Bradford J. Foley
Associate Professor, Department of Geosciences, Pennsylvania State University
534 Deike Building
University Park, PA 16802
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Education

2014	Yale University, New Haven, CT Ph. D., Geology and Geophysics
2011	Yale University, New Haven, CT M. Phil., Geology and Geophysics
2008	University of Southern California, Los Angeles, CA B.S. *magna cum laude*, Geological Sciences

Research and Professional Experience

2022-present	Associate Professor, Department of Geosciences, Penn State University
2016-2022	Assistant Professor, Department of Geosciences, Penn State University
2014-2016	Postdoctoral Associate, Department of Terrestrial Magnetism, Carnegie Institution for Science
2008-2014	Graduate Student, Department of Geology and Geophysics, Yale University, advisor: David Bercovici
2007-2008	Undergraduate Researcher, University of Southern California, supervised by Thorsten Becker

Publications

*Denotes undergraduate research advisee
**Denotes graduate research advisee or co-advisee

In prep/Submitted/In revision

[40] Hill, M., Kane, S., and **Foley, B. J.**, Smaller Than Earth Habitability Model (STEHM): Exploring the Lower Planet Size Boundary of Habitability. *The Planetary Science Journal*, submitted.

[39] Kane, S., Hill, M., Brounce, M., **Foley, B. J.**, Kopparapu, R., Miles, E., Schwieterman, E., Arney, G., Garvin, J., Getty, S., Head, J., Johnson, N. M., Kohler, E., Lyons, T., Unterborn, C., and Ostberg, C. Reuniting Twins: Will Earth Evolve into a Venus Analog? *The Planetary Science Journal*, submitted.

[38] **Choi, H. and **Foley, B. J.** Deep learning-based tracking of subduction zones in mantle convection models. *Journal of Geophysical Research: Solid Earth*, in revision.

[37] **Choi, H. and **Foley, B. J.** Establishment of subduction at early Earth continent margins by migration: Implications for interpreting geochemical observations. *Earth and Planetary Science Letters*, in revision.

[36] Skemer, P., Cross, A. J., **Foley, B. J.**, and Putirka, K. D. The effect of composition on shear localization in planetary lithospheres. *Journal of Geophysical Research: Planets*, resubmitted after revision.

[35] Brenner, A. R, Fu, R. R., **Foley, B. J.**, Lourenço, D. L., Palma-Gomez, J., Gong, Z., Steele, S. C., Li, J., Flannery, D. T., Brown, A. J., Hodgin, E. B. Paleomagnetic detection of intermittent plate motions and a reversing core dynamo 3.5 Ga ago, *Science*, resubmitted after revision.

[34] Byrne, P., Dawson, H. G., Klimczak, C., Regensburger, P. V., Catalano, J. G., Dawswani, M. M., Elder, C. M., **Foley, B. J.**, German, C. R., Green, A. P., Hemingway, D. J., Panning, M. P., Randolph-Flagg, N., Sherwood-Lollar, B., Skemer, P. A., Wiens, D. A., and Vance, S. D. Little to No Active Faulting Likely at Europa's Modern-Day Seafloor. *Nature Communications*, resubmitted after revision.

Published

[33] **Stone, A. T., **Foley, B. J.**, Tutolo, B. M., and Lau, K. V. (2025). Lithological Controls on Aqueous Phosphorus on Ocean-Covered Exoplanets. *The Planetary Science Journal*, accepted.

[32] Tusay N., Wright J. T., Beatty, T. G., Desch, S., Colón, K., Mittal, T., Osborn, H. P., Estrada, B. C., Owen, J. E., Libby-Roberts, J., Gupta, A. F., **Foley, B. J.**, Valdés, E. M., Stevens, D. J., and Herbst, A. (2025). A Disintegrating Rocky World Shrouded in Dust and Gas: Mid-infrared Observations of K2-22 b Using JWST. *The Astrophysical Journal Letters*, *987*(1), L6.

[31] **Choi, H. & **Foley, B. J.** (2024) A limited effect of continents on subduction initiation for convection with grain-damage. *J. Geophys. Res. Solid Earth.* doi:10.1029/2024JB029136

[30] **Foley, B. J.** (2024). Generation of Archean TTGs via Sluggish Subduction. *Geology.* doi:10.1130/G52196.1.

[29] **Foley, B. J.** (2024). Exoplanet Geology: What can we learn from current and future observations? *Reviews in Mineralogy and Geochemistry*, 90(1), 559-594. doi:10.2138/rmg.2024.90.15.

[28] Stüeken, E. E., Olson S. L., Moore, E. & **Foley, B. J.** (2024). The early Earth as an analogue for exoplanetary biogeochemistry. *Reviews in Mineralogy and Geochemistry,* 90(1), 515-558. doi:10.2138/rmg.2024.90.14.

[27] Teixeira, K. E., Morley, C. V., **Foley, B. J.**, & Unterborn, C. T. (2023). The Carbon-Deficient Evolution of TRAPPIST-1c. *The Astrophysical Journal*, *960*(1), 44. doi: 10.3847/1538-4357/ad0cec.

[26] Way, M.J., Ostberg, C., **Foley, B.J.**, Gillmann, C., Höning, D., Lammer, H., O'Rourke, J., Persson, M., Plesa, A.C., Salvador, A. and Scherf, M., (2023). Synergies Between Venus & Exoplanetary Observations: Venus and Its Extrasolar Siblings. *Space Science Reviews*, *219*(1), p.13, doi: 10.1007/s11214-023-00953-3.

[25] Brenner, A. R., Fu, R. R., Kylander-Clark, A. R. C., Hudak, G. J., **Foley, B. J.** Plate motion and a dipolar geomagnetic field at 3.25 Ga. (2022). *Proceedings of the National Academy of Sciences,* 119 (44), e2210258119, doi:10.1073/pnas.2210258119.

[24] Crossfield, I. J., Malik, M., Hill, M. L., Kane, S. R., **Foley, B. J.**, Polanski, A. S., ... & Morales, F. Y. (2022). GJ 1252b: A Hot Terrestrial Super-Earth With No Atmosphere. *The Astrophysical Journal Letters,* 937(1), L17, doi:10.3847/2041-8213/ac886b.

[23] Unterborn, C. T., **Foley, B. J.**, Desch, S. J., Young, P. A., Vance, G., Chiffelle, L., & Kane, S. R. (2022). Mantle Degassing Lifetimes through Galactic Time and the Maximum Age Stagnant-lid Rocky Exoplanets Can Support Temperate Climates. *The Astrophysical Journal Letters*, *930*(1), L6, doi:10.3847/2041-8213/ac6596.

[22] Kane, S. R., **Foley, B. J.**, Hill, M. L., Unterborn, C. T., Barclay, T., Cale, B., ... & Wittrock, J. M. (2021). Orbital Dynamics and the Evolution of Planetary Habitability in the AU Mic System. *The Astronomical Journal*, *163*(1), 20, doi:10.3847/1538-3881/ac366b.

[21] Byrne, P. K., **Foley, B. J.**, Violay, M. E., Heap, M. J., & Mikhail, S. (2021). The Effects of Planetary and Stellar Parameters on Brittle Lithospheric Thickness. *Journal of Geophysical Research: Planets*, *126*(11), e2021JE006952, doi:10.1029/2021JE006952

[20] *Batra, K., & **Foley, B. J.** (2021). Scaling laws for stagnant-lid convection with a buoyant crust. *Geophysical Journal International*, *228*(1), 631-663, doi:10.1093/gji/ggab366

[19] **Foley, B. J.**, C. Houser, L. Noack, and N. Tosi (2020), The Heat Budget of Rocky Planets in *Planetary Diversity: Rocky Planet Processes and Their Observational Signatures*, eds. E. J. Tasker, Y. Fujii, M. Laneuville, C. Unterborn, S. J. Desch, H. E. Hartnett, IOP Publishing, doi:10.1088/2514-3433/abb4d9ch4.

[18] **Foley, B. J.** (2020), Timescale of Short-Term Subduction Episodicity in Convection Models With Grain Damage: Applications to Archean Tectonics, *J. Geophys. Res. Solid Earth*, 125, e2020JB020478, doi:10.1029/2020JB020478.

[17] **Hayworth, B. P. and **Foley, B. J.** (2020), Waterworlds May Have Better Climate Buffering Capacities than Their Continental Counterparts, *The Astrophysical Journal Letters*, 902(1), L10, doi:10.3847/2041-8213/abb882.

[16] Kane, S. R., Roettenbacher, R. M., Unterborn, C. T., **Foley, B. J.**, and Hill, M. L. (2020), A Volatile-poor Formation of LHS 3844b Based on Its Lack of Significant Atmosphere, *The Planetary Science Journal*, 1(2), 36, doi:10.3847/PSJ/abaab5.

[15] Bauer, A., J. Reimink, T. Chacko, **B. J. Foley**, S. Shirey, and G. Pearson (2020) Hafnium isotopes in zircons document the gradual onset of mobile-lid tectonics, *Geochem. Prosp. Lett. 14,* 1-6, doi: 10.7185/geochemlet.2015.

[14] **Hayworth, B., J. Haqq-Misra, R. C. Payne, N. E. Batalha, **B. J. Foley**, R. K. Kopparapu, Mma Ikwut-Ukwae, and J. F. Kasting (2020) Warming early Mars with climate cycling: The effect of CO_2-H_2O collision-induced absorption, *Icarus,* 113770, doi: 10.1016/j.icarus.2020.113770.

[13] **Foley, B. J.** (2019) Habitability of Earth-like stagnant lid planets: Climate evolution and recovery from snowball states, *Astrophys. J.*, 875:72, doi:10.3847/1538-4357/ab0f31

[12] **Foley, B. J.** (2018), The dependence of planetary tectonics on mantle thermal state: Applications to early Earth evolution, *Philos. Trans. Royal Soc. A*, 376: 20170409, doi:10.1098/rsta.2017.0409.

[11] **Foley, B. J.** (2018), On the dynamics of coupled grain size evolution and shear heating in lithospheric shear zones, *Phys. Earth Planet. Int.*, 283, 7-25, doi:10.1016/j.pepi.2018.07.008.

[10] **Foley, B. J.** and A. J. Smye (2018), Carbon cycling and habitability of Earth-size stagnant lid planets, *Astrobiology*, 18 (7), 873-896, doi:10.1089/ast.2017.1695

[9] **Foley, B. J.** and H. Rizo (2017), Long-term preservation of early-formed mantle heterogeneity by mobile lid convection: Importance of grainsize evolution, *Earth Planet. Sci. Lett., 475,* 94-105, doi:10.1016/j.epsl.2017.07.031.

[8] Lenardic, A., A. M. Jellinek, **B. J. Foley**, C. O'Neill, and W. B. Moore (2016), Climate-Tectonic Coupling: Variations in the Mean, Variations about the Mean, Variations in Mode, *J. Geophys. Res. Planets*,121, doi:10.1002/2016JE005089.

[7] **Foley, B. J.** and P. E. Driscoll (2016), Whole planet coupling between climate, mantle, and core: Implications for rocky planet evolution, *Geochem. Geophys. Geosyst.*, 17, 1885–1914, doi:10.1002/2015GC006210.

[6] **Foley, B. J.** (2015), The role of tectonic-climate coupling and exposed land area in the development of habitable climates on rocky planets, *Astrophys. J.*, 812, doi:10.1088/0004-637X/812/1/36

[5] **Foley, B. J.**, D. Bercovici, and L.T. Elkins-Tanton (2014), Initiation of plate tectonics from post-magma ocean thermo-chemical convection, *J. Geophys. Res. Solid Earth,* 119, 1-24, doi:10.1002/2014JB011121.

[4] **Foley, B.J.** and D. Bercovici (2014), Scaling laws for convection with temperature-dependent viscosity and grain-damage, *Geophys. J. Int.,* 199 (1): 580-603, doi:10.1093/gji/ggu275.

[3] **Foley, B. J.**, D. Bercovici, and W. Landuyt (2012), The conditions for plate tectonics on super-Earths: Inferences from convection models with damage, *Earth Planet. Sci. Lett.*, 331-332, 281-290, doi:10.1016/j.epsl.2012.03.028.

[2] **Foley, B. J.** and M. D. Long (2011), Upper and mid-mantle anisotropy beneath the Tonga slab, *Geophys. Res. Lett.*, 38, L02303, doi:10.1029/2010GL046021.

[1] **Foley, B. J.** and T. W. Becker (2009), Generation of plate-like behavior and mantle heterogeneity from a spherical, viscoplastic convection model, *Geochem. Geophys. Geosyst.*, 10, Q08001, doi:10.1029/2009GC002378.

Grants

Project/Proposal Title: Collaborative Research: GLOW: CSEDI: Compositional controls on shear localization and the development of plate tectonics on Earth and rocky planets
Source of Support: National Science Foundation
Total Award Amount: $409,681
Period of Performance: 9/1/2024-8/31/2027

Project/Proposal Title: Tracing Rocky Exoplanet Compositions
Source of Support: Arizona State University (NASA)
Total Award Amount: $460,246 to co-I Foley
Period of Performance: 1/1/2024-12/31/2028

Project/Proposal Title: Constraining the Abiotic Sulfur Cycle on Temperate Terrestrial Planets
Source of Support: Research Corporation for Science Advancement
Total Award Amount: $55,000 to co-I Foley
Period of Performance: 7/1/2023-6/30/2025

Project/Proposal Title: Water, water everywhere…drops to drink but nothing to eat? A model for the evolution of ocean chemistry on Waterworlds
Source of Support: Heising-Simons Foundation
Total Award Amount: $110,000 ($55,000 to co-I Foley)
Period of Performance: 10/1/2021 – 6/30/2024

Project/Proposal Title: CAREER: Testing models of early Earth crust formation and tectonics
Source of Support: National Science Foundation
Total Award Amount: $671,727
Period of Performance: 6/15/2021 – 6/14/2026

Project/Proposal Title: A new hypothesis for the initiation of plate tectonics on Earth: Feedback between subduction and continental crust growth
Source of Support: National Science Foundation
Total Award Amount: $334,241
Period of Performance: 08/01/2017 – 7/31/2022

REU supplement to: "A new hypothesis for the initiation of plate tectonics on Earth: Feedback between subduction and continental crust growth"
Total Award Amount: $7,159
Period of Performance: 06/01/2019 – 07/31/2020

Awards

2024-2025	Computational Infrastructure for Geodynamics Distinguished Speaker
2024	Visiting Fellow Commoner of Trinity College, University of Cambridge
2024	ETH Zurich Department of Earth Sciences, Distinguished Visiting Professor
2021-2023	Scialog Fellow for workshop "Scialog: Signatures of Life in the Universe"
2013	Elias Loomis Prize for excellence in studies of physics of the Earth, Yale University
2012	AAAS/Science Program for Excellence in Science, Two year sponsored AAAS/Science membership
2011	Estwing Hammer Prize for outstanding geology graduate student, Yale University

Teaching Experience

2021-present	Professor in charge of the Astrobiology Dual Title PhD program
2017-present	GEOSC 480: Planetary Geophysics, GEOSC 203: Physical processes in the geosciences, EARTH 2: The Earth system and global change, ABIOL 574: Planetary Habitability

Courses Developed

2019	EARTH 2: The Earth system and Global Change; lead general education recertification effort
2017	GEOSC 480: Planetary Geophysics

Students advised

2025-present	Wilnelia Barea-Carrion, M.Sc student
2024-present	Chandan Kumar Sahu, PhD student
2022-present	Yusuke Kubota, PhD student
2021-present	Adam Stone, PhD student
2020-present	Alex Thames, PhD student
2020-2025	Hee Choi, PhD; now postdoc at Georgia Tech
2017-2019	Matt Reinhold, M.Sc.; now PhD student at Stanford
2018-present	Ben Hayworth; PhD committee member and research co-advisor
2017-2021	Mariah MacDonald (Astronomy); PhD committee member and research co-advisor; now Assistant Professor at The College of New Jersey
2019-2021	James Kane, undergraduate researcher (advised jointly with Andy Smye)
2018-2021	Kyle Batra, undergraduate researcher; now PhD student at Purdue University
2018-2021	Qianyi Lu, undergraduate researcher; now PhD student at UC Davis
2017	Rishap Lamichhane, undergraduate researcher through GLADE REU program
2015	Sarah Barr Engel, Carnegie Institution summer intern

Invited Talks

Nov 2025	"Geodynamics of early Earth crust formation: Constraints on Earth's long-term tectonic and thermal evolution" Northwestern University DEEPS Colloquium
Oct 2025	"Geodynamics of early Earth crust formation: Constraints on Earth's long-term tectonic and thermal evolution" University of Chicago Geophysical Sciences Colloquium
April 2025	"Geodynamics of early Earth crust formation: Constraints on Earth's long-term tectonic and thermal evolution" Colorado State University Geosciences Colloquium
Feb 2025	"Geodynamics of early Earth crust formation: Constraints on Earth's long-term tectonic and thermal evolution" UN Reno Geological Sciences and Engineering Colloquium
Nov 2024	"Geodynamics of early Earth crust formation: Constraints on Earth's long-term tectonic and thermal evolution" UNAM (Mexico City) Geophysics Institute Colloquium
Oct 2024	"Geodynamic constraints on early Earth crust formation and tectonics" Rice University EEPS Colloquium

Oct 2024	"Geodynamic constraints on early Earth crust formation and tectonics" Michigan State University EES Colloquium
Aug 2024	"Exoplanet Geology: What can we learn from current and future observations?" Pre-Goldschmidt Workshop, Exoplanets: Compositions, Mineralogy, Evolution
June 2024	"Geodynamic constraints on early Earth crust formation and tectonics" Durham University (UK)
June 2024	"Geodynamic constraints on early Earth crust formation and tectonics" Cambridge University Bullard Laboratory Seminar
May 2024	"Airless rocky planets: Opportunities to learn about exoplanet geology" Oxford University SPIMAX Seminar
May 2024	"Geodynamics of early crust formation: Constraints on Earth's long-term tectonic and thermal evolution" University College London
March 2024	"Testing models of early Earth tectonics and crust formation: Subduction versus stagnant lid" Ludwig-Maximilian University (Munich, Germany) Geophysics Seminar
March 2024	"Planetary interior controls on the habitability of rocky exoplanets" ETH Zurich Center for Origin and Prevalence of Life Seminar
March 2024	"Testing models of early Earth tectonics and crust formation: Subduction versus stagnant lid" University of Bern (Bern, Switzerland) Colloquium
Feb 2024	"Testing models of early Earth tectonics and crust formation: Subduction versus stagnant lid" ETH Zurich Geophysical Fluid Dynamics Seminar
Jan 2024	"Volcanic outgassing on rocky exoplanets: Controls on atmosphere retention and habitability" Kapteyn Astronomical Institute Seminar, University of Groningen
Jan 2024	"Geodynamics models of early Earth crust formation: Stagnant-lid, plate tectonics, or something in between?" Virtual Seminars in Precambrian Geology
Aug 2023	"Geodynamics models of early Earth crust formation: Stagnant-lid, plate tectonics, or something in between?" Purdue University Colloquium
Nov 2022	"Planetary interior controls on the habitability of rocky exoplanets" Georgia Tech University Astrobiology Seminar
October 2022	"Planetary interior controls on the habitability of rocky exoplanets" University of Texas Jackson School of Geosciences DeFord Lecture
June 2022	"Mantle Convection and Tectonics"

	2022 CIDER Lecture
May 2022	"Subduction styles on the early Earth and the Generation of Archean Continental Crust"
	University of Muenster Geophysics Colloquium
May 2022	"Compositional constraints on the lifetime of habitable climates on rocky exoplanets"
	European Geophysical Union General Assembly
May 2022	"Is exposed land required for life to develop and flourish?"
	PCE3 Research Showcase, Astrobiology Science Conference
March 2021	"Short-term subduction episodicity on the early Earth: Implications for TTG generation"
	Harvard University Geophysics and Planetary Seminar
Feb 2021	"Surface-interior volatile cycling controls on exoplanet atmosphere evolution"
	University of Maryland Center for Environmental Science Seminar
October 2020	"Physical crustal evolution"
	Inaugural Prebiotic Chemistry and Early Earth Environments (PCE3) Community Workshop
May 2020	"Lifetime of habitable climates on stagnant lid planets"
	University of Chicago Zoom Conference: What makes a planet uninhabitable?
Jan 2020	"Geodynamics of planetary habitability: Role of planet composition"
	AAS 2020 winter meeting
Nov 2019	"Venus as an exoplanet (How surface-interior coupling can lead to wildly different outcomes)"
	CalTech Venus Seminar
Nov 2019	"Models of Thermal Evolution and Atmosphere Generation for Rocky Planets: Temperate/Volatile-Rich Planets"
	Rocky Exoplanets in the era of JWST workshop, NASA Goddard
July 2019	Lecturer, Astrobiology summer school
	Santander, Spain
July 2019	"Prospects for habitability of Earth-sized stagnant lid planets"
	German Aerospace Center (DLR), Berlin, Germany
June 2019	"Tectonic styles on the early Earth"
	2019 Geobiology Conference
June 2019	"Unanswered questions in planetary evolution"
	Interior of the Earth Gordon Research Conference
Feb 2019	"Prospects for habitability of Earth-sized stagnant lid planets"
	Arizona State University NEXSS seminar
Dec 2018	"Climate Stability and Habitability of Earth-like Stagnant Lid Planets"
	AGU Fall meeting
October 2018	"Prospects for habitability of Earth-sized stagnant lid planets"
	University of Washington Astrobiology Seminar

June 2018	"Constraints on early Earth tectonics from convection models with damage theory" Computational Infrastructure for Geodynamics (CIG) 2018 meeting
April 2018	"Climate Stability and Habitability of Earth-like Stagnant Lid Planets" EGU General Assembly
March 2018	"Constraints on early Earth tectonics from convection models with damage theory" Royal Society Discussion Meeting, "Earth dynamics and the development of plate tectonics"
June 2017	"Controls on the tectonic evolution of terrestrial planets" Gordon Research Conference on The Origin of Solar Systems
March 2017	"Early Earth Geodynamics: Insights from Convection Models with Grainsize Evolution" Rutgers University
Dec 2016	"Weathering on a Stagnant Lid Planet: Prospects for Habitability?" AGU Fall meeting
Sept 2016	"Early Earth Geodynamics: Insights from Convection Models with Grainsize Evolution" University of Maryland
Dec 2015	"Whole Planet Coupling from Climate to Core: Implications for the Evolution of Rocky Planets and their Prospects for Habitability" AGU Fall meeting
May 2015	"Long Mantle Mixing Times for the early Earth Inferred from Convection Models with Grain-Damage" AGU Spring meeting
March 2015	"Initiation of Plate Tectonics and the Development of Habitable Climates on Rocky Planets" Penn State University
Feb 2015	"Plate Tectonics, Carbon Cycling, and Planetary Habitability" Lamont-Doherty Earth Observatory Geodynamics Seminar
July 2014	"Initiation of Plate Tectonics on the Early Earth: Insights from Numerical Convection Models" Department of Terrestrial Magnetism Seminar
June 2014	"Coupling Between Climate and Tectonics via Plate Generation with Grain-Damage" Deep Carbon Cycle Modeling Workshop
May 2014	"Generation of Plate Tectonics with Grain-Damage and Implications for Planetary Habitability" Dept. of Terrestrial Magnetism Astronomy Seminar
April 2014	"Initiation of Plate Tectonics from Post-Magma Ocean Thermochemical Convection" University of Texas, Austin

February 2014	"Initiation of Plate Tectonics from Post-Magma Ocean Thermochemical Convection" University of Houston
April 2013	"Is Plate Tectonics Likely on Super-Earths? Inferences from Convection Models with Damage," Scripps Institution for Oceanography, University of California San Diego
March 2013	"Is Plate Tectonics Likely on Super-Earths? Inferences from Convection Models with Damage," Department of Terrestrial Magnetism Seminar

Professional and University Service

2012-present	Reviewer, *Geochem., Geophys., Geosyst., Phys. Earth Planet. Int., J. Geophys. Res., J. Fluid Mech., Progress Earth Planet. Sci., Mon. Not. R. Astron. Soc., Nature Astronomy, Astronomy & Astrophysics, Earth Planet. Sci. Lett., Comptes Rendus Geoscience, Geophys. Res. Lett., Astrophys. J., Planetary Science Journal, Proc. Natl. Acad. Sci. U.S.A., Geology, Nature Geoscience.* Proposals for NASA, NSF, Swiss NSF, German Research Foundation
2024-present	Director, Planetary Systems Science Center
2017-present	Member of graduate admissions committee (2017-2018 & 2018-2019); search committee member (2017 & 2019-2020); graduate program committee (2018-2023); executive committee (2019-2020 & 2024-2025)
2021-2023	Member of Graduate Council Subcommittee on New and Revised Programs and Courses
2020-2021	Co-chair, graduate admissions committee
2022	Session convener: "Advances in mantle convection and planetary evolution" Fall AGU Meeting
2020	Session convener: "Ancient Earth evolution: From magma ocean solidification through the Archean" Fall AGU Meeting
2019	Session convener: "A Deep Dive into Lowermost Mantle Processes" Fall AGU Meeting
2018	Session convener: "The Archean Earth and Its Venusian Analog" & "Diverse Perspectives on the Deep Mantle" Fall AGU Meeting
2016	Session convener: "Surface-Interior Coupling on Earth, Venus, and Rocky Exoplanets: Influences on Planetary Evolution and Habitability" Fall AGU Meeting
2018-present	Organizing committee member for 2020 (postponed to 2022) CIDER program
2018-2019	Lead writing committee for white paper: "Planetary Systems Science at Penn State," to promote formation of a planetary sciences research center at Penn State

Outreach

2017-2019	Activity leader for Penn State Dept. of Geoscience's "Shake, Rattle, Rocks" education outreach event
2016	Judge for Washington DC Middle and High School STEM fair

Media Appearances or Coverage

- Interviewed for articles "Super-Earths are not a Good Place for Plate Tectonics" Science News, 2015; "The Unexpected Ingredient Necessary for Life" BBC News, 2016; "Earth's Changing Magnetic Field" Sky & Telescope Magazine, 2017; "Earth's Tectonic Activity May Be Crucial for Life—and Rare in Our Galaxy" Scientific American, 2017; "Why Earth's Cracked Crust May Be Essential For Life" Quanta Magazine, 2018
- Media coverage of research papers: "Becoming Habitable in the Habitable Zone" EOS, 2016 (Based on Foley & Driscoll, 2016); "How to make a planet habitable" Geolog, EGU blogs, 2018 & "Plate Tectonics not needed to sustain life" Penn State News, 2018 (both based on Foley & Smye, 2018)