

DEBJANI SIHI

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Employment History

- Core Faculty, Population Biology, Ecology, and Evolutionary Biology Program, Emory University (Feb, 2021 to present)
- Assistant Professor, Department of Environmental Sciences, Emory University (Sept, 2020 to present)
- Post-Doctoral Research Associate, Environmental Sciences Division at the Oak Ridge National Laboratory (Jan, 2018 to Aug, 2020)
- Assistant Research Scientist, University of Maryland Center for Environmental Science, Appalachian Laboratory (Aug, 2015 to Dec, 2017)
- Visiting Post-Doctoral Fellow, Organismic and Evolutionary Biology, Harvard University (Jan, 2016 to Aug, 2018)

Education

- Doctor of Philosophy, Soil and Water Science (Terrestrial Biogeochemistry), Graduate Research Assistant, University of Florida, Gainesville, FL, USA, 2011 – 2015
- Master of Science, Environmental Sciences (Minor: Microbiology), Junior Research Fellow of Indian Council of Agricultural Research, Indian Agricultural Research Institute, New Delhi, India, 2009 – 2011
- Bachelor of Science, Soil Science (Honors: Agriculture), University Research Scholar, Bidhan Chandra Krishi Viswavidyalaya, WB, India, 2004 – 2008

Honors and Awards

National/International Level (post-graduation)

- [S. A. Wilde Early Career Achievement Award](#), Forest, Range & Wildland Soils Division, Soil Science Society of America, 2022.
- Soil Ecology Society [Best Student Authored Paper Award](#), 2019.
- [Gene E. Likens Award](#) (outstanding publication award for an early career scientist), Ecological Society of America, Biogeosciences section, 2018.
- [Top Reviewers for Multidisciplinary](#), Publons Peer Review Award, 2017.
- Outstanding Reviewer Recognition, Elsevier Journal(s): Atmospheric Environment and Agricultural and Forest Meteorology, 2017.
- Energypath Scholarship, Sustainable Energy Fund, an independent non-profit organization in Pennsylvania, USA, @\$1000, 2017.

University Level (post-graduation)

- Recognition for Excellent Teaching, Gamma Chapter of Georgia, The Phi Beta Kappa Society, 2023.
- [Emory Global Health Institute \(EGHI\) Faculty Fellow](#), 2021-2022.
- [Alumni Spotlight](#), Myakka Newsletter, Soil and Water Sciences Dept, University of Florida, Spring 2021.
- Excellence in Graduate Studies (Ph.D. Level), Soil and Water Science Dept, University of Florida, 2015.

National/International Level (as a graduate student at University of Florida)

- Runner-up in Oral presentation, ASA-CSSA-SSSA international annual meeting under the section of “Wetland Soils” @ \$200, 2014.
- One of the top three presenters in poster presentation, ASA-CSSA-SSSA international annual meeting under the section of “ACS Diversity Graduate Student Poster Competition” @ \$200, 2014.
- Invited participant, Graduate Student Leadership Conference, ASA-CSSA-SSSA International Annual meeting, Nov 2-5, 2014, Long Beach, California, USA.
- One of the top three presenters in Oral presentation, ASA-CSSA-SSSA international annual meeting under the section of “Wetland Soils” @ \$100, 2013.

University Level (as a graduate student at University of Florida)

- Excellence in Graduate Studies (Ph.D. Level), Soil and Water Science Dept, 2015.
- Recognition of High Scholarship, Outstanding Achievement or Service by Delta Epsilon Iota Academic Honor Society, 2015.
- Recognition for Outstanding service, Mayors' Council, 2015.
- A. S. Herlong Sr. Graduate Scholarship, IFAS/CALS, @ \$2,000, 2014, 2015.
- Outstanding CALS (College of Agricultural and Life Sciences) international student, University of Florida International Center, 2013, 2014.
- William Robertson Fellowship, Soil and Water Science Department @ \$1000, 2013-2014.
- William C. and Bertha M. Cornett Fellowship, IFAS/CALS, @ \$2,000, 2013-2014.
- Nominated among 13 finalists for Alec Courtelis Award, 2014.
- Recognition from International Honorary for Leaders in University Apartment Community, 2014.
- Recognition from University Multicultural Mentor Program and College of Education, 2013.
- Institute of Food and Agricultural Sciences (IFAS) Travel Grant @ \$200, 2013, 2014, 2015.
- Office of the Vice President for Research Travel Grant @ \$400, 2013, 2014.
- Graduate Student Council Travel Grant, @ \$350, 2012, 2013, 2014.
- Davidson Graduate Student Travel Scholarship, @ \$300 2013, 2014.
- Graduate School Grinter Fellowship, @ \$2,416, 2011, 2012.

Media appearance and Featured works

- [NCA&T and Cooperative Extension support Beginning Farmers and ranchers in Climate-Smart Farm Enterprises](#)
- International Soil Modeling Consortium (ISMC) Featured Soil Modeler: <https://soil-modeling.org/news/meetings-reports-publications/ismc-news-15-november-2022>
- Soil quality critical to help U.S. crops weather heat stress from climate change: [Emory News Center](#) and [eScienceCommons](#)
 - EurekAlert, AAAS, Features & Articles: <https://www.eurekalert.org/news-releases/958572>
 - PHYS ORG: <https://phys.org/news/2022-07-soil-quality-critical-crops-weather.html>
 - Montana News: <https://darik.news/montana/soil-quality-critical-to-helping-some-us-crops-weather-heat-stress-from-climate-change/590909.html>
 - Environmental News Network: <https://www.enn.com/articles/70731-soil-quality-critical-to-help-some-u-s-crops-weather-heat-stress-from-climate-change>
 - Whatsnews2day: <https://whatsnews2day.com/soil-quality-critical-to-help-some-us-crops-weather-heat-stress-from-climate-change/>
 - ClimateChange.ie: <https://www.climatechange.ie/soil-quality-critical-to-help-some-u-s-crops-weather-heat-stress-from-climate-change/>
 - Environmental News Bits: <https://envnewsbits.info/2022/07/29/soil-quality-critical-to-help-some-u-s-crops-weather-heat-stress-from-climate-change/>
 - Earth.com: <https://www.earth.com/news/soil-quality-can-help-crops-survive-rising-temperatures/>
 - Lab Manager: <https://www.labmanager.com/news/soil-quality-critical-to-help-some-us-crops-weather-heat-stress-28436>
 - TabbedNews: <https://tabbed.info/science/details/27718/Soil-Quality-Critical-to-Help-US-Crops-Weather-Heat-Stress-From-Climate-Change>
 - BCPC: <https://www.bcpc.org/newslink/soil-quality-critical-to-help-some-u-s-crops-weather-heat-stress-from-climate-change-2>
 - Asmeny: <https://asmeny.org/soil-quality-is-key-to-helping-some-u-s-crops-withstand-heat-stress/>
 - Futurity: <https://www.futurity.org/soil-water-agriculture-2766432-2/>
 - Farms.com: <https://www.farms.com/news/soil-quality-critical-to-help-some-us-crops-weather-heat-stress-from-climate-change-182243.aspx>
 - Organic Federation of Canada: <https://organicfederation.ca/infobio/ag-policy-consultation-its-time-to-push-for-a-canada-organic-program/>
 - The Western Producer: Managing soil mitigates climate change: study: <https://www.producer.com/news/managing-soil-mitigates-climate-change-study/>

- Predicting Methane Dynamics during Drought Recovery: [DOE Office of Science Highlight](#)
 - News Wise, DOE Science News Source: <https://www.newswise.com/doescience/>
 - EurekAlert, AAAS, Features & Articles: <https://www.eurekalert.org/news-releases/949725>
 - DOE ESS Research Highlight: [Predicting Methane Dynamics during Drought Recovery](#)
- Cool Tools for Viewing Redox Status in Real Time and Quantifying Soil Total Iron: [Cover page on CSA News \(Vol 67, Issue 3\)](#)
- Inexpensive Color Sensor Quantifies Soil Total Iron: [Highlight on CSA News](#)
- Valent Awards Three Funded Projects in Agriculture: <https://www.halo.science/blog/valent-research-awards-three-funded-projects-in-areas-of-agricultural-advancement/>
- Paint Color-matcher quantifies iron levels in soil: <https://esciencecommons.blogspot.com/>, https://news.emory.edu/stories/2022/05/esc_iron_levels_in_soil_sihi_26-05-2022/story.html
- Mentioned in OPB News: <https://www.opb.org/article/2022/07/21/oregon-research-agriculture-water-shortage-solar-panels-solution/>
- Computationally Yours podcast: [Climate Change](#)
- Editors' Highlights on Eos: [Dueling Eyes on Ecosystem Metabolism Tell Diverging Stories](#)
- [Invited Article for Global Change Biology's 25th Anniversary](#)
- Featured Article in [Agricultural & Environmental Letters](#)
- [Invited Article for Global Change Biology's 25th Anniversary](#)
- Top downloaded papers from Wiley in 2021 for Reviews of Geophysics, Agronomy Journal, Agricultural & Environmental Letters
- Top downloaded [paper](#) 2018-2019: One of the most read in Journal of Geophysical Research: Biogeosciences
- Research Highlights: Biogeochemistry: Peat decomposition. Nature Climate Change 7, 686-686, 2017, DOI: [10.1038/nclimate3406](https://doi.org/10.1038/nclimate3406).
- SCIENCE TRENDS, 2018: [Soil Heterotrophic Respiration And The Earth System Model](#), DOI: [10.31988/SciTrends.18878](https://doi.org/10.31988/SciTrends.18878).
- [UF/IFAS High Impact Research Publications, 2017](#): One of the short-listed articles
- Research Matters, Science Media Centre, Indian Institute of Science, Bangalore, India, 2017: [Soil health improves with organic farming in long and short terms, shows study](#).

External Fundings

- “Quantifying the Potential to Reduce Greenhouse Gas Emissions and Increase Carbon Sequestration by Growing and Marketing Climate-Smart Commodities in the Southern Piedmont”, United State Department of Agriculture, Partnerships for Climate-Smart Commodities Program, Co-PI, @\$25M (total, [Lead: Rodale](#)), \$5.1M for Emory and \$1.3M for Sihi.
- “Measuring & modeling agricultural carbon sequestration through a microbial lens”, Valent Biosciences (Call for the award: [Carbon sequestration in agricultural soils on Halo platform](#)), PI, @\$220,000.
- “Outreach Assistance to Increase the Land Ownership of beginning farmers and ranchers; and Improved Management Practices”, United State Department of Agriculture, Beginning Farmer and Rancher Development Program, Co-PI, @\$704,885 (total, Lead: NC Agricultural and Technical State University), \$84,864 for Emory ([Agreement #: 2022-70033-38199](#)).
- “Integrated Modeling of Climate Resilient Biorefineries and Landscapes (CREBL) for a Sustainable Bioeconomy”, USDA NIFA AFRI FAS ‘Sustainable Bioeconomy through Biobased Products’ Program, Co-I, @\$900,000 (total, Lead: Iowa State University), \$90,000 for Emory (subaward through NC Agricultural and Technical State University) (accepted for funding).
- “Coupling X-ray Computed Tomography images with ModEx inspired laboratory manipulation experiment for predicting greenhouse gas fluxes from Terrestrial-Aquatic Interfaces”, Environmental Molecular Science Laboratory (EMSL) Large Scale Research User Proposal, US Department of Energy, <https://doi.org/10.46936/lser.proj.2022.60398/60008566>, PI, @ \$50,000 (total) for in-kind contribution.
- “Rhizosphere mediation of soil-atmosphere greenhouse gas exchange in a warming, drying and more extreme climate”, Australian Research Council, Discovery Grant, Co-PI, @\$460,520 (total), \$30,777 for in-kind contribution for Emory.

- “Upscaling soil organic carbon measurements at the continental scale by understanding emergent ecosystem properties and spatial representativeness analysis”, National Science Foundation, Macrosystem Biology and NEON-Enabled Science, PI, @\$300,000 (total), \$252,610 for Emory ([Award #: DEB-2106137](#)).
- “Using probability distribution function as a scaling approach to incorporate soil heterogeneity into biogeochemical models for greenhouse gas predictions”, US Department of Energy Office of Science, Environmental System Science (DE-FOA-0001855), PI, @ \$300,000 (total), \$276,000 for Emory ([Award #: DE-SC0022314](#)).
- “Understanding biophysical drivers of the CH₄ source–sink transition in Northern Forests”, National Science Foundation, Division of Environmental Biology, Co-PI, @\$1.66M (total, Lead: Woodwell Climate Research Center), \$329,238 for Emory ([Award #: DEB-2208659](#)).

Internal Fundings

- “Modeling Soil Carbon for Climate-Smart and Sustainable Future”, [Halle Institute for Global Research, Emory University and The Halle Foundation Collaborative Research Grant](#), Sept 2020, PI, @\$30,000.
- “Building Soil Organic Matter through Biochar Amendment: A Climate-Smart Approach to Ensure Food Security”, [University Research Council, Emory University](#), June 2021, PI, @ \$29,388.
- “Managing soil health in an organic food production system under changing climate”, [Program to Enhance Research and Scholarship](#), Emory College of Arts and Sciences, Emory University, March 2021, PI, @\$4,000.

Other External and Internal Fundings

- “Water equity and racial justice in Atlanta, Georgia”, Emory Resilience and Sustainability Collaboratory (RSC) Proposal to Apple, one of the 20 RSC team members (Pending decision).
- “Implications of teacher knowledge and attitudes: A cross-national exploration of secondary math teacher preparation”, Center for Science of Information’s Frontiers Education Program, NSF Science and Technology Center at Purdue University, Co-I, Sept 2019, @\$7,469.
- “Linking Root Traits with Soil Carbon”, Climate Change Science Institute, Oak Ridge National Laboratory, Apr 2018, Co-I, @\$28,000.
- “FTICRMS and EEMs analysis to assess if the molecular composition of dissolved organic C (DOC) alters with warming of subtropical wetland soils”, submitted to the Environmental Molecular Science Laboratory, Pacific Northwest National Laboratory, Graduate Student Research Award, May 2015.

Peer-reviewed Articles (h-index: 15, i10-index: 20, [Google Scholar](#), [ORCID](#))

Published/Accepted

1. Weintraub-Leff, S. R., Hall, S., Craig, M., **Sihi, D.**, Wang, Z., and Hart, S. Standardized data to improve understanding and modeling of soil nitrogen at continental scale. *Earth’s Future*, 2023, doi: 10.1029/2022EF003224.
2. Hu J., Hartemink, A. E., Desai, A. R., Townsend, P. A., Abramoff, R. Z., Zhu, Z., **Sihi, D.**, and Huang, J. A. Continental-scale estimate of soil organic carbon change at NEON sites and their environmental and edaphic controls. *JGR Biogeosciences*, 2023, doi: 10.1029/2022JG006981.
3. **Sihi, D.**, Dari, B., Kuruvila, A. P., Jha, G., and Basu, K. Explainable Machine Learning Approach Quantified the Long-term (1981-2015) Impact of Climate and Soil Properties on Yields of Major Agricultural Crops across CONUS. *Frontiers in Sustainable Food Systems*, 6, 2022, <https://doi.org/10.3389/fsufs.2022.847892>.
4. O’Connell, C. S., Anthony, T. L., Mayes, M. A., Pérez, T., **Sihi, D.**, Silver, W., Utilizing novel field and data exploration methods to explore hot moments in high-frequency soil nitrous oxide emissions data: Opportunities and challenges. *Frontiers in Forests and Global Change*, 5:674348, 2022, <https://doi.org/10.3389/ffgc.2022.674348>
5. Bhaduri, D., **Sihi, D.**, Bhowmik, A., Verma, B. C., Munda, S., and Dari, B., A Review on Effective Soil Health Bioindicators for Ecosystem Restoration and Sustainability. *Frontiers in Microbiology*, 2022, doi: [10.3389/fmicb.2022.938481](https://doi.org/10.3389/fmicb.2022.938481)

6. Yuan, T., Chen, S., Zhang, Y., Ji, L., Dari, B., **Sihi, D.**, Xu, D., Zhang, Z., Yan, Z., and Wang, X. Mechanism of increased soil phosphorus availability in a calcareous soil by ammonium polyphosphate, 2022. DOI: <https://doi.org/10.1007/s00374-022-01650-z>
7. **Sihi, D.**, Xu, X., Ortiz, M. S., O'Connell C., Silver, W., López-Lloreda, C., Brenner, J., Quinn, R., Phillips, J., Newman, B., and Mayes, M. A. Improved representations of methane emissions from wet tropical forest soils using a microbial functional group-based model coupled with a diffusivity module. *Biogeosciences*, 18, 1-18, 2021, DOI: <https://doi.org/10.5194/bg-18-1-2021>.
8. Hollinger, D. Y., Davidson, E. A., Fraver, S., Richardson, A. D., Savage, K. E., **Sihi, D.**, and Teets, A. F. Multi-Decadal Carbon Cycle Measurements at the Howland Forest AmeriFlux Site. *Journal of Geophysical Research: Biogeosciences*, e2021JG006276, 2021, DOI: [10.1029/2021JG006276](https://doi.org/10.1029/2021JG006276).
9. Renchon, A. A., Drake, J. E., Macdonald, C. A., **Sihi, D.**, Hinko-Najer, N., Arndt, S. K., Noh, N., Davidson, E. A., and Pendall, E. Contribution of soil CO₂ efflux to seasonal and diurnal dynamics of ecosystem respiration in a dry sclerophyll forest, *Journal of Geophysical Research: Biogeosciences*, 126, e2020JG006221, 2021, DOI: [10.1029/2020JG006221](https://doi.org/10.1029/2020JG006221).
10. Baatz, R., Hendricks-Franssen, H., Euskirchen, E., **Sihi, D.**, Dietze, M., Van Looy, K., de Lannoy, G., Williams, M., Pauwels, V., Montzka, C., Mishra, U., Bogen, H., Adamescu, M., Fox, A., Görgen, K., Naz, B., and Vereecken, H. Reanalysis in Earth System Science: Towards Terrestrial Ecosystem Reanalysis. *Reviews of Geophysics*, 2021, DOI: [10.1029/2020RG000715](https://doi.org/10.1029/2020RG000715).
11. Jha, G., **Sihi, D.**, Dari, B., Kaur, H., Nocco, M. A., Ulery, A., and Lombard, K. Rapid and Inexpensive Assessment of Soil Total Iron Using NixPro Color Sensor. *Agricultural & Environmental Letters*, 6, e20050, 2021, DOI: [10.1002/acl2.20050](https://doi.org/10.1002/acl2.20050).
12. Graham E. B., Averill, C., Bond-Lamberty, B., Knelman, J. E., Krause, S., Peralta, A. L., Shade, A., Peyton A. S., Cheng, S., Fanin, N., Freund, C., Garcia, P. E., Gibbons, S. M., Van Goethem, M. W., Guebila, M. B., Kemppinen, J., Nowicki, R., Pausas, J. G., Reed, S., Rocca, J., Sengupta, A., **Sihi, D.**, Simonin, M., Słowiński, M., Spawn, S., Sutherland, I., Tonkin, J., Wisnoski, N., Zipper, S. C., and Contributor Consortium. Towards a unifying framework of disturbance ecology through crowdsourced science. *Frontiers in Ecology and Evolution*, 2021, DOI: [10.3389/fevo.2021.588940](https://doi.org/10.3389/fevo.2021.588940).
13. McLennon, E., Dari, B., Jha, G., **Sihi, D.**, and Vanaja, K., Targeting Regenerative Agriculture and Integrative Permaculture for Sustainable and Technology Driven Global Food Production and Security. *Agronomy Journal*, 2021, DOI: <https://doi.org/10.1002/agj2.20814>.
14. Jha, G., Kankarla, V., McLennon, E., Pal, S., **Sihi, D.**, Dari, B., Diaz, D., and Nocco, M. Per- and polyfluoroalkyl substances (PFAS) in Integrated Crop-Livestock Systems: Environmental exposure and human health risks. *International Journal of Environmental Research and Public Health*, 2021, DOI: <https://doi.org/10.3390/ijerph182312550>.
15. Raj, A., Mandal, J., Golui, D., **Sihi, D.**, Dari, B., Kumari, P. B., Ghosh, M., and Ganguly, P., Determining Suitable Extractant for Estimating Available Arsenic in Soil. *Water, Air & Soil Pollution*, 232, 247, 2021, DOI: <https://doi.org/10.1007/s11270-021-05215-y>.
16. Jha, G., Ulery, A., Lombard, K., VanLeeuwen, D., Brungard, C., Dari, B., and **Sihi, D.**, Monitoring Total Heavy Metal(loid)s and Bioavailable Arsenic in Agricultural Soils of Animas Watershed, New Mexico (USA). *Water, Air & Soil Pollution* 232, 308, 2021, DOI: <https://doi.org/10.1007/s11270-021-05249-2>
17. Nagy, RC, JK Balch, EK Bissell, ME Cattau, NF Glenn, BS Halpern, N Ilankoon, B Johnson, MB Joseph, S Marconi, C O'Riordan, J Sanovia, TL Swetnam, WR Travis, LA Wasse, PL Zarnetske and 2019 NEON Science Summit Participants (including **Sihi, D.**; 118 authors). Harnessing the NEON Data Revolution to Advance Open Environmental Science with a Diverse and Data-Capable Community. *Ecosphere*, 2021, DOI: <https://doi.org/10.1002/ecs2.3833>.
18. **Sihi, D.**, Davidson E. A., Savage K., and Dong Liang. Numerical representation of microsite production and consumption of trace gases in soil using frequency distributions, *Global Change Biology*, 26, 200-218, 2020. DOI: <https://doi.org/10.1111/gcb.14855> (Invited contribution to the special issue for 25-year anniversary of GCB).
19. Hawkins, L. R., Kumar, J., Luo, X., **Sihi, D.**, and Zhou, S. Measuring, Monitoring, and Modeling Ecosystem Cycling, *Eos*, 101, 2020. DOI: <https://doi.org/10.1029/2020EO147717>.
20. Jian, J., Gough, C. M., **Sihi, D.**, Hopple, A., and Bond-Lamberty, B. Collar properties and measurement time confer minimal bias on annual soil respiration estimates, *Journal of Geophysical Research: Biogeosciences*, 125, e2020JG006066, 2020. DOI: [10.1029/2020JG006066](https://doi.org/10.1029/2020JG006066).

21. Bond-Lamberty, B., Christianson, D. S., Malhotra, A., Pennington, S. C., **Sihi, D.**, ...et al., (>90 co-authors). COSORE: A community database for continuous soil respiration and other soil-atmosphere greenhouse gas flux data, *Global Change Biology*, 2020, DOI: <https://doi.org/10.1111/gcb.15353>.
22. **Sihi, D.***, Dari, B.*, Yan, Z., Sharma, D. K., Pathak, H., Sharma, O. P., and Nain, L. Assessment of Water Quality in Indo-Gangetic Plain of South-Eastern Asia under Organic vs. Conventional Rice Farming. *Water*, 12, 960, 2020, DOI: <https://www.mdpi.com/2073-4441/12/4/960> (* indicates equal contribution).
23. Loomis, G., Dari, B., Rogers, C. W., and **Sihi, D.** Evaluation of residue management practices on barley residue decomposition. *PLOS ONE*, 15, e0232896, 2020, DOI: <https://doi.org/10.1371/journal.pone.0232896>.
24. **Sihi, D.**, Inglett, P. W., and Inglett, K. S., Warming rate drives microbial nutrient demand and enzyme expression during peat decomposition. *Geoderma*, 336, 12-21, 2019, DOI: <https://doi.org/10.1016/j.geoderma.2018.08.027>.
25. Buchkowski, R., Shaw, A., **Sihi, D.**, Smith, G. R., and Keiser, A. Constraining carbon and nutrient flows in soil with ecological stoichiometry, *Frontiers in Ecology and Evolution*, 7:382, 2019, DOI: [10.3389/fevo.2019.00382](https://doi.org/10.3389/fevo.2019.00382).
26. Weintraub, S., Flores, L., Weider, W., **Sihi, D.**, Cagnar, C., Gonçalves, D., Young, M., Li L., Chuck, A., Mark, S., Yaniv, O., Baatz, R., Sullivan, P., and Groffman, P. M. Leveraging environmental research and observation networks to advance soil carbon science. *Journal of Geophysical Research: Biogeosciences*, 124, 1047-1055, 2019, DOI: [10.1029/2018JG004956](https://doi.org/10.1029/2018JG004956).
27. **Sihi, D.**, Davidson, E. A., Min Chen, Savage, K., Richardson, A. D., Keenan, T. F., and Hollinger, D. Y. Merging a Mechanistic Enzymatic Model of Temperature, Moisture, and Substrate Supply Effects on Soil Respiration into an Ecosystem Model in Two AmeriFlux sites of Northeastern USA. *Agricultural and Forest Meteorology*, 252, 155-166, 2018, DOI: <https://doi.org/10.1016/j.agrformet.2018.01.026> ('Celebrating the 20th anniversary of the AmeriFlux network' Special Issue).
28. **Sihi, D.**, Inglett, P. W., Gerber, S., and Inglett K. S. Rate of warming affects temperature sensitivity of anaerobic peat decomposition and greenhouse gas production. *Global Change Biology*, 24:e259–e274, 2018, DOI: [10.1111/gcb.13839](https://doi.org/10.1111/gcb.13839).
29. Malhotra, A., **Sihi, D.**, and Iversen C. M. The fate of root carbon in soil: data and model gaps, *Eos*, 99, 2018, DOI: <https://doi.org/10.1029/2018EO112593>.
30. Yan Z., Chen S., Dari B, **Sihi, D.**, Chen Q. Phosphorus transformation response to soil properties changes induced by manure application in a calcareous soil. *Geoderma*, 322, 163-171, 2018, DOI: <https://doi.org/10.1016/j.geoderma.2018.02.035>.
31. Dari B and **Sihi, D.** A Decadal Overview of Biochar Research in Agriculture. *Journal of Agricultural Physics*, 18(1), 14-20, 2018.
32. **Sihi, D.**, Dari, B., Sharma, D. K., Pathak, H., Nain, L., and Sharma, O. P. Evaluation of soil health in organic vs. conventional farming of basmati rice in North India. *Journal of plant nutrition and soil science*, 180, 389-406, 2017, DOI: [10.1002/jpln.201700128](https://doi.org/10.1002/jpln.201700128).
33. Dari B, **Sihi, D.**, S K Bal., and Kunwar S. Performance of Direct Seeded Rice under Various Dates of Sowing and Irrigation Regimes in Semiarid India, *Paddy and Water Environment*, 2017, DOI: [10.1007/s10333-016-0557-8](https://doi.org/10.1007/s10333-016-0557-8).
34. **Sihi, D.**, Gerber, S., Inglett, P. W., and Inglett K. S. Comparing models of microbial-substrate interactions and their response to warming. *Biogeosciences*, 13, 1733-1752, 2016, DOI: [10.5194/bg-13-1-2016](https://doi.org/10.5194/bg-13-1-2016).
35. **Sihi, D.**, Inglett, P. W., and Inglett K. S. Carbon quality and nutrient status drive the temperature sensitivity of organic matter decomposition in subtropical peat soils. *Biogeochemistry*, 131, 103119, 2016, DOI: [10.1007/s10533-016-0267-8](https://doi.org/10.1007/s10533-016-0267-8).
36. **Sihi, D.**, Sharma, D. K., Pathak, H., Singh, Y. V., Sharma, O. P., Nain, L., Chaudhary, A. and Dari, B. Effect of organic farming on productivity and quality of basmati rice. *Oryza-An International Journal of Rice*, 2012, 49(1), 24-29.

Under review/revision

1. Lacroix, E., Aeppli, M., Boye, K., Brodie, E., Fendorf, S., Noël, V., and **Sihi, D.** Considering the anoxic microsite: acknowledging and appreciating spatiotemporal redox heterogeneity in soils and sediments. *ACS Earth and Space Chemistry*.
2. Malhotra, A., Tumber-Davila, S. J., Abramoff, R. Z., Georgiou, K., Hanson, P. J., Harden, J. W., Hicks Pries, C., Hugelius, G., Lu, D., Mayes, M., McCormack, M. L., Norby, R. J., Ricciuto, D., **Sihi, D.**, Sulman, B. N.,

Thornton, P. E., Walker, A., Werbin, Z., Wulfschleger, S. D., Jackson, R. B., and Iversen, C. M. Linking root traits to soil carbon: model and data and gaps. *Nature Geoscience*.

In preparation (Mature manuscripts can be shared upon request. §: postdoctoral mentee, ‡: graduate student, †undergraduate student)

1. Bargar, J. R., Weintraub-Leff, S. R., Weintraub, M., Smith, M., **Sihi, D.** et al. Roadmap for Molecular Observation Networks to Advance Ecosystem Modeling. Target journal: *Frontiers in Soil Science*.
2. Barmon, M.†, Dari, B., Jha, G., Sencor, J.†, Li, Haoyang†, **Sihi, D.** Cost-effective measurement of nitrogen content in corn using Nix Pro color sensor, *Agricultural & Environmental Letters*.
3. Maas, E. § and Sihi, D. Management alternatives for climate-smart agriculture at two long-term Agricultural research sites in the US: A model ensemble case study
4. Noh, N. J., Renchon, A. A., Knauer, J., Li, J., Griebel, A., Barton, C. V. M., Macdonald, C. A., Arndt, S. K., Davidson, E. A., **Sihi, D.**, Tjoelker, M. G., and Pendall, E. Data-model comparison of ecosystem respiration and its components in a mature eucalypt forest. Target journal: *Agricultural and Forest Meteorology*.
5. **Sihi, D.**, Zheng, J., Brenner, J., Phillips, J., Singh, S., Pett-Ridge, J., Jagadamma, S., López Lloreda, C., and Mayes, M. A. Oscillating Redox Conditions Controlled Greenhouse Gas Dynamics in Wet Tropical Forest Soils. Target journal: *Biogeochemistry*.
6. Todd-Brown, K., ...**Sihi, D.** et al. Global soil carbon potential: what if everyone is right? Target journal: *Scientific Reports*.
7. Wang, Z. §, **Sihi, D.**, Kumar, J., Weintraub-Leff, S. R., Todd-Brown, K., and Mishra, U. Upscaling Soil Organic Carbon Measurements using a Multivariate Quantitative Method Target journal: *AGU Advances*.

White Paper

1. **Sihi, D.**, Basu, K., and Singh, K. Improved Understanding of Coupled Water and Carbon Cycle Processes through Machine Learning Approaches. Artificial Intelligence for Earth System Predictability, Earth and Environmental System Science Division, Office of Biological and Environmental Research, Department of Energy. DOI: [10.2172/1769721](https://doi.org/10.2172/1769721)

Invited Book Chapters

1. **Sihi, D.** and Dari, B. (2020). Soil biogeochemistry. In: *The Soils of India*, Mishra, B. B. (Ed), World Soils Book Series. Hartemink, A. E. (Series Ed), Springer Nature Switzerland AG, DOI: [10.1007/978-3-030-31082-0](https://doi.org/10.1007/978-3-030-31082-0).
2. Souiri, Z., Cardoso, A. A., da-Silva, C. J., Oliveira L. M., Dari, B., **Sihi, D.**, and Karimi, N. (2019). Heavy metals and photosynthesis: Recent Developments. In: [Photosynthesis, Productivity, and Environmental Stress](#). Ahmad, P., Ahanger, M. A., Alyemeni, M. N., and Alam, P. (Eds), Wiley-Blackwell.
3. Dari, B., and **D. Sihi**. (2018). Future of Rice Crop Under Enriched CO₂ Environment. In: *Advances in Crop Environment Interaction*, S. K. Bal, J. Mukherjee, B. U. Choudhury, and A. K. Dhawan (Eds), Springer Singapore. DOI: [10.1007/978-981-13-1861-0_17](https://doi.org/10.1007/978-981-13-1861-0_17).
4. Dari, B. and **Sihi, D.** Heavy Metals as Emerging threats in Indian Soils. In: *Environmental Nexus in India*, Mishra, B. B. (Ed), *Advances in Asian Human Environmental Research*. Hartemink, A. E. (Series Ed), Springer Nature Switzerland AG (under review).

Technical Report

1. Casadevall, A., Burnha, C-A, Cassell, G. H., Enquist, L., Estes, M., Golden, S., Lennon, J., Monack, D., Murray, B. E., Weiss, S., Weissfeld, A. D., Williams, H. N., Tiedje, J. M., Bruns, M. A., Casadevall, A., Davidson, E., Silver, P., Colwell, R. R., Criddle, C., Donohue, T., Elie-Fadrosh, E., Falkowski, P., Hellweger, F., Hoehler, T. M., Jansson, J. K., Jones, A., Jiang, S., Karl, D., King, G. M., Lipp, E. K., Lynch, M., Martiny, J. B. H., Machlis, G. E., McFall-Ngai, M., McGovern, V., Rich, V., **Sihi, D.**, Spear, J. R., Verstraete, W., Jutla, A., and Zhou, J. (Colloquium participants are listed alphabetically) *Microbes and Climate Change – Science, People & Impacts*. <https://asm.org/Reports/Microbes-Climate-Change-Science,-People,-Impacts>, American Academy of Microbiology, American Society of Microbiology, 2022.

- Related Press Release: <https://asm.org/Press-Releases/2022/April-2022/New-Academy-Report-Shows-Critical-Role-Microbes-Pl>
- 2. Osborne, T.Z., Bochnak, A.M.K., Vandam, B., Duffy, S., Inglett, K.S., Inglett, P.K., and **Sihi, D.** Hydrologic Effects on Soil Stability - Loss, Formation, and Nutrient Fluxes. University of Florida, Final Report to the St. Johns River Water Management District, Palatka, FL, 2014, 114 pp.

Datasets

1. **Sihi D**; Salazar Ortiz M; Mayes M (2020): Soil Chamber Fluxes (CO₂ and CH₄) across a catena in the Luquillo Experimental Forest, Puerto Rico. A Comprehensive Framework for Modeling Emissions from Tropical Soils and Wetlands. DOI: [10.15485/1632882](https://doi.org/10.15485/1632882).
2. **Sihi D**; López-Lloreda C; M. Brenner J; K. Quinn R; R. Phillips J; Mayes M (2020): Soil chemistry data across a catena in the Luquillo Experimental Forest, Puerto Rico. A Comprehensive Framework for Modeling Emissions from Tropical Soils and Wetlands. DOI: [10.15485/1618870](https://doi.org/10.15485/1618870).
3. **Sihi D**; López-Lloreda C; M. Brenner J; K. Quinn R; R. Phillips J; D. Newman B; Mayes M (2020): Porewater data across a catena in the Luquillo Experimental Forest, Puerto Rico. A Comprehensive Framework for Modeling Emissions from Tropical Soils and Wetlands. DOI: [10.15485/1618869](https://doi.org/10.15485/1618869).

Research-related Skills

- Software expertise: Statistical packages and programming language (R, FORTRAN, Matlab, NetLogo, SAS, and JMP), Bayesian Analysis (JAGS, OpenBUGS), STELLA (a software for systems simulation), ArcGIS, MS office suite, and a Decision Support System (DSS) named as InfoRCT (Information of Use of Resource Conservation Technologies in Agriculture) Simulation Model.
- Expertise on instrumentations: Gas Chromatography (GC), High performance liquid chromatography (HPLC), Gas chromatography–mass spectrometry (GC-MS), Shimadzu TOC-L analyzer, Auto Analyzer (AA), Infra-red Gas Analyzer (IRGA, LI-COR 8100, and GASMET), Microplate Fluorometer, UV-VIS Spectrophotometer, Atomic Absorption Spectrophotometer (AAS), Flame Emission Spectrophotometer (FES), BIOLOG (EcoPlate), Polarography, Distillation apparatus, Potentiometer and Electrical Conductivity Meter.
- Analytical Techniques: Greenhouse gas flux measurements, Soil organic matter decomposition experiments, Soil Enzyme and Microbial Kinetic Study, Stable Isotope Enrichment techniques, and Soil and water biogeochemistry.
- Certified analyst for TOC and TN on Shimadzu TOC-L analyzer, Wetland Biogeochemistry Laboratory (NELAP-Certified Laboratory, DOH ID: E72949), Institute of Food and Agricultural Science, University of Florida, 2014-2015.

Professional Affiliations

Professional society memberships

- American Geophysical Union (AGU), 2012 to present
- Ecological Societies of America (ESA), 2013 to present
- Soil Science Society of America (SSSA), 2011 to present
- Soil Ecology Society (SES), 2017 to present
- American Association for the Advancement of Science (AAAS), 2016 to present

Working group memberships

- Analyzing Observations and Models of Carbon, Energy, and Water Fluxes: [RUBISCO-AmeriFlux Working Group Member](#), a collaboration between US DOE's RUBISCO (Reducing Uncertainties in Biogeochemical interactions through synthesis and computation) Scientific Focus Area and the AmeriFlux Management Project (AMP), 2019 to present.
- Improved Processed Modeling and Mapping of Tidal Wetland Methane Emissions: [Methane Working Group Member](#), Coastal Carbon Research Coordination Network (CCRCN), 2019 to present

- Ecological Forecasting Initiative (EFI): [Working Group Member](#), Cyberinfrastructure, Methods and Tools, 2019 to present
- National Ecological Observatory Network (NEON) [Terrestrial Biogeochemistry](#) Technical Working Groups (TWG) member, 2017 to present.

Teaching Experiences

Instructor, Emory University (Virtual and in-person)

- Fund. Concepts in Soil Sci (ENVS 245); Spring 2021, Spring 2022, Spring 2023
- Biogeochemistry and Environmental Health (ENVS 385/585); Fall 2021, Fall 2022
- Fundamentals of ENVS Rsrch. (ENVS 299R)
- Intro to Independent Research (ENVS 399R); Fall 2021, Spring 2022, Fall 2022
- Individual Research in Environmental Sciences (ENVS 494), Spring 2022

Co-instructor, Emory University

- Laboratory Rotations (PBEE 597R); Summer 2021
- Introduction to Research (CHEM 399R); Summer 2021
- Undergraduate Research (CHEM 499R); Fall 2021, Spring 2022

Instructor, Professional Network

- Flux Course, Summer 2019

Guest Lecture

- Fundamentals of Ecology (IBS 595), Population Biology, Ecology, and Evolution program, Emory University
- PBEE Practice of Science (PBEE 577), Emory University
- Introductory Graduate Seminar (PBEE 570r), Population Biology, Ecology, and Evolution program, Emory University
- Soil: Genesis, Nature, and Characterization (GEOG 340), Geography Department, College of Liberal Arts and Sciences, Frostburg State University, Frostburg, MD

Co-Teaching/Teaching Assistant, University of Florida

- Environmental Biogeochemistry (in-person and distance-education sections) (SWS 4223 and SWS 5224); Spring 2012, 2013, and 2014
- Introduction to soils in the environment Lab (SWS 3022L); Fall 2013 and 2014
- Introduction to soils in the environment Lecture (SWS 3022); Fall 2012

Mentoring Experiences

Postdoctoral research scholar, Emory University

- Zhuonan Wang (Aug 2021 to present)
- Ellen Maas (May 2022 to present)
- Alexandra Cory (Aug 2022 to present)
- Taylor Cyle (Sept 2022 to present)

Graduate student, Emory University

- Milon Barmon, PhD student, major advisor, Population Biology, Ecology and Evolution (current)
- Yaxi Du, master student, major advisor, Environmental Sciences (current)
- Xorla Ocloo, doctoral dissertation committee member, Population Biology, Ecology and Evolution (current)
- Mackenzie Hoogshagen, Qualifying Committee member, Population Biology, Ecology and Evolution (Spring 2023)
- Ayanna Jones, doctoral dissertation committee member, Chemistry (2020 to 2022)
- Marissa Duckett, faculty advisor for lab rotation, Population Biology, Ecology and Evolution (Sept 2021 to Aug 2022)

- Abdul Baseer Khan, faculty advisor for visiting PhD scholar (Sept 2021 to Feb 2022)
- Yanyu Wang, master thesis committee member, Environmental Sciences (completed Spring 2021)

Undergraduate student, Emory University

- Murray Sternberg, Faculty advisor for ENVS 299R (Fall 2022), ENVS 399R (Spring 2023), and ENVS 495A, Honors Thesis (Fall 2023)
- Illana Fischer, Honors thesis committee member, Environmental Sciences (Fall 2022)
- Kenneth Ho, Honors thesis committee member, Environmental Sciences (Spring 2022)
- Christopher Roebuck, QTM, Emory College of Arts and Sciences, Fall 2022
- Rebekah Lee, Faculty advisor for First Year Undergraduate Research (FYRE) program, 2022-2023
- Marshall McCall, Environmental Sciences, Faculty advisor for ENVS 299R, Fall 2022
- Zoe Price, Faculty advisor for ENVS 399R, Fall 2021, Spring 2022
- William Baker, Faculty advisor for ENVS 494, Spring 2022
- Jack Kagan, Faculty advisor for ENVS 299R, Spring 2022, Fall 2022
- Natasha Rasnick, Faculty advisor for ENVS 299R, Spring 2022
- Aditya Kolisetti, Faculty advisor for Scholarly-Inquiry Research Experience (SIRE) program, 2021-2022
- Kristina Trifonova, Faculty advisor for Summer Undergraduate Research Experience (SURE) Affiliate fellow, Summer 2021
- Ann Felicia Sinsuan, Faculty advisor for CHEM 399R/499R Summer-Fall 2021, Spring 2022
- Jacob Sencer, Environmental Sciences, Faculty advisor for Summer Intern, Summer 2023
- Haoyang Li, Faculty advisor for CHEM 399R Fall 2022
- Kihoon Alan Kang, Undergraduate intern, Emory College of Arts and Sciences, Fall 2021
- Dana Kahn, Faculty advisor for ENVS 399R, Spring 2023
- Cassiel Chen, Faculty advisor for ENVS 299R, Spring 2023
- Catherine Wang, Faculty advisor for ENVS volunteer, Spring 2023
- Gwen Read, Faculty advisor for ENVS 299R, Fall 2023

Laboratory Assistant, Emory University

- Paul Bausemer, Nov 2021-May 2022

K-12 student

- Japera Jeff, mentor for high-school capstone project, Paul Duke STEM High School

Affiliations with mentoring programs in the past

- Mentor in Women in Soil Ecology Mentorship program, 2018-2019, 2021-2022
- Mentoring365, AGU Fall Meeting, 2018
- UMP Mentor, AGU Fall Meeting, 2017
- Sharing Science Mentor, AGU Fall Meeting, 2016
- PlantingScience Scientist mentor, 2016-2017
- Supervised undergraduate intern on soil sample collection, processing, and analysis for total nutrients (TC and TN), University of Maryland Center for Environmental Science (UMCES) Appalachian Laboratory, Summer, 2016.
- Mentor in Gator Launch Mentoring Program, Career Resource Center, University of Florida, 2014-2015
- Mentor in University Multicultural Mentor Program (UMMP), University of Florida, FL, USA, 2013-2014, 2014-2015
- Mentor in Undergraduate Mentoring Program, Society of Wetland Scientists Annual Meeting, 2013, 2014
- Tutoring (voluntary) for GRE Exam to Haitian students for their enrolment in IFAS Program, University of Florida, 2013
- Mentor in Soil and Water Science Department Graduate-Undergraduate Mentorship Program, University of Florida, 2013
- Mentor in Yulee-Diamond Global Mentorship Program, University of Florida, 2012-2013

Workshop Participations (¶ *fully-funded*)

- Invited participant for AI4CH₄ workshop series, which is a follow-up activity of the [AI4ESP](#) (Artificial Intelligence for Earth System Predictability) workshop (virtual), organized by Earth and Environmental Systems Science Division, Office of Biological and Environmental Research, DOE in Spring 2023.
- Invited panelist for Academy Colloquium: Microbes and Climate Change – Science, People, & Impacts (virtual), American Academy of Microbiology, American Society of Microbiology, Nov 5, 2021.
- Invited participant for [AI4ESP](#) (Artificial Intelligence for Earth System Predictability) workshop (virtual), organized by Earth and Environmental Systems Science Division, Office of Biological and Environmental Research, DOE in Fall 2021.
- Participant for [SPRUCE](#) Isotope and Methane Workshop, Oak Ridge National Laboratory, Oak Ridge, TN, Feb 11-13, 2020.
- ¶ Invited participant for [CCRCN methane working group](#) meeting, in partnership with [AmeriFlux Year of Methane network initiative](#), NASA Ames Research Center, Moffett Field, CA, Dec 7-8, 2019.
- Invited participant for RUBISCO-AmeriFlux Working Group Meeting, Lawrence Berkeley National Laboratory, Berkeley, CA, USA, Oct 15-17, 2019.
- ¶ Accepted participant for NEON Science Summit, Earth Lab, University of Colorado, Boulder, CO, USA, Oct 15-17, 2019 (declined).
- ¶ Invited participant for MARSh (**ModEx Approaches to Research on Shorelines**) workshop, Oak Ridge National Laboratory, Sept 19-20, 2019.
- ¶ Accepted participant for WOODSTOICH 4 workshop, Flathead Lake Biological Station, University of Montana, MT, USA, Aug 14-19, 2019.
- ¶ Accepted participant for 2019 CLM/CTSM Tutorial, NCAR Mesa Laboratory, Boulder, CO, USA, Feb 4-8, 2019.
- ¶ Invited participant for Flux Course Revamp Workshop, Indiana University, Bloomington, IN, USA, Oct 26, 2018.
- Invited participant for AmeriFlux Decadal Synthesis Workshop, Lawrence Berkeley National Laboratory, Berkeley, CA, USA, Aug 23-24, 2018.
- ¶ Co-organized Root trait and soil carbon workshop, Oak Ridge National Laboratory, Oak Ridge, TN, USA, July 31-Aug 1, 2018.
- Accepted participant for New Advances in Carbon Cycle Modeling mini-symposium and workshop, Northern Arizona University, Flagstaff, AZ, USA, May 20-26, 2018.
- ¶ Accepted participant for Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories workshop, University of Arizona, Tucson, AZ, USA, Feb 19-21, 2018.
- ¶ Accepted ISMC candidate for CZO / LTER / NEON / ISMC Joint Workshop, NEON HQ in Boulder Colorado, USA, Feb 13-15 2018.
- ¶ Accepted participant for International Soil Carbon Network (ISCN) Hackathon, New Orleans, LA, Dec 10, 2017.
- ¶ Accepted Participant for the Short Course “Bayesian Modeling for Socio-Environmental Data”, National Socio-Environmental Synthesis Center (SESYNC), Annapolis, Maryland, USA, Aug 15-25, 2017.
Accepted Participant for the Short Course “Individual/Agent-based Modeling”, Humboldt State University, Arcata, California, USA, July 31-Aug 4, 2017.
- ¶ Accepted Participant for 10th Annual Flux Course, AmeriFlux, University of Colorado Mountain Research Station, Niwot Ridge, Colorado, USA, July 10-21, 2017.
- ¶ Service to Activism in the Everglades: a workshop led by former Florida Governor and Senator Bob Graham, Bob Graham Center for Public Service, University of Florida, Mar 22, 2014.

Invited Talks

- **Sihi, D.** Modeling spatial and temporal heterogeneity in nitrous oxide emissions using microsite probability density functions. Denitrification in Agricultural Soils: Integrated Control and Modelling at Various Scales (DASIM) Modeler workshop, to be held in GarmischPartenkirchen, Germany, May 3-4, 2023.
- **Sihi, D.** Measuring and modeling redox heterogeneity in soil with a molecular lens. Organized oral session “Molecular Observation Networks for Enhancing Ecosystem Modeling”, Ecological Society of America, to be held in Portland, OR, Aug 6-11, 2023.

- **Sihi, D.** Predicting soil organic matter and greenhouse gas dynamics using state-of-art biogeochemical and machine learning models. School of Earth and Atmospheric Sciences, Georgia Tech, Nov 3, 2022.
- **Sihi, D.** Predicting soil organic carbon and greenhouse gas dynamics using state-of-art biogeochemical and machine learning models. Department of Earth and Environmental Science, University of Pennsylvania, Oct 21, 2022.
- **Sihi, D.** Evaluating Soil Health: A Biogeochemist's View. Soil Health Advisory Board meeting, Valent Biosciences and Valent USA, Sept 22, 2022 (virtual presentation).
- **Sihi, D.** Predicting Soil Greenhouse Gas Dynamics from Sub-Boreal, Temperate, and Wet Tropical Forests Using State -of-Art Quantitative Methods. Sergei A. Wilde Early Career Achievement Award Lectureship, ASA-CSSA-SSSA International Annual Meeting, Baltimore, MD, Nov 6-9, 2022.
- **Sihi, D.** Modeling microbial methane emissions from soil. Soils in the Climate Crisis: Modeling Microbiomes During Disturbance workshop, Sandia National Laboratory, June 9 2022.
- **Sihi, D.** Hot spots and hot moments in greenhouse gas emissions: What microscale data do we need to explain macroscale processes? MONet (Molecular Observation Network) Breakout session, 2022 DOE ESS PI Meeting.
- **Sihi, D.** Upscaling soil organic carbon measurements at the continental scale by multivariate clustering analysis. RUBISCO SOC Working group meeting, Feb 23, 2022 (virtual).
- **Sihi, D.** Predicting Soil Organic Matter and Greenhouse Gas Emissions using State-of-art Biogeochemical Models. San Diego State University, San Diego, CA, Feb 14, 2022 (virtual).
- **Sihi, D.,** Kumar, J., Wang Z., and Weintraub, S. Upscaling soil organic carbon measurements from NEON terrestrial sites to CONUS using a multivariate quantitative method. American Geophysical Union Fall Meeting, New Orleans, LA, Dec 13-17, 2021.
- **Sihi, D.** Modeling simultaneous productions and consumptions of nitrous oxide and methane in soil microsites using a probability distribution function. [Denitrification in Agricultural Soils: Integrated Control and Modelling at Various Scales \(DASIM\) research unit](#) funded by the German Science Foundation, Institute of Meteorology and Climate Research (KIT), GarmischPartenkirchen, Germany, Nov 9-10, 2021 (virtual presentation at hybrid meeting).
- **Sihi, D.** and Dari, B. Evaluating Soil Organic Matter Dynamics Under Cover Crop and Biochar Amendment. ASA-CSSA-SSSA Meeting, Salt Lake City, UT, Nov 7-10, 2021 (virtual presentation at hybrid meeting).
- **Sihi, D.** and Gerber, G. Surprising Dynamics of Organic Matter for Predominantly Organic Soil in Microbial Explicit Models: A Food for Thought for Evaluating Efficacy of Peatland Restoration Efforts in a Warmer World. ASA-CSSA-SSSA Meeting, Salt Lake City, UT, Nov 7-10, 2021 (virtual presentation at hybrid meeting).
- **Sihi, D.** Don't forget the universe beneath your feet when modeling terrestrial biogeochemistry. Auburn University, Auburn, AL, Oct 12, 2021 (delivered via zoom).
- **Sihi, D.** Evaluating soil and ecosystem carbon dynamics at the continental scale by leveraging data available from the national ecological observatory network, in session "Revolutionizing our understanding of scale: How the NEON network enables innovative research into the complexities of ecological phenomena across spatio-temporal scales", Ecological Society of America Meeting (virtual), Aug 3-6, 2020.
- **Sihi, D.** [Exploring soil-climate-health-policy nexus through sustainability lens](#), Emory Climate Talks, Emory University, Atlanta, GA, June 8, 2020 (delivered via zoom).
- **Sihi, D.** Soil organic matter decomposition and greenhouse gas emissions: A dynamic interplay of physical and biogeochemical processes, Department of Geography, University of Zurich, Zurich, Switzerland, Apr 29, 2020 (delivered via zoom).
- **Sihi, D.** Measuring and Modeling Soil Organic Matter and Greenhouse Gas Dynamics: A Tale of a Biogeochemist, UMCES Appalachian Laboratory, Apr 23, 2020 (delivered via zoom).
- **Sihi, D.** Forest Ecosystem Carbon and Greenhouse Gas Dynamics: Experiences and Future Research Directions, Department of Biology, West Virginia University, March 12, 2020.
- **Sihi, D.** Measuring and Modeling Biogeochemical Feedbacks in Terrestrial Systems and Terrestrial-Aquatic Interfaces: State of the Science and Future Research Directions, Department of Atmospheric and Environmental Sciences University at Albany, SUNY, Feb 17, 2020.

Sihi, D. Terrestrial Biogeochemistry and Greenhouse Gas Dynamics under Changing Climate: An Interdisciplinary Perspective, Department of Environmental Sciences, Emory University, Feb 3, 2020.

Sihi, D. Carbon-climate feedback in the terrestrial ecosystem: Why should we care about soil?, RUBISCO Soil Carbon Dynamics, RUBISCO AmeriFlux Working Group Meetings, and RUBISCO SFA Project Meeting, InterContinental San Francisco, Union Square, San Francisco, CA, Dec 12, 2019.

- **Sihi, D.** Quantifying Carbon-Climate Feedbacks and Greenhouse Gas Dynamics in Terrestrial Ecosystems through Soil Microbial Lens, Biology Department, Syracuse University, Dec 5, 2019.
- **Sihi, D.** Soil: A Multifunctional Natural Resource to Sustain Life, Department of Soil Science, University of Manitoba, Nov 26, 2019.
- **Sihi, D.** Soil Organic Matter Decomposition and Greenhouse Gas Emissions: A Dynamic Interplay of Different Realms of Ecology, Department of Biological Sciences, Tennessee State University, May 28, 2019.
- **Sihi, D.** Soil organic matter decomposition and greenhouse gas emissions: A dynamic interplay of physical and biogeochemical processes, University of Louisiana at Lafayette, May 15, 2019.
- **Sihi, D.** Mechanistic representation of soil and ecosystem fluxes of greenhouse gases using a model-data fusion approach, UMCES Appalachian Laboratory, Frostburg, MD, Nov 9, 2017.
- **Sihi, D.** Measurements and modeling of soil organic matter decomposition and greenhouse gas emission: Mechanistic representation of microbial and enzymatic processes, Oak Ridge National Laboratory, Oak Ridge, TN, Feb 6, 2017.
- **Sihi, D.** Measurements and modeling of decomposition and greenhouse gas emission from soil: Insights from microscale to ecosystem scale studies, Center for Ecosystem Science and Society, Northern Arizona University, Flagstaff, AZ, Dec 6, 2016.
- **Sihi, D.,** Davidson, E. A., Savage, K., Liang, Dong, Diaz Liomari. Coupled Simulation of CO₂, CH₄, and N₂O Fluxes from a Forested Wetland Using Data-Model Fusion Approach. ASACSSA-SSSA Meeting, Phoenix, AZ, Nov 6-9, 2016.
- **Sihi, D.** Processes and modeling of temperature sensitivity of organic matter decomposition in subtropical wetlands. UMCES Appalachian Laboratory, Frostburg, MD, May 21, 2015.
- **Sihi, D.,** Inglett, P.W., Gerber, S., and Inglett, K.S. Temperature sensitivity of organic carbon processing under two contrasting rates of warming. 15th Soil and Water Science Department Forum, University of Florida, Gainesville, FL, Sept 18, 2014.

Presentations at Conferences and Symposiums (*Invited, §: postdoctoral mentee, ‡: graduate student, †undergrad student)

- Li, H. †, Cyle, K. T. §, Murray, S. †, and **Sihi, D.**, Understanding how organic amendments influence available nitrate and ammonium in soil. Undergraduate symposium, Chemistry Department, Emory, April 21, 2023.
- Barmon, M.‡, Dari, B., Jha, G., Sencor, J.†, Li, Haoyang†, **Sihi, D.** Cost-effective measurement of nitrogen content in corn using Nix Pro color sensor, Southeastern Biogeochemistry Symposium, Columbia, SC, May 12-14, 2023.
- **Sihi, D.**, Dari, B., Kuruvila, A. P., Jha, G., and Basu, K. Explainable Machine Learning Approach Quantified the Long-Term (1981-2015) Impact of Climate and Soil Properties on Yields of Major Agricultural Crop across CONUS. AI in Agriculture conference, Orlando, FL, April 18-20, 2023.
- Wang, Z. §, **Sihi, D.**, Kumar, J., Weintraub-Leff, S. R, Todd-Brown, K., Mishra, U. American Geophysical Union Fall Meeting, Chicago, IL, Dec 12-16, 2022.
- **Sihi, D.**, Zheng, J., Wang, Z.§, Davidson, E., Megonigal, P., and Weintraub, M. Estimating Greenhouse Gas dynamics in Terrestrial-Aquatic Interfaces using a redox-informed modeling framework integrated with microsite probability density functions. American Geophysical Union Fall Meeting, Chicago, IL, Dec 12-16, 2022.
- **Sihi, D.**, Dari, B., Kuruvila, A. P., Jha, G., and Basu, K. Explainable Machine Learning Approach Quantified the Long-Term (1981-2015) Impact of Climate and Soil Properties on Yields of Major Agricultural Crop across CONUS. ASA-CSSA-SSSA Annual Meeting, Baltimore, MD, Nov 6-9, 2022.

- **Sihi, D.**, Zheng, J., Wang, Z.§, Davidson, E., Megonigal, P., Weintraub, M., and Duckett, M.‡ Developing a probabilistic framework to capture redox heterogeneity and greenhouse gas predictions in Terrestrial-Aquatic Interfaces. DOE ESS PI Meeting, May 24-26, 2022 (Virtual).
- Wang, Z.§, **Sihi, D.**, Kumar, J., & Weintraub-Leff, S. R. Upscaling Soil Organic Carbon Measurements using a Multivariate Quantitative Method. In the 9th Annual Southeastern Biogeochemistry Symposium, Atlanta, GA, Apr31-May 1, 2022.
- Duckett, M.‡ and **Sihi, D.** Evaluating Spatiotemporal Soil Microbial Ecology to Understand Greenhouse Gas Emissions in Terrestrial Aquatic Interfaces In the 9th Annual Southeastern Biogeochemistry Symposium, Atlanta, GA, Apr31-May 1, 2022.
- Koliseti, A. †, **Sihi, D.**, Sinsuan, A. F., Bausemer, P. D. (2022, April). Evaluating microbial necromass as a proxy for soil carbon sequestration. In the 9th Annual Southeastern Biogeochemistry Symposium, Atlanta, GA, Apr31-May 1, 2022.
- Sinsuan, A. F. †, **Sihi, D.**, Bausemer, P., and Duckett, M. Examining CO₂ Respiration in Biochar Amended Soil. Spring Undergraduate symposium, Chemistry Department, Emory College of Arts and Sciences, April 22, 2022.
- Trifonova, K. † and **Sihi, D.** Building Soil Organic Matter through Biochar Amendment: A Climate-Smart Approach to Ensure Food Security. Undergraduate Research Programs Summer Symposium, Emory College of Arts and Sciences, (virtual poster), Aug 5, 2021.
- **Sihi, D.** and Dari, B. Biochar Amendment Influenced Distribution of Soil Organic Matter Fractions: A Climate-Smart Approach to Ensure Food Security. Ecological Society of America Meeting (Virtual), Aug 2-6, 2021.
- **Sihi, D.** and Gerber, S. Challenges of using microbial explicit models for evaluating organic matter decomposition in predominantly organic soils. 3rd ISMC Conference — Advances in Modeling Soil Systems (virtual), May 18-22, 2021.
- **Sihi, D.**, Davidson, E. A., Savage, K., and Hagedorn, J. Numerical representation of soil hot spots and hot moments of carbon dioxide, methane, and nitrous oxide fluxes using microsite probability density functions. American Geophysical Union Fall Meeting (virtual), Dec 1-17, 2020.
- **Sihi, D.**, Zheng, J., Brenner, J., Phillips, J., Singh, S., Pet-Ridge, J., Jagadamma, S., Lloreda, C. L., and Mayes, M. A. Oscillating Redox Conditions Controlled Greenhouse Gas Dynamics in Wet Tropical Forest Soils. American Geophysical Union Fall Meeting, Washington, Dec 9-14, 2019.
- **Sihi, D.**, Mayes, M. A., Xu, X., O'Connell C., Silver, W., Lloreda C. L., Yudkin, B., Zheng, J., Quinn, R., Brenner, J., Phillips, J., Gonzalez, G., and Newman, B. Improved representations of methane emissions from wet tropical forest soils using a microbial functional group-based model. DOE Environmental System Science (ESS) PI meeting, Potomac, MD, Apr 30-May1, 2019.
- **Sihi, D.**, Mayes, M. A., Xu, X., O'Connell C., Silver, W., Lloreda C. L., Yudkin, B., Quinn, R., Zheng, J., Brenner, J., Phillips, J., Gonzalez, G., and Newman, B. Evaluating a microbial functional group-based model to explain greenhouse gas productions and consumptions from Puerto Rican tropical forest soils. American Geophysical Union Fall Meeting, Washington DC, Dec 10-14, 2018.
- **Sihi, D.**, Liang, J., Hoffman, F. M., Gu, L. and Mayes, M. A. Soil respiration synthesis across AmeriFlux/FluxNet sites, 2018 AmeriFlux PI Meeting, Bloomington, IN, Oct 24-25, 2018.
- **Sihi, D.** Ecological Forecasting of Soil, Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories, Tuscon, AZ Feb 19-21, 2018.
- **Sihi, D.** Data, Information, Knowledge, and Wisdom Hierarchy, Ecological Forecasting of Soil, Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories, Tuscon, AZ, Feb 19-21, 2018.
- **Sihi, D.** Training, Education, and Outreach, Ecological Forecasting of Soil, Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories, Tuscon, AZ, Feb 19-21, 2018.
- **Sihi, D.** Achieving ISMC mission by leveraging CZO-LTER-NEON activities, CZO/LTER/NEON/ISMC Joint Workshop, NEON HQ in Boulder Colorado, USA, Feb 13-15, 2018.

- **Sihi, D.**, Davidson, E. A, Savage, K., and Liang, D. Getting beyond hand-waving about microsites with numerical representations of trace gas production and consumption, American Geophysical Union Fall Meeting, New Orleans, LA, Dec 11-15, 2017.
- **Sihi, D.**, Davidson, E. A, Min Chen, Savage, K., Richardson A., Keenan, T., and Hollinger, D. Merging a Mechanistic Enzymatic Model of Temperature, Moisture, and Substrate Supply Effects on Soil Respiration into an Ecosystem Model in Two Forests of Northeastern USA, European Geophysical Union General Assembly, Vienna, Austria, Apr 23-28, 2017 (PICO talk)
- **Sihi, D.**, Min Chen, Davidson, E. A, Savage, K., Richardson A., Keenan, T., and Hollinger, D. Integrating Measurements and Models of Water Limitation on Soil and Ecosystem Respiration in Two New England Forests from Hourly to Decadal Timescales. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 12-16, 2016.
- **Sihi, D.** and Davidson, E. A. Modeling the dynamics of CO₂ and CH₄ fluxes at soil microsite scale. Ecological Society of America Annual Meeting, Fort Lauderdale, FL, held Aug 7-12, 2016.
- **Sihi, D.**, Davidson, E. A., and Savage, K. Modeling soil methane fluxes along the concentration gradient of oxygen. International Soil Modeling Conference, Austin, TX, Mar 29-April 1, 2016 (*Lightning talk and poster*).
- **Sihi, D.**, Inglett P. W., and Inglett, K. S. Warming Effects Enzyme Turnover During Decomposition of Subtropical Peat. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 14-18, 2015 (*Poster*).
- **Sihi, D.**, Gerber, S., Inglett, K.S., and Inglett, P.W. Modeling the Response of Soil Organic Matter Decomposition to Warming: Effects of Dynamical Enzyme Productivity and Nuanced Representation of Respiration. American Geophysical Union Fall Meeting, December, San Francisco, CA, Dec 15-19, 2014 (*poster*).
- **Sihi, D.**, Inglett, K.S., and Inglett, P.W. Temperature Sensitivity of Soil Organic Matter Decomposition in Subtropical Wetlands: Assessing the Role of Microbial Carbon Use Efficiency. ASA-CSSA-SSSA, Long Beach, CA, Nov 2-5, 2014 (*Runner up, oral presentation*).
- **Sihi, D.**, Papacek, J. R., Foster, D. K., Inglett, K.S., and Inglett, P.W. The Importance of Enzyme Kinetics in the Temperature Sensitivity of Organic Matter Decomposition in Wetlands. ASACSSA-SSSA Meeting, Long Beach, CA, Nov 2-5, 2014 (*One of the top three winners, poster presentation*).
- **Sihi, D.**, Gerber, S., Inglett, K.S. and Inglett, P.W. Mathematical Formulation of Carbon Use Efficiency Affects Warming Response in Wetland Decomposition Models. Joint Aquatic Science Meeting, Portland, OR, May 18-23, 2014 (*Poster*).
- **Sihi, D.**, Gerber, S., Inglett, K.S. and Inglett, P.W. Inclusion of maintenance respiration alters temperature response in microbial soil organic matter decomposition model for wetlands. Water Institute Symposium, University of Florida, Gainesville, FL, Feb 11-12, 2014 (*poster*).
- **Sihi, D.**, Inglett P.W. and Inglett K.S. Temperature sensitivity of anaerobic C processing: The importance of C quality vs. nutrient availability. ASA-CSSA-SSSA Annual Meetings, Tampa, FL, Nov 3-6, 2013 (*One-of the top three winners, oral presentation*).
- **Sihi, D.**, Inglett P.W. and Inglett K.S. Temperature Sensitivity of Soil Organic Matter Decomposition in a Subtropical peatland: The Importance of Substrate Quality and Phosphorus Loading. Annual Meeting of Society of Wetland Scientists, Duluth, MN, June 2-6, 2013 (*Poster*).
- **Sihi, D.**, Gerber, S., Inglett, K.S. and Inglett, P.W. Incorporating microbial physiology into soil organic carbon (SOC) decomposition models. Soil and Water Science Department Forum, University of Florida, Gainesville, FL, Sept 6, 2013 (*Poster*).
- **Sihi, D.**, Gerber, S., Inglett, K.S. and Inglett, P.W. Incorporating microbial physiology in soil organic matter (SOM) decomposition models for wetlands. SWSSAC/FAESS/ SWFAEP joint conference, Tampa, FL, Oct 6-9, 2013 (*Poster*).
- **Sihi, D.**, Gerber, S. Inglett K.S., and Inglett P.W. Inclusion of maintenance respiration alters temperature response in microbial soil organic matter decomposition model. Graduate Student Research Day, University of Florida, Gainesville, FL, Oct 29, 2013 (*Poster*).

- **Sihi, D.**, Inglett, P. W. and Inglett, K. S. Effect of organic matter quality, P-loading and temperature on carbon biogeochemistry in subtropical peats. Graduate Student Research Day, University of Florida, Gainesville, FL, Oct 23, 2012 (*poster*).
- **Sihi, D.**, Inglett, P. W., and Inglett, K. S. Temperature sensitivity of greenhouse gas (CO₂ and CH₄) production and flux in a subtropical wetland: The importance of organic matter quality and nutrient availability. Soil and Water Science Department Forum, University of Florida, Gainesville, FL, Sept 7, 2012 (*poster*).
- Pathak H. **Sihi, D.**, Sharma, D. K. and Inglett, P. W. Greenhouse Gas emission from Agricultural Wetland (Rice Field): Organic vs. Conventional farming. 9th INTECOL International Wetlands Conference, Orlando, FL, June 3-8, 2012 (*poster*).
- **Sihi, D.**, Sharma, D. K., Pathak, H., Lata and Sharma, O. P. Assessment of Environmental Quality under organic and conventional basmati rice cultivation. Crop Improvement. The Crop Improvement Society of India. International Conference on Preparing Agriculture for Climate Change (ICPACC), Punjab Agricultural University, Ludhiana, Punjab, India, Feb 6-8, 2011 (*poster*).
- **Sihi, D.**, Sharma, D. K., Pathak, H. and Sharma, O. P. Ecological and economic impact of organic basmati cultivation on ecosystem services. 5th International Nitrogen Conference, New Delhi, India, Dec 3-7, 2010 (*Poster*).

Contributed Presentations (*Invited, §: postdoctoral mentee, ‡: graduate student, †: undergrad student)

- Dari, B., Gottula, J., **Sihi, D.**, ‘Who owns the data’: Toward solving agriculture’s data ownership challenge for small scale farmers. AI in Agriculture conference, Orlando, FL, April 18-20, 2023.
- Weintraub-Leff, S. R., Hall, S., Craig, M., **Sihi, D.**, Wang, Z. §, Hick-Pries, C., and Hart S. Disparities in Observed vs Modeled Soil Nitrogen Mineralization Using a Continentally Distributed Dataset. American Geophysical Union Fall Meeting, Chicago, IL, Dec 12-16, 2022.
- Bargar, J., Bowman, M. M., Chadwick, D., Chen, X., Corilo, Y. E., Cotrufo, F. M., Doro, K. O., Falco, N., Griffiths, N., King, A., Lavalley, J. M., **Sihi, D.**, Smith, M. L., Weintraub, M. N., and Weintraub-Leff, S. R. Molecular Observation Networks for Enhancing Ecosystem Modeling. American Geophysical Union Fall Meeting, Chicago, IL, Dec 12-16, 2022.
- Whitehead, B., Todd-Brown, K. E., Sihi, D. Modeling soil properties for data interoperability. World Congress Soil Science, Glasgow, July 31-Aug5, 2022 (withdrawn due to COVID related travel restriction).
- Todd-Brown, K. E., Areeveso, P., Atkins, J. W., Brown, A. G., Loisel, J., O’Brian, M., Patel, K. F., and **Sihi, D.** Tools from data-centered community of practice in soils American Geophysical Union Fall Meeting, New Orleans, LA, Dec 13-17, 2021.
- Oikawa, P., **Sihi, D.**, Forbrich, I., Najarro, M., Fluet-Chouinard, E., Russell, S., Knox, S., Thomas, O., Arias-Ortiz, A., Megonigal, P., Holmquist, J. Improving Methane Budgets from Tidal Wetlands with Coupled Biogeochemical Models MEM-PEPRMT. American Geophysical Union Fall Meeting, New Orleans, LA, Dec 13-17, 2021.
- Jha, G., **Sihi, D.**, Dari, B., Kaur, H., Nocco, M., Ulery, A. L., and Lombard, K. A. Rapid Assessment of Soil Total Iron Using an Inexpensive Nix Pro Color Sensor. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT, Nov 7-10, 2021.
- Mclennon, E., Dari, B., Jha, G., **Sihi, D.**, and Karnakala, V. Targeting Regenerative Agriculture and Integrative Permaculture for Sustainable and Technology Driven Global Food Production and Security. ASA, CSSA, SSSA International Annual Meeting, Salt Lake City, UT, Nov 7-10, 2021.
- *Mayes, M. A., **Sihi, D.**, Xu, X., Ortiz, M. S., O’Connell C., Silver, W., López-Lloreda, C. Modeling Methane Emissions in Anaerobic Microsites Along a Catena in Puerto Rico. American Geophysical Union Fall Meeting (virtual), Dec 1-17, 2020.
- Davidson, E. A., Fraver, S., Hollinger, D. Y., Richardson, A. D., Savage, K. E., **Sihi, D.**, and Teets, A. F. Multi-Decadal Carbon Cycle Measurements at the Howland Forest AmeriFlux Site. American Geophysical Union Fall Meeting (virtual), Dec 1-17, 2020.
- Oikawa, P., Holmquist, J., Megonigal, P., Russell, S., Knox, S., Najarro, M., Windham-Myers, L., Stuart-Haentjens, E., McNicol, G., Needelman, B., **Sihi, D.**, Forbrich, I., Tang, J., Bridgham, S., Lonneman, M., Wolfe, J., Fluet-Chouinard, E., and Arias-Ortiz, A. United States Methane Budget from Tidal Wetlands:

Developing an Open-source Database of Methane Measurements and Process-based Models. American Geophysical Union Fall Meeting (virtual), Dec 1-17, 2020.

- Gerber, S. and Sihi, D. When organic matter is the soil matrix: Challenges of using microbial explicit decomposition models in predominantly organic soils. Ecological Society of America Meeting (virtual), Aug 3-6, 2020.
- *Davidson, E. A. and **Sihi, D.** Carbon Climate Feedbacks Attributable to Soil Carbon Stabilization and Destabilization Processes Compared to the Difference between Simulated Ecosystem Photosynthesis and Respiration. AGU Chapman Conference on Understanding Carbon Climate Feedbacks, San Diego, CA, Aug 26-29, 2019 (*one of the plenary talks*).
- Mayes, M. A., Brenner, J., Phillips, J., **Sihi, D.**, Song, Y., Ottinger, S., López C. L., Singh, S., Jagadamma, S., Tfaily, M., Paša-Tolic, L., and Pan, C. Topographic Controls over Greenhouse Gas Emissions from Puerto Rican Rainforest Soils. 14th Annual Genomics of Energy & Environment Meeting, US DOE JGI, San Francisco, CA, Apr 2-5, 2019.
- Mayes, M. A., Brenner, J., Phillips, J., Quinn, R., Lloreda, C. L., Yudkin, B., Campa, M. F., **Sihi, D.**, Zheng, Song, Y., Hazen, T. C., Zheng, J., O'Connell, C., Silver, W., and Newman, B. Topographic controls over Greenhouse Gas Emissions from Puerto Rican Tropical Rainforest Soils. DOE Environmental System Science (ESS) PI meeting, Potomac, MD, Apr 30-May1, 2019.
- Dari, B. and Sihi, D. Assessment of Langmuir K in Various Land Use Systems: A Meta-Analysis. International Soils Meeting, San Diego, CA, Jan 6-9, 2019.
- *Davidson, E. A, **Sihi, D.**, Savage, K., and Hagedorn, J. Getting beyond hand-waving about microsites with numerical representations of trace gas production and consumption. International Soils Meeting, San Diego, CA, Jan 6-9, 2019.
- *Mayes, M. A., Song, Y., Wang, D., **Sihi, D.**, Quinn, R., Phillips, J. R., Brenner, J., Pan, C., Yao, Q., Johnston, E. R., Kim, M., and Konstantinidis, K. T. Upscaling Strategies for Quantitative Modeling of Soil Microbial Metagenomics in a Biogeochemical Model. American Geophysical Union Fall Meeting, Washington DC, Dec 10-14, 2018.
- Malhotra, A. Abramoff, R. Z., Hanson, P. J., Harden, J. W., Pries, C. H., Jackson, R. B., McCormack, M. L., Norby, R. J., **Sihi, D.**, Sulman, B. N., Thornton, P. E., Tumber-Davila, S. J., Walker, A., Werbin, Z., and Iversen, C. M. The persistence of root carbon in soil: data and modeling gaps. American Geophysical Union Fall Meeting, Washington DC, Dec 10-14, 2018.
- Mayes, M. A., Quinn, R., Lloreda, C. L., Brenner, J., Phillips, J., Yudkin, B., **Sihi, D.**, Zheng, J., O'Connell, C., Silver, W., and Newman, B. Controls over Greenhouse Gas Emissions from Puerto Rican Tropical Rainforest Soils, Department of Energy's Office of Biological and Environmental Research (BER), Potomac, MD, May 1-2, 2018.
Mayes, M. A., Song, Y., Yao, Q., Pan, C., Wang, G., Yang, X., Turner, B. L., Wright, J. S., Johnston, E. R., Kim, M., Konstantinidis, K., Quinn, R., **Sihi, D.**, Tfaily, M. M., Pasa-Tolic, M. Incorporating Microbial "Omics" Information into a Soil Biogeochemical Model: A Novel Model Scheme to Regulate Microbial Functions and Soil Carbon Dynamics, Ecological Society of America, New Orleans, LA, Aug 5-10, 2018.
- *Davidson, E. A, **Sihi, D.**, and Savage, K. Integrated measurements and modeling of CO₂, CH₄, and N₂O fluxes using soil microsite frequency distributions, European Geophysical Union General Assembly, Vienna, Austria, Apr 23-28, 2017.
- Inglett, P. W., **Sihi, D.**, Medvedeff, C., and Inglett, K. S. What's in store? Interactive effects of warming, nutrient- and carbon-limitation on decomposition and greenhouse gas production in wetlands. ASA-CSSA-SSSA Meeting, Phoenix, AZ, Nov 6-9, 2016.
- *Davidson, E. A., **Sihi, D.**, and Savage, K. The Soil Sink for Nitrous Oxide: Trivial Amount but Challenging Question. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 14-18, 2015.
- Inglett P. W., **Sihi, D.**, and Inglett, K. S. Warming rate drives microbial limitation and enzyme expression during peat decomposition. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 14-18, 2015.
- Gerber, S., **Sihi, D.**, Inglett, P. W., and Inglett, K. S. Substrate limitation in microbial decomposition models. Ecological Society of America Annual Meeting, Baltimore, MD, Aug 9-14, 2015.

- Inglett, K. S., Goswami, S., **Sihi, D.**, and Inglett, P. W. Temperature sensitivity of hydrolytic enzymes: Application to decomposition and greenhouse gas emission. Greater Everglades Ecosystems Restoration, Coral Springs, FL, April 21-23, 2015.
- Goswami, S., Inglett, P.W., **Sihi, D.**, and Inglett, K.S. Temperature Sensitivity of Enzyme Kinetic Parameters in Subtropical Wetland Soils of Contrasting Nutrient Status. Soil and Water Science Department Forum, University of Florida, Gainesville, FL, Sept 6, 2013.

Service

Editorial/ Peer-review Activities

- Section Editor, PLOS ONE, 2021 to present.
- Academic Editor: PLOS ONE, 2018 to 2021.
- Associate Editor: Agronomy Journal (Soil and Nutrient Management), 2018 to present.
- Editor: Soil Methods On-line: ACS320. Methods of Soil Analysis, ASA, CSSA, SSSA Books, 2017 to present.
- Review Editor: Frontiers in Soil Science (Soil Biogeochemistry & Nutrient Cycling Section), 2021 to present.
- Reviewer Board: Forests, 2020 to present.
- PeerJ Ambassador, 2019 to present.
- Peer-reviewed for scholarly journals: Nature Climate Change, Nature Geoscience, Nature Ecology & Evolution, Ecology Letters, Global Change Biology, Global Change Biology Bioenergy, Journal of Advances in Modeling Earth Systems, Global Ecology and Biogeography, Earth's Future, Soil Biology and Biochemistry, JGR-Biogeosciences, JGR-Earth Surface, Science of the Total Environment, Agricultural and Forest Meteorology, Ecosystems, Biogeosciences, Biogeochemistry, Environmental Reviews, Plant and Soil, Geoderma, PLOS ONE, Ecological Modelling, Atmospheric Environment, Applied Soil Ecology, PeerJ, Environmental Monitoring and Assessment, GeoHealth, Soil Science Society of America Journal, Water, Soil Systems, Wetlands, Pedosphere, Experimental Agriculture.
- Peer-reviewed Grant Proposal for DOE's Office of Science Graduate Student Research (SCGSR) Program
- Peer-reviewed Grant Proposals and Served on Panel for DOE's Environmental System Science (ESS) Program
- Peer-reviewed Grant Proposals and Served on Panel for the IDEAS-Watersheds project of DOE's Environmental System Science (ESS) Program
- Peer-reviewed Grant Proposal and Served on Panel for NSF's Signaling in the Soil (SitS) Program
- Peer-reviewed Grant Proposals for NSF's Division of Biology (DEB) Program
- Peer-reviewed Grant Proposals and Served on Panel for USDA NIFA's Soil Health (A1401) Program
- Peer-reviewed Grant Proposal for Natural Environment Research Council (NERC), UK
- Natural Sciences and Engineering Research Council of Canada (NSERC), Canada.
- Peer-reviewed for Intergovernmental Panel on Climate Change (IPCC): Special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways (SR1.5)
- Peer-reviewed for Conference Proceedings: Scientific papers for 19th Organic World Congress 2017, 5th ISOFAIR (International Society of Organic Agricultural Research) Scientific Conference “Innovative Research for Organic 3.0”, New Delhi, India.

Leadership Activities at National/International Level

- Science Advisory Committee Member, Molecular Observatory Network, Department of Energy (Aug 2022 to present).
- Member at Large, [Soil Ecology Society](#), 2020-2023.
- Ecological Society of America (ESA) [Publication Committee member](#), 2019-2025.
- Secretary, [Ecological Society of America \(ESA\)](#), [Biogeosciences Section](#), 2020-2021.
- Ecological Society of America (ESA) Rapid Response Team Member, 2019-2022.
- Curriculum committee member, Flux Course, 2018-2022.

- Organizer and Moderator, Symposium--Special Session--Complex Science of Soil Health, Food and Nutritional Security, and Climate Change (*session ID #23822*, received \$3000 funding) 2022 ASA-CSSA-SSSA Annual Meeting, Nov 6-9, Baltimore, MD.
- Session convener at 2020 AGU Fall Meeting, “*Integrating Molecular Insights to Advance Predictive Biogeochemistry: Theories, Observations, and Modeling (poster)*”.
- Moderator, *Session(s): “Soil Carbon and Greenhouse Gas Emissions-General Oral I and II”*, ASA-CSSA-SSSA annual meeting, San Antonio, TX, Nov 10-13, 2019.
- Society of Transnational Academic Researchers (STAR) Fellow, 2019-present.
- Talent Pool Strategy Task Force member, AGU, 2017-2018.
- Golden Opportunity Scholar and Mentor Selection Committee, ASA-CSSA-SSSA, 2017-2018.
- Reviewer, 2018 AGU Fall Meeting General Student Travel Grant Applications.
- Session chair at 2018 AGU Fall Meeting, “*Estimating Critical Biogeochemical Processes Across the Soil–Plant–Atmosphere Continuum Using Cutting-Edge Techniques (eLightning)*”.
- Panel Member, AGU Different Career Tracks Panel, AGU Fall Meeting, New Orleans, LA, 2017.
- OSPA Judge, AGU Fall Meeting, San Francisco, CA, 2016 and AGU Fall Meeting, New Orleans, LA, 2017.
- Virtual Poster Showcase Judge, AGU Fall Meeting, New Orleans, LA, 2017.
- Poster Judge, Wetland soils section, ASA-CSSA-SSSA Meeting, Phoenix, AZ, 2016.
- Advisory Panel of Eosense environmental gas monitoring, 2016.

Leadership Activities at University or Local Level

- PPET Implementation Committee, Emory College of Arts and Science, Emory University, 2022-2023
- PBEE Executive Committee, Emory University, 2022-2023
- Halle Institute for Global Research Review Committee, Emory University, 2022-2023
- Judge, Hack the Earth Hackathon, Atlanta Science Festival, 2022
- University Research Council, Mathematics & Natural Sciences Subcommittee member, Emory University, 2022.
- Faculty advisor, Intramural Emory Global Health Case Competition on One Health, 2022.
- Judge, Emory Global Health Institute-Georgia Tech Hackathon Disaster Hack, 2021.
- Panelist, New Faculty Orientation Event, Office of Faculty Affairs, Emory University, Fall 2021.
- National Scholarships & Fellowships Panelist, Office for Undergraduate Education, Emory College of Arts and Sciences, Emory University, 2020-present.
- Grants and Scholarship Committee Member, Department of Environmental Sciences, Emory College of Arts and Sciences, Emory University, 2021-present.
- [GHG and Climate Solutions committee member](#), Emory Office of Sustainability Initiatives, Emory University, Fall 2020.
- Diversity, Inclusion, and Equity Committee member, Department of Environmental Sciences, Emory University, Fall 2020 to present.
- Undergraduate curriculum committee member, Department of Environmental Sciences, Emory University, Fall 2020-present.
- Search committee member, University of Maryland Center for Environmental Science Librarian at Chesapeake Biological Laboratory, Fall 2016.