

Guangyu Xu

Applied Physics Laboratory
University of Washington
Box 355640
University of Washington
1013 NE 40th Street
Seattle, WA 98105-6698

Email: guangyux@uw.edu

Research Interests

Transport of hydrothermally sourced materials and vent larvae.
Sub-seafloor hydrothermal circulation and response to geophysical processes.
Acoustic mapping and characterization of seafloor sediments and hydrothermal discharge.
Autonomous approaches for deep-sea exploration.
Ocean circulation and hydrography at mid-ocean ridges and seamounts.
Coastal ocean dynamics and influences on sound propagation.

Current and Recent Research Grants

Participation as Lead Principal Investigator

National Science Foundation, Division of Ocean Sciences, OCE-2318964, "Collaborative Research: The influence of mesoscale eddies on deep-sea dynamics and implications for larval connectivity along mid-ocean ridges", 2023-2026

National Oceanic and Atmospheric Administration, Ocean Exploration, NA23OAR0110314, "Autonomous Localization of Seafloor Fluid Flow Sources", 2023-2026

National Science Foundation, Division of Ocean Sciences, OCE-2141963, "Collaborative Research: From Magma to Vents: Monitoring Hydrothermal Fluid Temperature and Upflow-zone Permeability in Relation to Magma Movement at Axial Seamount", 2022-2027

National Oceanic and Atmospheric Administration, Ocean Exploration, NA22OAR0110192, "AUV-based Acoustic Mapping and Characterization of Seafloor Hydrothermal Discharge", 2022-2026

Participation as co-Principal Investigator

Office of Naval Research, N00014-24-1-2785, "2nd Joint Acoustics/Oceanography Experiment on the Washington Shelf for Mid-Frequency Sonar Applications", 2024-2027

Strategic Environmental Research and Development Program, MR23-3917, "Development of Physics-Based Inversions of BOSS Data for Sediment Properties", 2023-2025

National Science Foundation, Division Of Ocean Sciences, OCE-1851199, "Collaborative Research: Hydrothermal Estuaries: What Sets the Hydrothermal Flux of Fe and Mn to the Oceans?", 2020-2025.

Strategic Environmental Research and Development Program, MR18-1406, "Demonstration of Physics-Based Inversions of Multibeam Echosounder for Sediment Properties", 2019-2024.

National Science Foundation, Division Of Ocean Sciences, OCE-1736920, "Collaborative Research: Heat flow mapping and quantification at ASHES hydrothermal vent field using an observatory imaging sonar", 2018-2025.

Office of Naval Research, N00014-21-1-2524, "Joint Acoustics/Oceanography Experiment on the Washington Shelf for Mid-Frequency sonar applications", 2021-2024

Research Expedition Participation

In Person

NSF AT15-36, Endeavour Segment and Axial Seamount, Juan de Fuca Ridge, Northeast Pacific Ocean, 2008

Ocean Networks Canada "Wiring the Abyss Expedition", Endeavour Segment, Juan de Fuca Ridge, Northeast Pacific Ocean, 2012

Ocean Networks Canada "Wiring the Abyss Expedition", Endeavour Segment, Juan de Fuca Ridge, Northeast Pacific Ocean, 2013

NSF Ocean Observatories Initiative "VISIONS'18 Expedition", Axial Seamount, Juan de Fuca Ridge, Northeast Pacific Ocean, 2008

ONR Task Force Ocean, SR-2214, Washington continental shelf, 2022.

NSF AT50-15, Endeavour Segment, Juan de Fuca Ridge, Northeast Pacific, 2023.

NSF AT50-26, Axial Seamount, Juan de Fuca Ridge, Northeast Pacific Ocean, 2024.

ONR Task Force Ocean, SR-2514, Washington continental shelf, 2025.

ONR Task Force Ocean, RC-0145, Washington continental shelf, 2025.

NSF Ocean Observatories Initiative "VISIONS'25 Expedition", Axial Seamount, Juan de Fuca Ridge, Northeast Pacific Ocean, 2025

Via Telepresence

Ocean Networks Canada "Wiring the Abyss Expedition", Endeavour Segment, Juan de Fuca Ridge, Northeast Pacific Ocean, 2014.

Ocean Exploration Trust, NA165 "EXPEDITION E Mamana Ou Gataifale II - Exploring the Deep Waters of American Samoa", 2024.

Education

B.S. Ocean Technology, Ocean University of China, September 2004 to July 2008.

M.S. Marine Sciences, University of Georgia, August 2008 to December 2010.

Ph.D. Oceanography, Department of Marine and Coastal Sciences, Rutgers University, January 2011 to October 2015.

Current and Past Positions

Research Scientist, Applied Physics Laboratory, University of Washington, Dec 2020 - present

Postdoctoral Research Associate, Applied Physics Laboratory, University of Washington, Mar 2018 - Dec 2020

Postdoctoral Investigator, Department of Geology and Geophysics, Woods Hole Oceanographic Institution, Jul 2017 to Feb 2018.

Postdoctoral Scholar, Department of Geology and Geophysics, Woods Hole Oceanographic Institution, Oct 2015 to Jul 2017.

Publications in Peer-Reviewed Journals

Prakash, K.R., R.R. Harcourt, J.B. Mickett, **G. Xu**, and L. Thompson (2026), "Distribution, formation, and evolution of subsurface secondary acoustic ducts from global ocean modeling and observations", *Journal of Geophysical Research: Oceans*, 131(4), p.e2024JC022230.

Xu, G., Y. J. Tan, and W. W. Chadwick Jr. (2025), "Temporal Variation of Crustal Permeability in Relation to the Volcano Deformation Cycle at Axial Seamount, Northeast Pacific", *Journal of Geophysical Research: Solid Earth*, 130(8), p.e2024JB030112.

Portner, R., **G. Xu**, A. Murch, D. A. Clague, B. Dreyer, and J. B. Paduan (2025), "Mid-ocean ridge (MOR) ash dispersal on Axial Seamount, Juan de Fuca Ridge", *Geochemistry, Geophysics, Geosystems*, 26(9), p.e2025GC012229.

Tang, D., B. T. Hefner, **G. Xu**, E. I. Thorsos, R. R. Harcourt, J. B. Mickett, and K. R. Prakash (2025), "Observations of Mid-Frequency Sound Propagation on the Washington Continental Shelf with a Subsurface Duct", *The Journal of the Acoustical Society of America*, 157(6), pp.4449-4460.

Xu, G., B. T. Hefner, D. R. Jackson, A. N. Anatoliiy, and G. Wendelboe (2025), "A physics-based inversion of multibeam sonar data for seafloor characterization", *IEEE Journal of Oceanic Engineering*, 50(2), doi:10.1109/JOE.2024.3467308.

Xu, G., R. R. Harcourt, D. Tang, B. T. Hefner, E. I. Thorsos, and J. B. Mickett (2024), "Subsurface acoustic ducts in the Northern California current system", *The Journal of the Acoustical Society of America*, 155(3), pp. 1881-1894.

Barkat, A., Y. J. Tan, **G. Xu**, F. Waldhauser, M. Tolstoy (2024), "Permeability and seismicity rate changes at an inflating submarine volcano caused by dynamic stresses", *Earth and Planetary Science Letters*, 632, pp. 118625.

Xu, G. and C. R. German (2023), "Dispersion of deep-sea hydrothermal plumes at the Endeavour Segment of the Juan de Fuca Ridge: a multiscale numerical study", *Frontiers in Marine Science*, 10:1213470. doi: 10.3389/fmars.2023.1213470.

Jackson, D., K. Bemis, **G. Xu**, A. Ivakin (2022), "Sonar Observation of Heat Flux of Diffuse Hydrothermal Flows", *Earth and Space Science*, 9, e2021EA001974. <https://doi.org/10.1029/2021EA001974>.

Xu, G., K. Bemis, D. Jackson, A. Ivakin (2021), "Acoustic and In-situ Observations of Hydrothermal Discharge at ASHES Vent Field: an OOI Cabled Array Case Study", *Earth and Space Science*, 8, e2020EA001269. <https://doi.org/10.1029/2020EA001269>.

- German, C. R., J. A. Resing, **G. Xu**, I. A. Yeo, S. L. Walker, C. W. Devey, J. W. Moffett, G. A. Cutter, O. Hyvernaud, and D. Reymond (2020), "Hydrothermal activity and seismicity at Teahitia Seamount: Re-activation of the Society Islands Hotspot?", *Frontiers in Marine Science*, 7:73, doi: 10.3389/fmars.2020.00073.
- Xu, G.**, D. J. McGillicuddy, S. W. Mills, and L. S. Mullineaux (2018), "Dispersal of Hydrothermal Vent Larvae at East Pacific Rise 9-10°N Segment", *Journal of Geophysical Research Oceans*, 123, <https://doi.org/10.1029/2018JC014290>.
- Xu, G.**, W. W. Chadwick Jr., W. S. D. Wilcock, K. G. Bemis, and J. Delaney (2018), "Observation and modeling of hydrothermal response to the 2015 Eruption at Axial Seamount, Northeast Pacific", *Geochemistry, Geophysics, Geosystems*, 19, <https://doi.org/10.1029/2018GC007607>.
- Xu, G.** and J. W. Lavelle (2017), "Circulation, hydrography, and transport over the summit of Axial, a 1500 m deep volcano in the Northeast Pacific", *Journal of Geophysical Research Oceans*, 122, 5404-5422, doi:10.1002/2016JC012464.
- Xu, G.**, B. I. Larson, K. G. Bemis, and M. D. Lilley (2017), "A preliminary 1-D model investigation of tidal variations of temperature and chlorinity at the Grotto mound, Endeavour Segment, Juan de Fuca Ridge", *Geochemistry Geophysics Geosystems*, 18, 75-92, doi:10.1002/2016GC006537.
- Xu, G.**, D. R. Jackson, K. G. Bemis (2017), "The relative effect of particles and turbulence on acoustic scattering from deep sea hydrothermal vent plumes revisited", *Journal of Acoustical Society of America* 141, 1446-1458, doi:10.1121/1.4974828.
- Jackson, D. R., A. N. Ivakin, **G. Xu**, K. G. Bemis (2017), "Sonar observations of diffuse hydrothermal flows", *Earth and Space Science* 4, 230-239, doi:10.1002/2016EA000245.
- Rona, P. A., K. G. Bemis, **G. Xu**, K. Mitsuzawa (2015), "Estimations of heat transfer from Grotto's North Tower: a NEPTUNE Observatory case study", *Deep Sea Research II* 121, 95-111, doi:10.1016/j.dsr2.2015.05.010.
- Bemis, K. G., D. Silver, **G. Xu**, R. Light, D. R. Jackson, C. Jones, S. Ozer, L. Liu (2015), "The path to COVIS: a review of acoustic imaging of hydrothermal plumes", *Deep Sea Research II* 121, 159-176, doi:10.1016/j.dsr2.2015.06.002.
- Xu, G.**, D. R. Jackson, K. G. Bemis, and P. A. Rona (2014), "Time-series measurement of hydrothermal heat flux at the Grotto mound, Endeavour Segment, Juan de Fuca Ridge", *Earth and Planetary Science Letters*, 404, doi:10.1016/j.epsl.2014.07.040, 220-231.
- Xu, G.**, D. R. Jackson, K. G. Bemis, and P. A. Rona (2013), "Observations of the volume flux of a seafloor hydrothermal plume using an acoustic imaging sonar", *Geochemistry Geophysics Geosystems*, 14, doi:10.1002/ggge.20177.
- Xu, G.** and D. DiIorio (2012), "Deep sea hydrothermal plumes and their interaction with oscillatory flows", *Geochemistry Geophysics Geosystems*, 13, doi:10.1029/2012GC004188.
- Daniela, D., J. William Lavelle, P. A. Rona., K. G. Bemis, **G. Xu**, L. N. Germanovich, R. P. Lowell, G. Genc (2012), "Measurements and Models of Heat Flux and Plumes from Hydrothermal Discharges Near the Deep Sea Floor", *Oceanography*, 25:168-181.
- Xu, G.** and D. DiIorio (2011), "The relative effects of particles and turbulence on acoustic scattering from deep-sea hydrothermal vent plumes", *Journal of the Acoustical Society of America*, 130, 1856-1867.

Publications in Conference Proceedings

Tang, Dajun, **G. Xu**, B.T. Hefner, E.I. Thorsos (2022), "Subsurface ducts and their impact on sound propagation off the Washington coast", Proceedings of the 24th International Congress on Acoustics, October 24 to 28 in Gyeongju, Korea.

Hefner, B.T., **G. Xu**, D.R. Jackson, A.N. Ivakin, G. Wendelboe (2022), "A Physics-Based Echosounder Inversion for Wide-Area Assessment of Sediment Properties", in OCEANS 2022, Hampton Roads, pp. 1-6. IEEE.

Branch, A., J. McMahon, J., **Xu G.**, M. V. Jakuba, C. R. German, S. Chien, J. C. Kinsey, A. D. Bowen, K. P. Hand, and J. S. Seewald (2020), "Demonstration of autonomous nested search for local maxima using an unmanned underwater vehicle", in 2020 IEEE international conference on robotics and automation (ICRA) (pp. 1888-1895). IEEE.

Wang, L., S. Pang, S, **Xu G.** (2020), "3-Dimensional Hydrothermal Vent Localization Based on Chemical Plume Tracing", in Global Oceans 2020, Singapore-US Gulf Coast, pp. 1-7, IEEE.

Branch, A., **G. Xu**, M.V. Jakuba, C.R. German, S. Chien, J.C. Kinsey, A.D. Bowen, K.P. Hand, and J.S. Seewald (2018), "Autonomous Nested Search for Hydrothermal Venting", Planning and Robotics: An ICAPS 2018 Workshop, Delft, The Netherlands, Jun 26, 2018.

Ivakin, A., D.R. Jackson, K. Bemis, and **G. Xu** (2015), "A correlation approach for characterizing diffuse hydrothermal flows using multi-beam sonar", UACE2015-3rd Underwater Acoustics Conference and Exhibition", Chania, Island of Crete, Greece, June 21-26, 2015.

Bemis, K. G., **G. Xu**, D. R. Jackson, P. A. Rona, and R. Light (2014), "Cabled observatory enabled acoustic monitoring of hydrothermal discharge", UA2014, the 2nd international conference and exhibition on Underwater Acoustics, Rhodes, Greece, June 22-27, 2014.

Other Publications

Xu, G., C. German, A. Branch, M. Burkitt-Gray, and V. Preston, "Tracing hydrothermal plumes at Vailulu'u Seamount", Wagner, D. (ed.) 2025 The Ocean Exploration Trust 2024 Field Season 88 pp <https://doi.org/10.62878/unc751>, 46-47.

Xu, G., K. Bemis, D. Jackson (2017), "Sounding the black smoker plumes", Eos, 98, <https://doi.org/10.1029/2017EO086289>.

Bemis, K., D. Jackson, **G. Xu** (2017), "The last unexplored places on Earth", Scientia, <https://www.scientia.global/dr-karen-bemis-dr-darrell-jackson-dr-guangyu-xu-last-unexplored-places-earth/>.

Mentorship Experience

University of Washington ENGINE Capstone Mentor, 2025-2026.

Ph.D. student advisory committee, University of Rhode Island, 2025.

M.S. student advisory committee, University of Georgia, 2025.

Excellence in Mentorship Fellows Program, Rutgers University, 2012-2013.

Conference Activity/Presentations

Session Convener

Session OS41C/OS43C, "Interactions Between Mid-ocean Ridge Hydrothermal Systems and the Ocean", 2013 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 9-13 Dec.

Oral Presentations

Invited Talks

Xu, G. "Unraveling the Interconnected Ocean and Seafloor Processes through Underwater Acoustics and Numerical Modeling", College of Marine Science Seminars, University of South Florida, Mar 2026.

Xu, G. "Unraveling the Interconnected Ocean and Seafloor Processes: From Deep-Sea Hydrothermal Systems to Coastal Ocean Dynamics", School of Earth, Ocean, and Environment Seminars, University of South Carolina, Nov 2025.

Xu, G., B. Hefner, D. Jackson, and A. Ivakin, "A Physics-Based Inversion of Multibeam Sonar for Seafloor Characterization", Office of Naval Research Seafloor Characterization Workshop, University of New Hampshire, Feb 2025

Xu, G., C. German, V. Preston, A. Branch, M. Burkitt-Gray, and R. Lien, "Hydrothermal Plume Dispersion at Endeavour Segment: Modeling and Observations from Expedition AT50-15 (Aug 24th-Sept 17th, 2023)", Endeavour Workshop 2024, Ocean Networks Canada, Victoria BC, Canada, Nov 2024.

Xu, G., R. Harcourt, John Mickett, D. Tang, B. Hefner, E. Thorsos, "Subsurface Acoustic Ducts in the Northern California Current System and Pacific Northwest Coastal Ocean", Naval Research Laboratory Seminars, Apr 2022

Xu, G. "Numerical Studies of Dispersal from Submarine Volcanic Systems", SJSU GeoClub Seminars, San Jose State University, Sept 2021

Xu, G. "Application of Underwater Acoustics and Numerical Modeling to Studies of Deep-sea Plumes, Currents, and Volcanoes", UGA Marine Science Seminars, University of Georgia, Jan 2020

Xu, G. "Modeling and measurements of hydrothermal flows", Invited talk at the GoMRI-Core1 Workshop, Tallahassee, FL, 15-17 Jan, 2019.

Xu, G., D. Jackson, K. Bemis, A. Ivakin, "Long-term, quantitative observations of seafloor hydrothermal venting using an imaging sonar", Abstract 1pAO1, Invited talk at the 174th Meeting of the Acoustical Society of America, New Orleans, LA, 4-8 Dec, 2017.

Others

German, C., A. Branch, **G. Xu**, "Autonomous Tracing of Hydrothermal Plumes: Insights from Numerical Simulations Coupled With Sentry Operations", Abstract OT12A-05, presented at 2026 Ocean Sciences Meeting, Feb 2026.

Tang, D, B. Hefner, R. Harcourt, J. Mickett, **G. Xu**, K. Prakash, and E. Thorsos, "Toward a recipe for capturing sound speed variation due to spice", Abstract PS23B-08, presented at 2026 Ocean Sciences Meeting, Feb 2026.

Xu, G., E. Weidner, A. Marburg, K. Bemis, and D. Jackson "Mapping Hydrothermal Discharge with Multibeam Echosounders: Insights from Numerical Simulations and Laboratory Experiments", Abstract 1pAOa4, presented at the 188th Meeting of the Acoustic Society of America, New Orleans, LA, 19-23 May, 2025.

German, C., **G. Xu**, J. Fitzsimmons, J. Breier, B. Toner, W. Jenkins, M. Glenhill, J. Moffett, M. Silvia, A. Tagliabue, and S. Walker, "Hydrothermal Estuaries: What Sets the Fe Flux from Submarine Venting to the Oceans?", in American Geophysical Union, Ocean Sciences Meeting, Abstract OB41C-08, Feb, 2024.

Preston, V., G. Flaspohler, **G. Xu**, M. Burkitt-Gray, J. Fujii, I. Vandor, H. Singh, C. German, A. Branch, R. Lien, and M. Silvia, "Where do I Sample? Building Scientific Situational Awareness for Hydrothermal Plume Investigations with an Autonomous Underwater Vehicle", in American Geophysical Union, Ocean Sciences Meeting, Abstract OP31G-09, Feb 2024.

Harcourt, R.R., D. Tang, D., J. Mickett, B. T. Hefner, K. R. Prakash, **G. Xu**, and E. I. Thorsos, "Observations and Predictions of Coastal Ocean Acoustic Transmission with Subsurface Ducts", in American Geophysical Union, Ocean Sciences Meeting, Abstract OT52A-04, Feb 2024.

Xu, G., R. Harcourt, D. Tang, B. Hefner, E. Thorsos, J. Mickett "Subsurface Acoustic Ducts in the Northern California Current System", Abstract 5aUW6, presented at the 184th Meeting of the Acoustical Society of America, Seattle, WA, 8-12 May, 2023.

Xu, G., D. Jackson, K. Bemis, A. Ivakin, "The Cabled Observatory Vent Imaging Sonar Deployed on the OOI Cabled Array", Abstract 2pAO2, presented at the 181st Meeting of the Acoustical Society of America, Seattle, WA, 29 Nov-3 Dec, 2021.

Xu, G., W. Chadwick Jr., W. Wilcock, K. G. Bemis, S. Nooner, G. Sasagawa, M. Zumberge, J. Delaney, "Observation and modeling of hydrothermal response to the 2015 eruption at Axial Seamount, Northeast Pacific: An OOI Cabled Observatory case study", Abstract T33C-02, presented at 2017 Fall Meeting, American Geophysical Union (AGU), New Orleans, LA, 11-15 Dec.

Xu, G. and J. W. Lavelle, "Circulation, hydrography, and transport over the summit of Axial — the destination node of OOI's Cabled Array. Abstract OS44B-07, presented at 2016 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 12-16 Dec.

Xu, G., K. G. Bemis, D. R. Jackson, R. Light, and R. Lee, "Time-series observations of hydrothermal discharge using an observatory-enabled vent imaging sonar: a NEPTUNE observatory case study", Abstract EGU2015-8195, presented at General Assembly 2015, European Geosciences Union (EGU), Vienna, Austria, 12-17 Apr.

Xu, G., K. G. Bemis, and D. R. Jackson, "Multidisciplinary observations of an episode of hydrothermal response to earthquakes", presented at the Multidisciplinary Observatories in Vent Ecosystems (MOVE) workshop, Ifremer, Brest, France, 24-27 Nov, 2014.

Xu, G., D. R. Jackson, K. G. Bemis and P. A. Rona, "Time-series measurements of hydrothermal heat flux at the Grotto Mound, Endeavour Segment, Juan de Fuca Ridge", presented at the International Symposium in Memory and Honor of Peter A. Rona, The Institute of Marine and Coastal Sciences, Rutgers University, 2014.

Xu, G., D. R. Jackson, K. G. Bemis and P. A. Rona, "Heat flux measured acoustically at Grotto Vent, a hydrothermal vent cluster on the Endeavour Segment, Juan de Fuca Ridge", Abstract OS43C-05, presented at 2013 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 9-13 Dec.

Xu, G., P. A. Rona, K. G. Bemis and D. R. Jackson, "Measurement of hydrothermal heat flux using a sonar deployed on the Canadian NEPTUNE cabled observatory", J. Acoust. Soc. Am. 134, 3974 (2013), presented at the 166th Meeting of the Acoustical Society of America, San Francisco, Calif., 2-6 Dec.

Xu, G. and D. DiIorio, "Hydrothermal vent flow and turbulence measurements with acoustic scintillation instrumentation", 2010 Ocean Sciences Meeting, Portland, OR.

Xu, G. and J. W. Lavelle, "Circulation, hydrography, and Transport at Axial Seamount", 2015 Woods Hole Oceanographic Institution Annual Postdoctoral Symposium, October 12th, 2016.

Xu, G. and J. W. Lavelle, "Circulation, Hydrography, and Transport at Axial Seamount: A destination node of OOI's Cabled Array", WHOI AOP&E Department Seminar, Oct 5th, 2016.

Xu, G., B. I. Larson, K. G. Bemis, and M. D. Lilley, "Investigation of tidal variations of temperature and chlorinity at the Grotto mound, Endeavour Segment, Juan de Fuca Ridge", WHOI G&G Department Seminar, Aug 23rd, 2016.

Xu, G., "Quantitative Observations of a Deep-sea hydrothermal plume using an acoustic imaging sonar", 2015 Woods Hole Oceanographic Institution Annual Postdoctoral Symposium, October 15th, 2015.

Poster Presentations

Xu, G., L. Mullineaux, D. McGillicuddy, X. Liang, and Q. He, "Larval Dispersal and Habitat Connectivity of Hydrothermal Vent Communities along the East Pacific Rise (5–15°N)", Abstract PL44C-V3001, presented at 2026 Ocean Sciences Meeting, Feb 2026.

Dick, Kristie, M. Dinneen, C. German, J. Moffett, A. Seltzer, **G. Xu**, W. Jenkins, and J. Fitzsimmons, "mesoscale approach to understanding hydrothermal Fe particle dynamics at the Juan de Fuca Ridge", Abstract OB24E-0552A, presented at 2026 Ocean Sciences Meeting, Feb 2026.

He, Q., X. Liang, **G. Xu**, D. McGillicuddy, and L. Mullineaux, "Mesoscale Eddies Modulate Along-Ridge Jets over the East Pacific Rise", Abstract DS14A-V3001, presented at 2026 Ocean Sciences Meeting, Feb 2026.

Soule, D., **G. Xu**, K. Bemis, W. Chadwick, "Temporal Variations in Hydrothermal Venting Across Eruption Cycles at Axial Seamount, Northeast Pacific", Abstract DS24A-0238, presented at 2026 Ocean Sciences Meeting, Feb 2026.

Mickett, J., R. Harcourt, **G. Xu**, B. Hefner, D. Tang, K. Prakash, "Interannual Variability in the Presence and Strength of Secondary Acoustic Ducts on the U.S. Pacific Northwest Shelf", Abstract PS44F-1750, presented at 2026 Ocean Science Meeting, Feb 2026.

Xu, G. and C. German, "Modeling of Hydrothermal Plume Dispersion during Expedition At50-15 at the Endeavour Segment of the Juan de Fuca Ridge", Abstract OS41H-0545, presented at 2024 Fall Meeting, American Geophysical Union (AGU), Dec 2024.

Dinneen, M., **G. Xu**, J. N. Fitzsimmons, C. R. German, and J. W. Moffett, "Iron (II) persistence in Juan de Fuca hydrothermal non-buoyant plume: contributing factors and improving the estimates of oxidation rates", in AGU Fall Meeting Abstracts Vol. 2024, No. 546, pp. OS41H-0546, Dec 2024.

Dick, K., M. Dinneen, **G. Xu**, A. M. Seltzer, C. R. German, W. J. Jenkins, J. W. Moffett, and J. N. Fitzsimmons, "Mesoscale Dissolved Iron and Manganese Transformations in Hydrothermal Plumes", in AGU Fall Meeting Abstracts Vol. 2024, No. 547, pp. OS41H-0547, Dec 2024.

Branch, A., V. Preston, R. Lien, **G. Xu**, M. Burkitt-Gray, and C. German, "Evaluating In-Situ Measurements of Hydrothermal Plume Tracers for Autonomous Exploration and Sampling", in American Geophysical Union, Ocean Sciences Meeting, Abstracts DS34B-0397, Feb 2024.

Forno, N., K. G. Bemis, E. F. Weidner, and **G. Xu**, "Simulating Diffuse Hydrothermal Venting to Better Understand Deep-Sea Heat Flux", in American Geophysical Union, Ocean Sciences Meeting, Abstracts No. 164, pp. ED34B-0164, Feb 2024.

Xu, G., K. Bemis, D. Jackson, A. Ivakin, "Monitoring Hydrothermal Plumes at ASHES Vent Field, Axial Seamount through Quantitative Acoustic Imaging", Abstract #V040-0016 poster, presented at 2020 Fall Meeting, American Geophysical Union (AGU), 01-17, Dec.

Hefner, B.T., D.R. Jackson, **G. Xu**, A.N. Ivakin, "Evaluation of a physics-based inversion of multibeam echosounder data for sediment properties using data collected in Sequim Bay, WA", Abstract #IS24B-3299 poster, presented at 2020 Ocean Sciences Meeting, San Diego, CA, 16-21, Feb.

Xu, G., K. Bemis, D. Jackson, A. Ivakin, "Acoustic and In-situ Observations of Hydrothermal Discharge at ASHES Vent Field: an OOI Cabled Array Case Study", Abstract #OS51B-1492 poster, presented at 2019 Fall Meeting, American Geophysical Union (AGU), San Francisco, WA, 08-12, Dec.

Bemis, K. G., **G. Xu**, D. Jackson, A. Ivakin, "Fluid composition or bottom currents: What drives extremes in behavior of plumes at ASHES vent field, Axial Volcano?", Abstract #OS51B-1493 poster, presented at 2019 Fall Meeting, American Geophysical Union (AGU), San Francisco, WA, 08-12, Dec.

Xu, G., K. Bemis, D. Jackson, A. Ivakin, T. McGinnis, A. Marburg, "Acoustic and In-situ Observations of Hydrothermal Discharge at ASHES Vent Field: an OOI Cabled Array Case Study", Abstract #190531-094 poster, presented at Oceans 2019, Seattle, WA, 27-31, Oct.

Xu, G., L. Germanovich, D. Jackson, A. Ivakin, A. Marburg, K. Bemis, "In situ and Acoustic Observations of Hydrothermal Discharge at ASHES Vent Field: preliminary results from an OOI Cabled Array Case Study", Abstract V43G-0206 poster, presented at 2018 Fall Meeting, American Geophysical Union (AGU), Washington, D.C., 10-14, Dec.

Ivakin, A. N., K. G. Bemis, and **G. Xu**, "Remote characterizing diffuse hydrothermal flows using multi-beam sonar", Abstract OS43A-1999 poster, presented at 2015 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 14-18, Dec.

K. G. Bemis, **G. Xu**, and R. Lee, "COVIS Detects Interconnections Between Atmospheric, Oceanic and Geologic systems at a Deep Sea Hydrothermal Vent", Abstract OS43A-1993 poster, presented at 2015 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 14-18, Dec.

Larson, B. I., **G. Xu**, K. G. Bemis, and D. A. Butterfield, "Integrated data from the NEPTUNE observatory highlight role of sub-seafloor processes in rapid temperature, salinity, and heat spiking after seismic activity", Abstract OS43A-1994 poster, presented at 2015 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 14-18, Dec.

Ivakin, A., D. R. Jackson, K. G. Bemis, and **G. Xu**, "Quantification of Diffuse Hydrothermal Flows Using Multibeam Sonar" Abstract V21A-4727 poster, presented at 2014 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 15-19 Dec.

Xu, G. and K. G. Bemis, "Modeling mid-ocean ridge hydrothermal response to earthquakes, tides, and ocean currents: a case study at the Grotto mound, Endeavour Segment, Juan de Fuca Ridge" Abstract V21A-4726 poster, presented at 2014 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 15-19 Dec.

Xu, G., D. R. Jackson, K. G. Bemis and P. A. Rona, "Time-series measurements of hydrothermal plume volume flux with imaging sonar" Abstract OS41C-1741 poster, presented at 2012 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 3-7 Dec.

DiIorio, D., J. W. Lavelle and **G. Xu**, "The Deep Sea Hydrothermal Plume at Dante and Its Interaction with Tidal Flow" Abstract v11e-2545 poster, presented at 2011 Fall Meeting, American Geophysical Union (AGU), San Francisco, Calif., 5-9 Dec.

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