-G. Kang, and Y.-G. Park (2016). Development of environmental impact monitoring protocol for offshore carbon capture and storage (CCS): A biological perspective. *Environmental Impact Assessment Review*, 57, 139-150. https://doi.org/10.1016/j.eiar.2015.11.004

Kim, H. and S. Menden-Deuer (2013). Reliability of rapid, semi-automated assessment of plankton abundance, biomass, and growth rate estimates: Coulter Counter versus light microscope

measurements. *Limnology & Oceanography: Methods*, 11(7), 381-393. https://doi.org/10.4319/lom.2013.11.382

Kim, H., A. J. Spivack, and S. Menden-Deuer (2013). pH alters the swimming behaviors of the raphidophyte Heterosigma akashiwo: Implications for bloom formation in an acidified ocean. *Harmful Algae*, 26, 1-11. https://doi.org/10.1016/j.hal.2013.03.004

FUNDING AWARDS

Funded – External

Co-PI and Executive Committee, NSF OCE #2019589, $624,999 (Kim portion) 2026–2031
STC: Center for Chemical Currencies of a Microbial Planet, Phase 2 renewal

Lead and Sole PI, NSF OPP #2332062, $477,793 2024–2027
Projecting the biological carbon pump and climate feedback in the rapidly changing West Antarctic Peninsula: A hybrid modeling study

Lead PI, NSF OCE #2318940, $533,586 (Kim portion) 2024–2027
Collaborative research: Understanding environmental and ecological controls on carbon export and flux attenuation near Bermuda; Collaborative with Amy Maas

Co-PI, NASA IDS #184860194, $266,761 (subaward to WHOI for Kim portion) 2024–2028
Exploring the role of episodic events in sea ice, phytoplankton community composition, and air-sea carbon fluxes West of the Antarctic Peninsula through field and satellite measurements; Collaborative with Heidi Dierssen (lead PI), David Munro, Oscar Schofield, Sharon Stammerjohn, and Jessie Turner

Faculty Affiliate, NSF OCE #2019589, $122,450 (Kim portion) 2024–2026
STC: Center for Chemical Currencies of a Microbial Planet

Co-PI, Carbon to Sea Initiative, $5,041,980 (total to WHOI PIs) 2023–2026
A seagoing field trial program for ocean alkalinity enhancement on the Northeast Shelf of the United States; Collaborative with Adam Subhas (lead PI), Jennie Rheuban, Ke Chen, Anna Michel, Zhaohui Aleck Wang, and Dan McCorkle

Faculty Fellow, NSF OCE #2019589, $103,000 (Kim portion) 2022–2024
STC: Center for Chemical Currencies of a Microbial Planet

Funded – Internal

Lead PI, Ocean Vital Signs Network (OVSN), $253,798 (total to WHOI PIs) 2026–2028
An observation-based calcification benchmark for OVSN-Darwin in the Northwest Atlantic; Collaborative with Ke Chen and Adam Subhas

Lead and Sole PI, Independent Research and Development, $64,539 2023
Modeling climate solutions: Ocean alkalinity enhancement

Lead PI, Independent Study Award, $64,721 (Kim portion) 2021–2023
Toward a better prediction of carbon budgets in the ocean's twilight zone: Regional and global modeling approaches; Collaborative with Ivan Lima

Lead and Sole PI, Independent Research and Development, $71,590 2022
Development and evaluation of a gene-centric model to predict multiomic and metabolite observations

Lead and Sole PI, Independent Research and Development, $68,412 2021
Predicting coupled ice-ocean-biogeochemical interactions along the warming West Antarctic Peninsula

Lead and Sole PI, Independent Research and Development, $62,956 2020
Quantifying microbial control of the global oceanic carbon sink

Pending

Lead PI, Google Carbon Removal and Superpollutant Elimination R&D Awards, $399,916 2027–2028
Scale down to scale up: Connecting OAE deployment dynamics to regional CDR capacity; Collaborative with Ke Chen

Co-PI, NSF OPP, $403,206 (Kim portion) 2027–2029

Collaborative Research: A matter of time: establishing and modeling the phenology of microbial structure and carbon cycling in an Arctic fjord; Collaborative with John Paul Balmonte (lead PI)

INVITED LECTURES, PRESENTATIONS, AND ABSTRACTS

2027 (Scheduled for March 30): Northeastern University, Department of Marine and Environmental Sciences, Nahant, MA.

2026 (Scheduled for November 10): Boston College, Department of Earth and Environmental Sciences, Chestnut Hill, MA.

2026 OAE Model Skill Assessment Workshop, Munich, Germany (virtual). Modeling the LOC-NESS OAE field trials: Site selection, model skill, and sources of CDR uncertainty.

2023 Department of Energy Advanced Research Projects Agency–Energy (ARPA-E), Marine Carbon Sensing Workshop, Washington D.C. Sensing exports of anthropogenic carbon through ocean observation and modeling.

2022 NOAA Geophysical Fluid Dynamics Laboratory, Princeton, NJ (virtual). Modeling marine heterotrophic bacteria: Implications for the ocean carbon cycle under climate change.

2022 University of Rhode Island, Graduate School of Oceanography, Narragansett, RI (virtual). Modeling marine heterotrophic bacteria: Implications for the ocean carbon cycle under climate change.

2022 Massachusetts Institute of Technology, Atmospheres, Oceans, and Climate, Cambridge, MA. Ocean carbon cycle in a changing climate.

2022 Scripps Institution of Oceanography, Scripps Polar Center, UC San Diego (virtual). Modeling the role of marine heterotrophic bacteria in the ocean's biological carbon pump in a changing climate.

2022 University of Virginia, TransUniversity Microbiome Initiative, Charlottesville, VA (virtual). Modeling the role of marine heterotrophic bacteria in the ocean's biological carbon pump in a changing climate.

2022 Microbiome Centers Consortium Seminar Series (virtual). Modeling the role of marine heterotrophic bacteria in the ocean's biological carbon pump in a changing climate.

2021 Scripps Institution of Oceanography, UC San Diego, San Diego, CA (virtual). Microbial traits informed modeling of polar marine ecosystem functions.

2020 Woods Hole Oceanographic Institution, Department of Biology, Woods Hole, MA (virtual). Microbial diversity-informed modeling of polar marine ecosystem functions.

2019 Seoul National University, School of Earth and Environmental Sciences, Seoul, South Korea. Microbial control of ocean carbon and biogeochemical cycling in a changing climate.

2019 Korea Polar Research Institute, Incheon, South Korea. Microbial control of ocean carbon and biogeochemical cycling in a changing polar ocean: Insights from observations and modeling of the coastal West Antarctic Peninsula.

2019 Chungnam National University, Department of Ocean Environmental Sciences, Daejeon, South Korea. Data assimilative modeling of an Antarctic coastal ecosystem: Impacts of microbial food web interactions on upper-ocean carbon cycling in a changing climate.

2019 University of Delaware, School of Marine Science and Policy, Newark, DE. Modeling the impacts of marine microbial interactions on upper-ocean carbon and biogeochemical cycling in a changing climate.

2019 Woods Hole Oceanographic Institution, Department of Marine Chemistry and Geochemistry, Woods Hole, MA. Quantifying the impacts of marine microbial interactions on upper-ocean carbon and biogeochemical cycling in a changing climate.

2017 University of Virginia, Department of Environmental Sciences, Charlottesville, VA. Microbial interactions in coupled climate-biogeochemical systems: Antarctica and Bermuda.

2016 Princeton University, Atmospheric and Oceanic Sciences, Princeton, NJ. Palmer LTER: Revealing ecological interactions in the coupled climate-biogeochemical system based on observations and data-driven modeling.

2015 Seoul National University, School of Earth and Environmental Sciences, Seoul, South Korea. Climate forcing of bloom and nutrient dynamics at Palmer Station, Antarctica.

SUPERVISION

Postdoctoral Researchers

Elizabeth Connors, Postdoctoral Investigator 2025–Present
Shun Mao, Postdoctoral Investigator 2024–2026
Emelia Chamberlain, NSF Postdoctoral Fellow 2024–2026
Yiming Guo, Postdoctoral Investigator 2024–2025
Onur Karakuş, Postdoctoral Investigator 2023–2025
Jens Terhaar, Postdoctoral Scholar 2022–2023
Ashley Dinauer, NSF Postdoctoral Fellow 2021–2022

Students

Konstantin Scholey, Summer Student Fellow (University of Edinburgh, UK) 2026
Leo Orbanes, Volunteer (Belmont High School) 2026
Linus Vogt, Guest Student (Sorbonne University, France) 2023
Gus McGuire, Falmouth Academy High School Intern 2022
Rhegan Thomason, NSF C-CoMP Bridge-to-PhD Fellow 2022–2024
Annabella Amato, Summer Student Fellow (UC Los Angeles) 2022
Elizabeth Connors, Guest Student (Scripps Institution of Oceanography, UC San Diego) 2022
Emelia Chamberlain, Guest Student (Scripps Institution of Oceanography, UC San Diego) 2022
Oreoluwa Solanke, Summer Student Fellow (Columbia University) 2020
Kira Baugh, Undergraduate Researcher (University of Virginia) 2018

Technical Staff

Theodore Calianos, Research Assistant 2024–2026
Ivan Lima, Guest Investigator 2022–2023

PARTICIPATION IN EDUCATION PROGRAM

MIT-WHOI Joint Program

Admissions Advisory Committee (ACC) Member for Chemical Oceanography 2026–Present
Co-instructor (with David Nicholson), MIT-WHOI 12.747 Modeling, Data Analysis, and Numerical Techniques for Geochemistry 2025, 2020
Co-instructor (with Adam Subhas, Tom Bell, Ken Buesseler, Scott Lindell, and Zhaohui Aleck Wang) MIT-WHOI 12.757 Geodynamics Seminar: Climate Solutions 2022
PhD Thesis Defense Chair for Ellen Park (advisor: David Nicholson) 2025
General Exam Paper Reviewer for Sophie Kuhl (advisor: Zhaohui Aleck Wang) 2025
Thesis Committee Member of Shavonna Bent (advisor: Benjamin Van Mooy) 2021–2025
Thesis Committee Member of Noah Germolus (advisor: Elizabeth Kujawinski) 2020–2024
PhD Thesis Defense Chair for Rebecca Chmiel (advisor: Mak Saito) 2022
PhD Thesis Proposal Defense Chair for Ellen Park (advisor: David Nicholson) 2022
General Exam Committee 2022
First Year Student Academic Advising Committee 2021–2022

Columbia University

Teaching Assistant, UN1030 Oceanography 2016
Teaching Assistant, UN2100 Earth's Environmental System: Climate System 2015–2016
Guest Instructor, Double Discovery Center 2015

University of Rhode Island

Teaching Assistant, OCG301 General Oceanography 2012
Outreach Scientist, Office of Marine Programs 2010–2012

PROFESSIONAL ACTIVITIES

International Scientific Service

Associate Member, Scientific Committee on Oceanic Research (SCOR) Working Group, Persistence Stability of oceanic dissolved organic matter: an Integrative Synthesis of Theories (PERSIST) (selected for support) 2026–Present

National and Federal Scientific Service

Invited Author, Physical Systems Chapter, Sixth National Climate Assessment (NCA6), U.S. Global Change Research Program – Canceled under current administration; contributed to AGU/AMS Perspective with chapter team 2024–2026

Editorial and Advisory Board

Topical Editor, Geoscientific Model Development 2022–Present
Advisor, Ocean Visions Launchpad: $100M XPRIZE Carbon Removal Competition 2022–2023

Service at Academic Conferences

Organizer, C-CoMP Multiscale Modeling Workshop 2026
Session Lead-chair, Modeling Approaches for Marine Carbon Dioxide Removal (mCDR), Ocean Sciences Meeting, Glasgow, Scotland 2026
Planning Committee, BioGeoSCAPES Modeling Workshop, Woods Hole, MA 2025
Session Co-chair, Modeling Approaches for Ocean-Based Carbon Dioxide Removal Research, Ocean Sciences Meeting, New Orleans, LA 2024
Session Co-chair, Modeling Approaches for Ocean-Based Carbon Dioxide Removal Research, AGU Fall Meeting, San Francisco, CA 2023
Presentation Evaluator, Ocean Sciences Meeting (virtual) 2022
Presentation Evaluator, AGU Fall Meeting (virtual) 2020
Presentation Evaluator, Ocean Sciences Meeting, San Diego, CA 2020
Session Co-chair, Changing Biogeochemistry and Ecology Across Polar Aquatic Systems in the 21st Century, Aquatic Sciences Meeting, San Juan, PR 2019
Mentor, ASLO Multicultural Program, Aquatic Sciences Meeting, San Juan, PR 2019
Presentation Evaluator, Ocean Sciences Meeting, Portland, OR 2018
Co-organizer, Postdoctoral Symposium, University of Virginia, Charlottesville, VA 2018
Presentation Evaluator, LTER All Scientists Meeting, Estes Park, CO 2015

External Meetings and Workshops

Panelist, Department of Energy ARPA-E, Marine Carbon Sensing Workshop, Washington D.C. 2023
Panelist, Schmidt Futures Ocean Biogeochemistry Strategic Planning Workshop, New York, NY 2022
Panelist, Open Ocean Blue Carbon Workshop, Environmental Defense Fund, Boston, MA 2021
Panelist, Polar-ICE Student Polar Research Symposium, Rutgers University, New Brunswick, NJ 2017
Panelist, Antarctic Edge: 80 degrees South, Columbia University Alumni Associations STEM Day 2016

WHOI Institutional Service

Postdoctoral Mentoring Committee 2025–Present
Information Services Advisory Committee 2022–Present
Women's Committee 2022–2023
Department of Marine Chemistry and Geochemistry Faculty Search Committee 2022
Department of Marine Chemistry and Geochemistry Seminar Organizer 2020–2021

Manuscript Review

Remote Sensing of Environment; Journal of Experimental Marine Biology and Ecology; Geoscientific Model Development; Biogeosciences; Journal of Geophysical Research: Biogeosciences; Scientific Reports; Limnology and Oceanography; Ecosystems; Global Change Biology; Terrestrial, Atmospheric and Oceanic Sciences; Philosophical Transactions of the Royal Society A; PLoS ONE; Frontiers in Marine Science; Aquatic Microbial Ecology; Global Biogeochemical Cycles; Proceedings of the National Academy of Sciences

Proposal and Panel Review

NSF OCE Chemical Oceanography Program; Ocean Visions Launchpad – $100M XPRIZE Carbon Removal Competition; NSF Directorate for Geosciences

PROCEEDINGS, TECHNICAL REPORTS, AND BOOK CHAPTERS

Kim, H. H. (2025). BATS-1D-VAR v1.0: A One-Dimensional Variational Data Assimilative Biogeochemical Model of the Bermuda Atlantic Time-Series Study (BATS) Site. Zenodo. https://doi.org/10.5281/zenodo.17148897

Subhas, A.V., Rheuban, J.E., Michel, A., McCorkle, D., Chen, K., **Kim, H. H.**, Wang, Z.A., Marx, L.M., and LOCNESS Team (2024). Marine Protection, Research, and Sanctuaries Act Permit Application to conduct a small-scale experiment and deploy monitoring technologies to evaluate the effectiveness and environmental impacts of ocean alkalinity enhancement as a potential carbon dioxide removal and acidification mitigation approach in the waters South of Massachusetts. EPA-HQ-OW-2023-0591-0002, https://www.regulations.gov/document/EPA-HQ-OW-2023-0591-0004.

Subhas, A.V., Rheuban, J.E., Michel, A., McCorkle, D., Chen, K., **Kim, H. H.**, Wang, Z.A., Marx, L.M., and LOCNESS Team (2024). Marine Protection, Research, and Sanctuaries Act Permit Application to conduct a small-scale experiment and deploy monitoring technologies to evaluate the effectiveness and environmental impacts of ocean alkalinity enhancement as a potential carbon dioxide removal and acidification mitigation approach in the Gulf of Maine. EPA-HQ-OW-2024-0189, https://www.regulations.gov/docket/EPA-HQ-OW-2024-0189.

Kim, H. H., Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., & Doney, S. C. (2021). WAP-1D-VAR v1.0: A One-Dimensional Variational Data Assimilation Model for the West Antarctic Peninsula (v1.0). Zenodo. https://doi.org/10.5281/zenodo.5041139

Nam, S. H., **Kim, H.**, and Hwang, C. Y. (2015). Blue Planet Earth Series: 4. Polar Research, Approaching with Science. eBook, Books I and II, KSI.

Kim, H. and Menden-Deuer, S. (2014). Estimating the effects of ocean acidification-induced behavioral shifts on primary production of *Heterosigma akashiwo*. Proceedings of the International Society for the Study of Harmful Algae.

Kim, H. and Kim, Y. H. (2013). Review of environmental risk assessment, regulations, standards on Carbon Capture and Storage. Development of Technology for CO_2 Marine Geological Storage Research and Development Report.

CONTRIBUTED PRESENTATIONS AND ABSTRACTS

(Underlined authors denote supervised student, postdoctoral researcher, or technician)

Turner, J., Dierssen, H., Fay, A., **Kim, H. H.**, Munro, D., Schofield, O., Scrivner, E., and Stammerjohn, S. (2026). Southern Ocean carbon from space: Multi-sensor ocean color estimates of air-sea CO_2 flux reveal the importance of the Antarctic coastal zone. Poster presented at Ocean Optics XXVII, Ghent, Belgium.

Merk, K., Freilich, M. A., **Kim, H. H.**, Hall, P., and Mao, S. (2026). Submesoscale Eddies as a Significant Export Pathway of Dissolved Organic Carbon at BATS. Gordon Research Conference, South Hadley, MA.

Turner, J., Dierssen, H., Fay, A., **Kim, H. H.**, Munro, D. R., Schofield, O., Scrivner, E., and Stammerjohn, S. (2026). Southern Ocean carbon from space: multi-sensor ocean color estimates of air-sea CO_2 flux reveal the importance of the Antarctic coastal zone. Ocean Optics Conference, Ghent, Belgium.

Connors, E., Hendry, K., Venables, H., Meredith, M., and **Kim, H. H.** (2026). Modeling across polar biogeochemical gradients: A hybrid AI-mechanistic approach. SCAR Open Science Conference, Oslo, Norway.

Turner, J. S., Dierssen, H., Schofield, O., Munro, D., Fay, A., Stammerjohn, S., **Kim, H. H.**, and Scrivner, E. (2026). Coastal Antarctic waters represent a strong carbon sink when phytoplankton biomass is high: insights from satellite ocean color. ASLO-SIL Joint Meeting, Montreal, Quebec, Canada.

Hu, E., Krinos, A., Freilich, M., Merk, K., Breier, J. A., Dyhrman, S. T., Gomez, A., Graham, N., Jakuba, M., **Kim, H. H.**, Koester, I., Jivavinski, E., Mao, S., Maybach, E., Saito, M., Sandquist, R., and Stemmer, F. (2026). A multi-omics approach to quantify eddy-driven dissolved organic carbon export in an oligotrophic ocean. ASLO-SIL Joint Meeting, Montreal, Quebec, Canada.

Kim, H. H., Mao, S., Archibald, K., Terhaar, J., and Thomason, R. (2026). Bacterial control of ocean carbon cycling in the Sargasso Sea near Bermuda: Insights from variational-adjoint biogeochemical modeling and prospects for AI integration. Ocean Sciences Meeting, Glasgow, Scotland.

Mao, S., Maas, A. E., and **Kim, H. H.** (2026). Carbon Export and Flux Attenuation Near Bermuda: A July 2016 Case Study with a 1-D Data-Assimilative Biogeochemical Model. Ocean Sciences Meeting, Glasgow, Scotland.

Munro, D. R., Fay, A. R., Dierssen, H. M., Turner, J. S., Schofield, O., Connors, E., **Kim, H. H.**, Stammerjohn, S. E., Kavanaugh, M. T., and Sweeney, C. (2026). The influence of phytoplankton community structure on surface ocean fugacity of carbon dioxide (fCO_2) in the marginal sea ice zone of the Southern Ocean. Ocean Sciences Meeting, Glasgow, Scotland.

Connors, E., Waite, N., Chamberlain, E., Bowman, J. S., Schofield, O., and **Kim, H. H.** (2026). Random forest prediction of Antarctic net primary production from phytoplankton pigments and cell size. Ocean Sciences Meeting, Glasgow, Scotland.

Chamberlain, E., Connors, E., Schollmeyer, N., Balmonte, J. P., and **Kim, H. H.** (2026). Machine learning enhanced ecological model representation of polar marine microbes. Ocean Sciences Meeting, Glasgow, Scotland.

Nicholson, D. P., Todd, R. E., Takeshita, Y., Subhas, A. V., Zaba, K., Pinson, A., Traylor, S., Ren, A. S., Rheuban, J. E., Michel, A., McCorkle, D. C., Wang, A. Z., Chen, K., **Kim, H. H.**, Werb, B., Jakuba, M., Cesarano, O., Chaloux, N., Longworth, B., Morkeski, K., Lanagan, T., Elder, F., Burkitt-Gray, M., Hayden, M. G., and Guo, Y. (2026). Characterizing Ecological Fingerprints and Biogeochemical State with a Fleet of Underwater Vehicles during an Ocean Alkalinity Dispersal in the Gulf of Maine. Ocean Sciences Meeting, Glasgow, Scotland.

Traylor, S., Takeshita, Y., Werb, B., Nicholson, D. P., Todd, R. E., Pinson, A., Ren, A. S., Longworth, B., Subhas, A., Rheuban, J. E., Chen, K., Elder, F., **Kim, H. H.**, Lanagan, T., McCorkle, D. C., Michel, A., Wang, A. Z., and Zaba, K. (2026). Autonomous assessment of CO_2 uptake during an ocean alkalinity enhancement field trial. Ocean Sciences Meeting, Glasgow, Scotland.

Pinson, A., Nicholson, D. P., Ren, A. S., Todd, R. E., Takeshita, Y., Subhas, A., Traylor, S., Burkitt-Gray, M., Werb, B., Longworth, B., Morkeski, K., Hayden, M. G., Rheuban, J. E., Lanagan, T., Elder, F., Wang, A. Z., Michel, A., McCorkle, D. C., **Kim, H. H.**, and Chen, K. (2026). Evaluating pH and rhodamine sensor data quality during an ocean alkalinity enhancement field trial. Ocean Sciences Meeting, Glasgow, Scotland.

Werb, B., Longworth, B., Traylor, S., Takeshita, Y., Nicholson, D. P., Todd, R. E., Subhas, A. V., Rheuban, J. E., Wang, A. Z., **Kim, H. H.**, McCorkle, D. C., Michel, A., Chen, K., Cesarano, O., Chaloux, N., Jakuba, M., Robinson, A., Figueroa, N., and Singh, S. (2026). Developing a Framework for Real-Time Data and Communication to Enhance Situational Awareness and Decision-Making in the LOC-NESS Ocean Alkalinity Enhancement Experiment. Ocean Sciences Meeting, Glasgow, Scotland.

Mason, J., Subhas, A. V., Rheuban, J. E., Kostel, K., Marx, L., Morkeski, K., Hayden, M. G., Lanagan, T., Dean, C., Burkitt-Gray, M., Guo, Y., McCorkle, D. C., Murray, C., Wang, A. Z., Michel, A., **Kim, H. H.**, Chen, K., Yager, J. A., Collins, J. R., Cape, M. R., Martin, E., and Kleisner, K. M. (2026). Community engagement for a marine Carbon Dioxide Removal field trial: Lessons learned for effective messaging and open questions for future efforts. Ocean Sciences Meeting, Glasgow, Scotland.

Marx, L., Rheuban, J. E., McCorkle, D. C., Murray, C., Guo, Y., Wang, A. Z., Michel, A., Chen, K., **Kim, H. H.**, and Subhas, A. (2026). Development of the Ecological Activity Index as an Integrative Ecosystem Assessment and Monitoring Asset for Ocean Alkalinity Enhancement. Ocean Sciences Meeting, Glasgow, Scotland.

Subhas, A., Rheuban, J. E., Michel, A., Lanagan, T., McCorkle, D. C., Nicholson, D. P., Todd, R. E., Takeshita, Y., Bidle, K. D., Thamatrakoln, K., Wang, A. Z., Chen, K., **Kim, H. H.**, Murray, C., Marx, L., Hayden, M. G., Elder, F., Morkeski, K., Dean, C., Davitt, R. T., Longworth, B., Traylor, S., Cesarano, O., Werb, B., Jakuba, M., Guo, Y., Burkitt-Gray, M., and Chaloux, N. (2026). Preliminary Results from LOC-02, a field trial studying the effectiveness and environmental impacts of ship-based ocean alkalinity enhancement using sodium hydroxide, and the second expedition of the LOC-NESS Project (Locking Ocean Carbon in the Northeast Shelf and Slope). Ocean Sciences Meeting, Glasgow, Scotland.

Guo, Y., Chen, K., Subhas, A., Rheuban, J. E., Wang, A. Z., McCorkle, D. C., Michel, A., and **Kim, H. H.** (2026). Modeling Ocean Alkalinity Enhancement in the U.S. Northeast Shelf: Site Selection and Calcification-Enhanced Baseline. Ocean Sciences Meeting, Glasgow, Scotland.

Merk, K., Freilich, M. A., **Kim, H. H.**, Hall, P., and Mao, S. (2025). Submesoscale Physics and Biophysical Coupling Affect DOC Export in the North Atlantic. APS New England Section Annual Meeting, Providence, Rhode Island.

Turner, J., Munro, D., Fay, A., Stammerjohn, S., **Kim, H. H.**, Schofield, O., and Dierssen, H. (2025). Biology dominates seasonal carbon uptake at high latitudes in Antarctic coastal waters. Ocean Carbon from Space 2025, Virtual.

Turner, J. S., Munro, D. R., Fay, A. R., Stammerjohn, S. E., **Kim, H. H.**, Schofield, O., and Dierssen, H. M. (2025). Biology dominates seasonal carbon uptake at high latitudes along the West Antarctic Peninsula. AGU Annual Meeting, New Orleans, LA.

Turner, J., Dierssen, H., Schofield, O., **Kim, H. H.**, Stammerjohn, S., Munro, D. R., and Kavanaugh, M. (2025). Later start of the accumulation season: 25-year trends in phytoplankton phenology in the marginal ice zone west of the Antarctic Peninsula. International Ocean Color Science (IOCS) Meeting, Darmstadt, Germany.

Connors, E. J., Chamberlain, E. J., Bowman, J. S., and **Kim, H. H.** (2025). Application of machine learning and artificial intelligence to ecological datasets and mechanistic models. BioGeoSCAPES Modeling Workshop, Woods Hole, MA.

Kim, H. H., Wolfe, W., Lawrence, E., Doney, S., Braakman, R., Covert, M., Freilich, M., Krinos, A., Moran, M. A., Scott, H., Segrè, D., Yang, M., and Agmon, E. (2025). From cellular to global: A hierarchical, multi-scale modeling strategy for linking metabolism, biogeochemistry, and the ocean carbon cycle. BioGeoSCAPES Modeling Workshop, Woods Hole, MA.

Kim, H. H., Wolfe, W., Lawrence, E., Doney, S., Braakman, R., Covert, M., Freilich, M., Krinos, A., Moran, M. A., Scott, H., Segrè, D., Yang, M., and Agmon, E. (2025). From cellular to global: A hierarchical, multi-scale modeling strategy for linking metabolism, biogeochemistry, and the ocean carbon cycle. Ocean Carbon and Biogeochemistry Workshop, Virtual.

Mao, S., **Kim, H. H.**, and Maas, A. E. (2025). Carbon export and flux attenuation near Bermuda: A July 2016 case study of a 1D biogeochemical model. Ocean Carbon and Biogeochemistry Workshop, Virtual.

Chamberlain, E. J., Calianos, T., Connors, E., and **Kim, H. H.** (2025). Leveraging community structure data and machine learning to improve microbial diversity in polar ecosystem models. ASLO 2025 Aquatic Sciences Meeting, Charlotte, NC.

Collins, J., Cape, M., Boenish, R., Benitez-Nelson, C., Doney, S., Fujita, R., Gaines, S., Gruby, R., Jin, D., **Kim, H. H.**, Kleisner, K., Mariani, G., Moore, L., Pershing, A., Rader, D., Roman, J., Saba, G., Saul, J., Sanchirico, S., and Savoca, M. (2025). Natural climate solutions based on fish, fisheries, and marine mammals: Current evidence and assessment of readiness. One Ocean Science Congress, Nice, France.

Guo, Y., Chen, K., **Kim, H. H.**, Rheuban, J., and Subhas, A. V. (2024). Site selection for ocean alkalinity enhancement in the U.S. Northeast Shelf region: Perspectives from passive tracer experiments. AGU Fall Meeting, Washington, DC.

Subhas, A., Michel, A., Chen, K., **Kim, H. H.**, Rheuban, J., Wang, A. Z., McCorkle, D. C., Hayden, M., Marx, L., Burkitt-Gray, M., Guo, Y., Morkeski, K., Nicholson, D. P., Elder, F., Lanagan, T., Longworth, B., and Dean, C. (2024). Preliminary results from LOC-02, the first field trial studying the effectiveness and environmental impacts of ship-based ocean alkalinity enhancement using sodium hydroxide, and the second expedition of the LOC-NESS Project. AGU Fall Meeting, Washington DC.

Munro, D. R., Fay, A. R., Dierssen, H. M., Turner, J. S., Schofield, O., **Kim, H. H.**, Stammerjohn, S. E., Kavanaugh, M. T., and Sweeney, C. (2024). Updated estimates of surface water pCO_2 within the marginal ice zone along the West Antarctic Peninsula. AGU Fall Meeting, Washington DC.

Turner, J. S., Munro, D. R., Fay, A. R., **Kim, H. H.**, Schofield, O., Stammerjohn, S. E., and Dierssen, H. M. (2024). Seasonal variability of surface ocean carbon uptake and surface chlorophyll-a concentration in the West Antarctic Peninsula over two decades. American Geophysical Union Fall Meeting, Washington DC.

Chamberlain, E. J., Thomason, R., and **Kim, H. H.** (2024). Leveraging genomics and machine learning to improve microbial diversity in a 1-D Arctic Ocean biogeochemistry model. Ocean Carbon and Biogeochemistry Workshop, Woods Hole, MA.

Karakuş, O., Chen, K., Ji, R., and **Kim, H. H.** (2024). Effects of riverine input on carbon cycle in the Northeastern United States continental shelf. Ocean Sciences Meeting, New Orleans, LA.

Munro, D. R., Fay, A. R., Dierssen, H., Turner, J. S., Schofield, O., **Kim, H. H.**, Stammerjohn, S., Kavanaugh, M., McKinley, G., and Sweeney, C. (2024). On the influence of phytoplankton community structure on surface water pCO_2 in the marginal ice zone along the West Antarctic Peninsula. Ocean Sciences Meeting, New Orleans, LA.

Rheuban, J. E., **Kim, H. H.**, Chen, K., Wang, Z. A., Lima, I. D., and Subhas, A. V. (2024). Site selection characteristics for Ocean Alkalinity Enhancement determined through machine learning. Ocean Sciences Meeting, New Orleans, LA.

Subhas, A. V., Michel, A. P. M., Wang, Z. A., Rheuban, J. E., **Kim, H. H.**, Chen, K., McCorkle, D., Kapit, J., Dean, C., Marx, L., Hayden, M., Morkeski, K., Elder, F., and Burkitt-Gray, M. (2024). Introducing the LOC-NESS Project and results from LOC-01, our first tracer release experiment. Ocean Sciences Meeting, New Orleans, LA.

Thomason, R. and **Kim, H. H.** (2024). Impacts of ecological and environmental forcings on heterotrophic bacteria: Insights from model analysis. Ocean Sciences Meeting, New Orleans, LA.

Turner, J. S., Dierssen, H., Schofield, O., **Kim, H. H.**, Stammerjohn, S., Munro, D., and Kavanaugh, M. (2024). Environmental drivers of changing phytoplankton phenology in the marginal ice zone west of the Antarctic Peninsula. Ocean Sciences Meeting, New Orleans, LA.

Turner, J. S., Dierssen, H., Schofield, O., **Kim, H. H.**, Stammerjohn, S., Munro, D., and Kavanaugh, M. (2023). Later start of the accumulation season: 25-year trends in phytoplankton phenology in the marginal ice zone west of the Antarctic Peninsula. International Ocean Colour Science Meeting, St. Petersburg, FL.

Cimino, M., Conroy, J., Connors, E., Bowman, J., Corso, A., Ducklow, H., Fraser, W., Friedlaender, A., **Kim, H. H.**, Larsen, G., Moffat, C., Nichols, R., Pallin, L., Patterson-Fraser, D., Roberts, D., Roberts, M., Steinberg, D., Thibodeau, P., Trinh, R., Schofield, O., and Stammerjohn, S. (2022). Long-term patterns in ecosystem phenology near Palmer Station (PAL), Antarctica. LTER All Scientists Meeting, Pacific Grove, CA.

Turner, J. S., Dierssen, H., Schofield, O., **Kim, H. H.**, Stammerjohn, S., and Munro, D. (2022). Shifts in the timing of the phytoplankton growing season west of the Antarctic Peninsula. Ocean Optics 2022 XXV, Quy Nhon, Binh Dinh, Vietnam.

Mete, O. Z., Dunlea, A. G., **Kim, H. H.**, Subhas, A. V., and Horner, T. J. (2022). Dissolved distribution of barium in seawater and its relationship to silicon. Northeast Geobiology Symposium, Virtual.

Mete, O. Z., **Kim, H. H.**, Dunlea, A. G., Whitmore, L., Shiller, A., and Horner, T. J. (2022). Dissolved distribution of barium in seawater and its relationship to silicon. Ocean Sciences Meeting, Virtual.

Turner, J. S., Dierssen, H. M., Schofield, O. M., Stammerjohn, S. E., **Kim, H. H.**, and Munroe, D. (2022). Interannual variability of satellite derived phytoplankton indices west of the Antarctic Peninsula 1997–2001. Ocean Sciences Meeting, Virtual.

Kim, H. H., Laufkötter, C., Lovato, T., Doney, S. C., and Ducklow, H. W. (2022). Projected 21st-century changes in marine heterotrophic bacteria under climate change. Ocean Sciences Meeting, Virtual.

Mete, O. Z., Dunlea, A. G., **Kim, H. H.**, and Horner, T. J. (2021). Distribution of dissolved barium in seawater: a machine learning approach. WHOI Summer Student Fellow Presentation, Virtual.

Subhas, A. V., **Kim, H. H.**, and Buesseler, K. O. (2021). Navigating the ocean's role in carbon dioxide removal. Ocean Decade: U.S. Launch Meeting (Ocean Shots), Virtual.

Kim, H. H., Bowman, J. S., Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., and Doney, S. C. (2021). Combining microbial observations and biogeochemical modeling: variational data assimilation models. Ocean Carbon and Biogeochemistry Workshop, Virtual.

Kim, H. H., Bowman, J. S., Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., and Doney, S. C. (2020). Microbial diversity-informed modelling of the polar marine ecosystem functions. AGU Fall Meeting, Virtual.

Solanke, O. and **Kim, H. H.** (2020). Quantifying the biogeochemical role of microbial communities at the Bermuda Atlantic Time-series Study site. AGU Fall Meeting, Virtual.

Solanke, O. and **Kim, H. H.** (2020). Quantifying the biogeochemical role of microbial communities at the Bermuda Atlantic Time-series Study site. WHOI Summer Student Fellow Presentation, Virtual.

Chamberlain, E., **Kim, H. H.**, Doney, S. C., and Bowman, J. S. (2020). Leveraging microbial community structure data to inform ecosystem modeling, an approach based on microbial community segmentation. Ocean Sciences Meeting, San Diego, CA.

Kim, H. H., Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., and Doney, S. C. (2020). Bacteria-mediated carbon cycling in the warming polar ocean revealed by data assimilation modeling. Ocean Sciences Meeting, San Diego, CA.

Kim, H. H., Luo, Y.-W., Ducklow, H. W., Schofield, O. M., Steinberg, D. K., and Doney, S. C. (2019). Data assimilative modeling of an Antarctic coastal ecosystem: Impacts of microbial food-web interactions on upper-ocean carbon cycling in a changing climate. ASLO Aquatic Sciences Meeting, San Juan, PR.

Kim, H. H., Luo, Y.-W., and Doney, S. C. (2019). Data assimilative ecosystem modeling of bacterial dynamics and upper-ocean carbon cycling in the coastal West Antarctic Peninsula. University of Virginia, Charlottesville, VA.

Chamberlain, E., **Kim, H. H.**, Doney, S. C., and Bowman, J. S. (2019). Leveraging microbial community structure to inform trait-based modeling, an approach based on microbial community segmentation. Trait-Based Approaches to Ocean Life Workshop, Buckinghamshire, UK.

Baugh, K. R., **Kim, H. H.**, and Doney, S. C. (2019). The effects of hurricanes of the monthly anomalies of pH and dissolved inorganic carbon at the Bermuda Atlantic Time-series Study site. Undergraduate Research Symposium, University of Virginia, Charlottesville, VA.

Baugh, K. R., **Kim, H. H.**, and Doney, S. C. (2019). The effects of hurricanes of the monthly anomalies of pH and dissolved inorganic carbon at the Bermuda Atlantic Time-series Study site. EnviroDay, University of Virginia, Charlottesville, VA.

Kim, H. H., Luo, Y.-W., and Doney, S. C. (2018). Data assimilative modeling of polar marine ecosystem dynamics using a variational adjoint scheme. University of Virginia, Charlottesville, VA.

Kim, H. H., Luo, Y.-W., and Doney, S. C. (2018). Data assimilative ecosystem modeling of bacterial dynamics and upper-ocean carbon cycling in the coastal West Antarctic Peninsula. Ocean Carbon and Biogeochemistry Workshop, Woods Hole, MA.

Kim, H. H., Lee, D. E., and Ducklow, H. W. (2018). Wintertime extratropical cyclones drive a long-term bacterial trend at the Bermuda Atlantic Time-series (BATS) site. University of Virginia, Charlottesville, VA.

Kim, H. H., Lee, D. E., and Ducklow, H. W. (2018). Wintertime extratropical cyclones drive a long-term bacterial trend at the Bermuda Atlantic Time-series (BATS) site. Ocean Sciences Meeting, Portland, OR.

Ducklow, H. W., Stukel, M. R., Bowman, J. S., **Kim, H. H.**, Cassar, N., Eveleth, R., Li, Z., Doney, S., Sailley, S. F., Jickells, T. D., Baker, A. R., and Chance, R. (2016). Exploring estimates of net community production and export along the Western Antarctic Peninsula (WAP), 1993–2014. AGU Fall Meeting, San Francisco, CA.

Kim, H. H. (2016). Palmer LTER: Revealing ecological interactions in the coupled climate-biogeochemical system based on observations and data-driven modeling. Palmer Long-Term Ecological Research (LTER) Annual Meeting, New Brunswick, NJ.

Kim, H. H., Doney, S. C., Iannuzzi, R. A., Meredith, M. P., Martinson, D. G., Lee, D. E., and Ducklow, H. W. (2016). Palmer LTER: Climate-biogeochemical coupling in an Antarctic coastal ecosystem. Ocean Carbon and Biogeochemistry Workshop, Woods Hole, MA.

Kim, H. H., Doney, S. C., Iannuzzi, R. A., Meredith, M. P., Martinson, D. G., and Ducklow, H. W. (2016). Climate-biogeochemical coupling in an Antarctic coastal ecosystem. Ocean Sciences Meeting, New Orleans, LA.

Kim, H. H. and Ducklow, H. W. (2015). Physical forcing of bacterial dynamics at Palmer Station, Antarctica. LTER All Scientists Meeting, Estes Park, CO.

Huete-Stauffer, T. M., Bunse, C., Closek, C. J., Gradoville, R. M., Mohamed, R., Moreno, C., Taylor, J., Wilburn, P., Budinich Abarca, M. A., Burrel, T., Gazitua Zavala, M. T., Gimpel, C., **Kim, H. H.**, Liao, W. L., Peoples, L., and Vislova, A. (2015). Genomes to Biomes: C-MORE Summer Course on Microbial Oceanography. ASLO Aquatic Sciences Meeting, Granada, Spain.

Kim, H. H., Martinson, D. G., Iannuzzi, R. A., and Ducklow, H. W. (2014). Interannual variability in seasonal drawdown of dissolved inorganic nutrients at Palmer Station, Antarctica. AGU Fall Meeting, San Francisco, CA.

Kim, H. H., Martinson, D. G., and Ducklow, H. W. (2014). Physical and climate controls on drawdown of dissolved inorganic nutrients at Palmer Station: A 20-year study (1992–2012). Palmer LTER Annual Meeting, Williamsburg, VA.

Kim, H. H. and Menden-Deuer, S. (2014). Effects of ocean acidification-induced swimming behaviors on population distributions and primary production of the raphidophyte *Heterosigma akashiwo*. Ocean Sciences Meeting, Honolulu, HI.

Kim, H. H. and Menden-Deuer, S. (2012). Future-ocean pCO_2 condition alters the movement behaviors of the toxic *Heterosigma akashiwo*: implications for harmful algal bloom formation in an acidifying ocean. International Conference on Harmful Algae, Changwon, South Korea.

Kim, H. H. and Menden-Deuer, S. (2011). Feasibility of rapid, automated assessment of phytoplankton abundance, biomass, and growth rate: Coulter Counter vs. light microscope. U.S. Symposium on Harmful Algae, Austin, TX.

CRUISE AND FIELDWORK PARTICIPATION

R/V Tioga, LOC-NESS OAE field trial, Wilkinson Basin, Gulf of Maine	2025
ARSV Laurence M. Gould, Palmer LTER research cruise, West Antarctic Peninsula	2015–2016
R/V Kilo Moana, C-MORE research cruise, North Pacific	2014
R/V Endeavor, North Atlantic Spring Bloom research cruise, Gulf of Maine	2011
R/V Tamyang, Shipboard Training course, East/Japan Sea	2010

OUTREACH AND OTHER ACTIVITIES

Volunteer, The WBUR Festival, Boston, MA	2026
Outreach Host, Quincy College Student Visit, Woods Hole, MA	2026
Panelist, New York Signature Event, University Club of New York, New York, NY	2022
Vice President, Columbia University Korean-American Scientists and Engineers Association	2016–2017
Environmental Consultant, RPS-ASA, South Kingstown, RI	2013
Volunteer, Environmental Protection Agency, Narragansett, RI	2012
Volunteer, Science Fair, America's Cup World Series, Newport, RI	2012
Volunteer, Science Saturday, University of Rhode Island, Narragansett, RI	2011