Katerina Georgiou

Lawrence Livermore National Laboratory
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RESEARCH INTERESTS

Soil Biogeochemistry • Ecosystem Modeling • Machine Learning • Microbial Dynamics • Global Change

EDUCATION

Ph.D., Chemical and Biomolecular Engineering, **University of California, Berkeley**   2018
Advisors: Margaret S. Torn, John Harte, William J. Riley

B.S., Chemical Engineering, **University of Minnesota, Twin Cities**   2012
Minors in Mathematics and Chemistry, *Summa Cum Laude with Distinction*
Advisor: Efrosini Kokkoli

POSITIONS AND AFFILIATIONS

Staff Scientist | Physical & Life Sciences, Lawrence Livermore National Laboratory   2023 – present

Affiliate Scientist | Climate & Ecosystem Sciences, Lawrence Berkeley Lab   2018 – present

Lawrence Research Fellow | Physical & Life Sciences, Lawrence Livermore National Laboratory   2020 – 2023

USDA NIFA Postdoctoral Research Fellow | Earth System Science, Stanford University   2018 – 2020

DOE SCGSR Graduate Fellow | Climate & Ecosystem Sciences, Lawrence Berkeley Lab   2017 – 2018

NSF GRFP Graduate Fellow | Chemical & Biomolecular Engineering, UC Berkeley   2014 – 2017

Graduate Instructor | Chemical & Biomolecular Engineering, UC Berkeley   2012, 2014, 2016

Research Assistant | Chemical Engineering & Material Science, University of Minnesota   2010 – 2012

Research Assistant | Biological Physics & Synthetic Biology, University of Minnesota   2008 – 2009

ACADEMIC HONORS & AWARDS

2022	Nature Communications Top 25 Articles in Earth, Environmental & Planetary Sciences
2022	LLNL Physical Life Sciences Directorate Award for Excellence in Publication
2020 – 2023	Lawrence Research Fellowship, *Lawrence Livermore National Laboratory*
2020 – 2023	REWIRE Fellowship (Marie-Curie ERC Co-fund), *University of Vienna, Austria* (declined)
2018 – 2020	USDA NIFA Postdoctoral Fellowship, *Stanford University*
2017	Best Overall Student Oral Presentation, *6th International Symposium on SOM, Harpenden, UK*
2017	DOE Office of Science Graduate Student Research Fellowship, *Lawrence Berkeley National Lab*
2016	Outstanding Graduate Student Instructor (<10% of instructors), *UC Berkeley*
2014	Outstanding Graduate Student Instructor (<10% of instructors), *UC Berkeley*
2013 – 2018	NSF Graduate Research Fellowship, *UC Berkeley*
2011 – 2012	Cargill Chemical Engineering Award and Scholarship, *University of Minnesota*
2010 – 2011	H. Ted Davis Chemical Engineering Award and Scholarship, *University of Minnesota*
2008 – 2012	College of Science and Engineering Merit Scholarship, *University of Minnesota*

RESEARCH GRANTS & FUNDING (approx. $2.7M as lead PI; $30.2M as co-PI/co-lead; $11.3 as co-I)

2023-2027 DOE EERC (co-PI and co-lead; PI: Jennifer Pett-Ridge) – "*Terraforming soil: Accelerating soil-based carbon drawdown through advanced genomics and geochemistry*" – $19M

2023-2026 LLNL LDRD Strategic Initiative (co-PI and co-lead; PI: Jennifer Pett-Ridge) – "*Farming Carbon: Accelerating the science of carbon sequestration and water security in working lands*" – $10.5M

2023-2025 Smithsonian's Life on a Sustainable Planet Initiative (co-PI; PI: Ellen Welti) – "*Evaluating megaherbivore effects on soil carbon via a global grassland network of partners*" – $75K

2023-2025 LLNL LDRD Lab Wide (PI) – "*Data-driven constraints on soil carbon persistence in Earth system models*" – $600K

2023-2025 LLNL LDRD Lab Wide (co-PI, with Kim Mayfield) – "*Growing plants and power: Quantifying climate impacts of agrivoltaics at the food-water-energy nexus*" – $600K

2023-2025 DOE ESS (co-I, PI: Eric Slessarev) – "*Understanding the geochemical basis for soil organic matter storage at the global scale*" – $400K

2021-2024 LLNL LDRD Exploratory Research (PI, with Eric Slessarev) – "*Advancing carbon cycle forecasts with global models of soil chemistry*" – $900K

2021-2024 DOE Soil Microbiome SFA at LLNL (co-I; PI: Jennifer Pett-Ridge) – $7.5M

2020-2023 LLNL LDRD Lawrence Fellowship (fellowship; PI) – "*From microbes to the Earth system: Upscaling microbial community dynamics to macro-scale soil carbon models*" – $600K

2020-2023 REWIRE Marie Curie Co-fund Fellowship (fellowship; PI) – $300K (declined)

2020-2022 Precourt Institute for Energy Seed Grant (co-I; PI: Scott Fendorf, Emily Lacroix) – "*Defining and managing oxygen-limitations of soils for negative CO_2 emissions*" – $100K

2018-2020 USDA NIFA Postdoc Fellowship (fellowship; PI) – "*Predicting the response of soil carbon stocks to changes in plant inputs across spatiotemporal scales*" – $170K

2017-2020 DOE Soil Biogeochemistry SFA at LBNL (co-I; PI: Margaret Torn) – $3.3M

2017-2018 DOE SCGSR (fellowship; PI) – $40K

2013-2018 NSF GRFP (fellowship; PI) – $120K

PUBLICATIONS (h-index = 21 and citations > 2,600 from Google Scholar; [++]denotes mentored student)

35. Rocci K., Cotrufo M. F., Ernakovich J., Foster E., Frey S., **Georgiou K.,** Grandy A. S., Malhotra A., Reich P., Schlerman E., Wieder W. R. Bridging 20 years of soil organic matter frameworks: empirical support, model representation, and next steps. *JGR Biogeosciences* (2024).

34. von Fromm S. F., Hoyt A. M., Sierra C. A., **Georgiou K.,** Doetterl S., Trumbore S. E. Controls and relationships of soil organic carbon abundance and persistence vary across pedo-climatic regions. *Global Change Biology*, 30 (5), 1-18 (2024).

33. Wieder W. R., Hartman M. D., Kyker-Snowman E., Eastman B., **Georgiou K.,** Pierson D., Rocci K. S., Grandy A. S. Simulating global terrestrial carbon and nitrogen biogeochemical cycles with implicit and explicit representations of soil microbial activity. *JAMES*, 16, e2023MS004156 (2024).

32. **Georgiou K.,** Koven C. D., Wieder W. R., Hartman M. D., Riley W. J., Pett-Ridge J., Bouskill N. J., Abramoff R. Z., Slessarev E., Ahlström A., Parton W. J., Pellegrini A.F.A., Pierson D., Sulman B. N., Zhu Q., Jackson R. B. Emergent temperature sensitivity of soil organic carbon driven by mineral associations. *Nature Geoscience*, 17, 205–212 (2024).

31. He X., Abramoff R. Z., Abs E., **Georgiou K.,** Zhang H., Goll D. Model uncertainty obscures major driver of soil carbon. Matters Arising in *Nature* (2024).

30. Rocci K. S., Cleveland C. C., Eastman B. A., **Georgiou K.,** Grandy A. S., Hartman M. D., Hauser E., Holland-Moritz H., Kyker-Snowman E., Pierson D., Reich P. B., Schlerman E. P., Wieder W. R. Aligning theoretical and empirical representations of soil carbon-to-nitrogen stoichiometry with process-based terrestrial biogeochemistry models. *Soil Biology & Biochemistry* (2023).

29. Pellegrini A. F. A. , Reich P. B., Hobbie S. E., Coetsee C., Wigley B., February E., **Georgiou K.,** Terrer C., Brookshire E. N. J., Ahström A., Nieradzik L., Sitch S., Melton J. R., Forrest M., Li F., Hantsen S., Burton C., Yue C., Ciais P., Jackson R. B. Determinants of the capacity of dryland ecosystems to store soil carbon under altered fire regimes. *Nature Climate Change*, 13, 1089-1094 (2023).

28. Villarino S. H., Talab E., Contisciani L., Videla C., Di Geronimo P., Mastrángelo M. E., **Georgiou K.,** Jackson R.B., Piñeiro G. A large nitrogen supply from the stable mineral-associated soil organic matter fraction. *Biology and Fertility of Soils*, 1-9 (2023).

27. Wolf J., Asch J., Tian F., **Georgiou K.,** Ahlström A. Canopy responses of Swedish primary and secondary forests to the 2018 drought. *Environmental Research Letters*, 18 (6), 064044 (2023).

26. Slessarev E., Mayer A., Kelly C., **Georgiou K.,** Pett-Ridge J., Nuccio E. Initial soil organic carbon stocks govern changes in soil carbon: reality or artifact? *Global Change Biology*, 29 (5), 1239-1247 (2023).

25. **Georgiou K.,** Jackson R. B., Vindušková O., Abramoff R. Z., Ahlström A., Feng W., Harden J. W., Pellegrini A. F. A., Polley H. W., Soong J. L., Riley W. J., Torn M. S. Global stocks and capacity of mineral-associated soil organic carbon. *Nature Communications*, 13 (1), 1-12 (2022).
* Top 25 Nature Comms. Earth, Environmental & Planetary Sciences Articles of 2022 (> 39k downloads)

24. Pierson D., Lohse K. A., Wieder W. R., Patton N. R., Facer J., de Graaff M-A., **Georgiou K.,** Seyfried M. S., Flerchinger G., Will R. Optimizing process-based models to predict current and future soil carbon stocks and pools at high-resolution. *Scientific Reports,* 12 (1), 1-15 (2022).

23. Sokol N. W.[+], Whalen E., Jilling A., Kallenbach C., Pett-Ridge J., **Georgiou K.**[+] The global distribution of mineral-associated soil organic matter, its formation and fate under a changing climate. *Functional Ecology,* 36, 1411-1429 (2022). ([+] co-corresponding authors)

22. Pellegrini A. F. A., Harden J. W., **Georgiou K.,** Hemes K. S., Malhotra A., Nolan C. J., Jackson R. B. Fire effects on the persistence of soil organic matter and the implications for long-term carbon storage. *Nature Geoscience*, 15: 5–13 (2022).

21. Kristensen J. A., Svenning J-C., **Georgiou K.,** Malhi Y. Can large herbivores stabilize ecosystem carbon? *Trends in Ecology & Evolution*, 37 (2), 117-128 (2022).

20. Abramoff R. Z., Guenet B., Zhang H., **Georgiou K.,** Xu X., Viscarra Rossel R. A., Yuan W., Ciais P. Site-level simulations of measureable soil fractions with Millennial Version 2. *Soil Biology & Biochemistry,* 164 (2022).

19. **Georgiou K.,** Malhotra A., Wieder W. R., Ennis J. H.[++], Hartman M. D., Sulman B. N., Berhe A. A., Grandy A. S., Kyker-Snowman E., Lajtha K., Moore J. A. M., Pierson D., Jackson R. B. Divergent controls of soil organic carbon between observations and process-based models. *Biogeochemistry Letters,* 1-14 (2021).

18. Pellegrini A. F. A., Caprio A. C., **Georgiou K.,** Finnegan C., Hobbie S. E., Hatten J. A., Jackson R. B. Low-intensity frequent fires in coniferous forests transform soil organic matter in ways that may offset ecosystem carbon losses. *Global Change Biology,* 27:3810–3823 (2021).

17. Billings S. A., Lajtha K., Malhotra A., Berhe A. A., de Graaff M.-A., Earl S., Fraterrigo J., **Georgiou K.,** Grandy A. S., Hobbie S., Moore J. A. M., Nadelhoffer K., Pierson D., Rasmussen C., Silver W., Sulman B., Weintraub S., Wieder W. Soil organic carbon is not just for soil scientists: Measurement recommendations for diverse practitioners. *Ecological Applications,* 31 (3), e02290 (2021).
* Top Cited Article in Ecological Applications

16. Abramoff R. Z., **Georgiou K.,** Guenet B., Torn M. S., Huang Y., Zhang H., Feng W., Jagadamma S., Kaiser K., Kothawala D., Mayes M. A., Ciais P. How much carbon can be added to soil by sorption? *Biogeochemistry Letters,* 152 (2), 127-142 (2021).

15. Walker A. P., De Kauwe M. G., Bastos A., Belmecheri S., **Georgiou K.,** Keeling R., McMahon S., Medlyn B., Moore D., Norby R., Zaehle S., Anderson-Teixeira K., Battipaglia G., Brienen R., Cabugao K., Cailleret M., Campbell E., Canadell J., Ciais P., Craig M., Ellsworth D., Farquhar G., Fatichi S., Fisher J., Frank D., Graven H., Gu L., Haverd V., Heilman K., Heimann M., Hungate B., Iversen C., Joos F., Jiang M., Keenan T., Knauer J., Körner C., Leshyk V., Leuzinger S., Liu Y., MacBean N., Malhi Y., McVicar T., Penuelas J., Pongratz J., Powell A., Riutta T., Sabot M., Schleucher J., Sitch S., Smith W., Sulman B., Taylor B., Terrer C., Torn M., Treseder K., Trugman A., Trumbore S., van Mantgem P., Voelker S., Whelan M., Zuidema P. Integrating evidence for CO_2 fertilization of the terrestrial carbon sink. *New Phytologist, 229 (5), 2413-2445* (2020).

14. Wieder W. R., Pierson D., Earl S., Lajtha K., Baer S., Ballantyne F., Berhe A. A., Billings S., Brigham L. M., Chacon S. S., Fraterrigo J., Frey S. D., **Georgiou K.,** de Graaff M.-A., Grandy A. S., Hartman M., Hobbie S., Johnson C., Kaye J., Kyker-Snowman E., Litvak M., Mack M., Malhotra A., Moore J., Nadelhoffer K., Rasmussen C., Silver W., Sulman B., Walker X., Weintraub S. SoDaH: the SOils DAta Harmonization database, an open-source synthesis of soil data from research networks, version 1.0, *Earth System Science Data,* 13 (5), 1843-1854 (2020).

13. Dwivedi D., Tang J., Bouskill N. J., **Georgiou K.,** Chacon S., Riley W. J. Abiotic and biotic controls on soil organo-mineral interactions: Developing model structures to analyze why soil organic matter persists. *Reviews in Mineralogy and Geochemistry,* 85 (1), 329-348 (2019).

12. Abramoff R. Z., Torn M. S., **Georgiou K.,** Tang J., Riley W. J. Soil organic matter temperature sensitivity cannot be directly inferred from spatial gradients. *Global Biogeochemical Cycles,* 33 (6), 761-776 (2019).

11. Sulman B., Moore J., Abramoff R. Z., Averill C., **Georgiou K.,** Kivlin S., Sridhar B., Hartman M., Wang G., Wieder W., Bradford M., Luo Y., Mayes M., Morrison E., Riley W. J., Salazar A., Schimel J., Tang J. Classen A. Multiple models and experiments underscore large uncertainty in soil carbon dynamics. *Biogeochemistry* (2018).

10. **Georgiou K.,** Harte J., Mesbah A., Riley W. J. A method of alternating characteristics with application to advection-dominated environmental systems. *Computational Geosciences*, 22 (3), 851-865 (2018).

9. Castanha C., Zhu B., Hicks Pries C. E., **Georgiou K.,** Torn M. S. The effects of heating, rhizosphere, and depth on root litter decomposition are mediated by soil moisture. *Biogeochemistry*, 137:267 (2018).

8. **Georgiou K.,** Abramoff R. Z., Harte J., Riley W. J., Torn M. S. Microbial community-level regulation explains carbon responses to long-term litter manipulations. *Nature Communications*, 8: 1223, 1-10 (2017).
   * Highlighted in Nature Communications Complex Systems Research Collection: Ecology and Evolution

7. Rammensee S., Kang M. S., **Georgiou K.,** Kumar S., Schaffer D. V. Dynamics of Mechanosensitive Neural Stem Cell Differentiation. *Stem Cells*, 35, 497-506 (2017).

6. Luo Y., Ahlström A., Allison S., Batjes N., Bonan G., Brovkin V., Carvalhais N., Chappell A., Ciais P., Davidson E., Finzi A., **Georgiou K.,** Hararuk O., Harden J., He Y., Hopkins F., Jiang L., Koven C., Jackson R., Jones C., Lara M., Liang J., McGuire A. D., Parton W., Peng C., Randerson J., Salazar A., Sierra C., Smith M., Tian H., Todd-Brown K., Torn M., Van Groenigen K. J., Wang Y. P., West T., Wei Y., Wieder W., Xia J., Xu X., Zhou T. Towards More Realistic Projections of Soil Carbon Dynamics by Earth System Models. *Global Biogeochemical Cycles*, 30, 40-56 (2016).

5. Wieder W., Allison S., Davidson E., **Georgiou K.,** Hararuk O., He Y., Hopkins F., Luo Y., Smith M., Sulman B., Todd-Brown K., Wang Y. P., Xia J., Xu X. Explicitly Representing Soil Microbial Processes in Earth System Models. *Global Biogeochemical Cycles*, 29 (10), 1782-1800 (2015).

4. **Georgiou K.,** Koven C., Riley W. J., Torn M. S. Towards improved model structures for analyzing priming: potential pitfalls of using bulk turnover time. *Global Change Biology*, 21 (12), 4298-2302 (2015).

3. Koven C., Chambers J., **Georgiou K.,** Knox R., Negron-Juarez R., Riley W. J., Arora V., Brovkin V., Friedlingstein P., Jones C. Controls on terrestrial carbon feedbacks by productivity versus turnover in the CMIP5 Earth System Models. *Biogeosciences*, 12, 5211-5228 (2015).

2. Pangburn, T.O., **Georgiou, K.,** Bates, F.S., and Kokkoli, E. Targeted Polymersome Delivery of siRNA Induces Cell Death of Breast Cancer Cells Dependent upon Orai3 Protein Expression, *Langmuir*, 28, 12816-12830 (2012).

1. **Georgiou K.** and Georgiou T. T. Graceful switching in hybrid models. *IEEE Conference on Decision and Control*, 3882-3884 (2009).

WHITEPAPERS & REPORTS

(multi-author, including **K. Georgiou**) *Roads to Removal: Options for Carbon Dioxide Removal in the United States*, Department of Energy, Lawrence Livermore National Laboratory, LLNL-TR-852901. [roads2removal.org]

Angerami A., Dreyer J., Fitzgerald M., **Georgiou K.,** Schunck N., Verriere M., Wendt K. *A strategy for NACS investment in Machine Learning*, Lawrence Livermore National Laboratory, LLNL-TR-834456.

INVITED & CONTRIBUTED PRESENTATIONS (selected from > 60 total; [++] denotes mentored student)

- **Georgiou K.** *Looking under the hood: soil carbon pool distributions and benchmarks for Earth system models.* 7th Training Course in Land Carbon Cycle Modeling, 2024 (Invited Seminar).
- **Georgiou K.** *Mineral-organic associations influence the vulnerability of soil carbon storage.* Clay Mineral Society Annual Meeting, 2024 (Invited Oral).
- **Georgiou K.** *Global distribution and temperature sensitivity of mineral-associated soil organic carbon.* SOM Symposium, Morocco, 2024 (Oral).
- Torn M.S., Riley W. J., Sanderman J., **Georgiou K.,** Janssens I. (co-presenting authors) Challenges in soil carbon quantification and modeling. USDA, 2024 (Invited Seminar).
- **Georgiou K.,** Guseva K., Pett-Ridge J., Kaiser C. *Density-dependent microbial turnover emerges from population-level controls.* AGU Fall Meeting, 2023 (Oral).
- **Georgiou K.** *Global distribution and temperature sensitivity of mineral-associated soil organic carbon.* SSSA/CSSA/ASA (Tri-Societies) Meeting, 2023 (Invited Symposium Speaker).
- **Georgiou K.** *Global capacity and temperature sensitivity of mineral-associated soil organic carbon.* PNNL Distinguished Soil Science Speaker Series, August 2023 (Invited Seminar).
- **Georgiou K.,** Guseva K., Pett-Ridge J., Kaiser C. *Modeling population-level controls on soil microbial turnover.* MicroSoil Workshop, 2023 (Poster).
- **Georgiou K.** *Improving representations of soil microbial processes in ecosystem models.* ASM Microbe, 2023 (Invited Symposium Speaker).
- **Georgiou K.,** Guseva K., Pett-Ridge J., Kaiser C. *Modeling population-level controls on soil microbial turnover across scales.* EGU Meeting, 2023 (Oral).
- **Georgiou K.** *Global distribution and climatological temperature sensitivity of soil organic matter fractions in observations and models.* Sandia National Laboratory Soil Workshop, 2022 (Invited Oral).
- **Georgiou K.** *Global capacity and controls of mineral-associated soil organic carbon in observations and models.* CMESS Seminar, University of Vienna, June 2022 (Invited Oral).
- **Georgiou K.,** et al. *Global distribution and climatological temperature sensitivity of soil organic matter fractions in observations and models.* EGU, 2022 (Invited Oral).
- **Georgiou K.** *Soil carbon saturation: mineralogical capacity and biotic controls.* ISCN-AGU Webinar Series, March 2022 (Invited Oral). [https://www.youtube.com/watch?v=noEcc_Nf204]
- **Georgiou K.** *Biogeochemical models for projections of climate impacts.* LLNL Climate Impacts Webinar Series, January 2022 (Invited Oral).
- Flaherty A.[++], **Georgiou K.,** Malhotra A., Slessarev E., Sokol N., Pett-Ridge J. *Diagnosing discrepancies in soil carbon stocks between upscaled global data products.* AGU Fall Meeting, 2021 (Poster).

- **Georgiou K.,** et al*. Looking under the hood: benchmarking soil organic matter pool distributions at the global-scale.* AGU Fall Meeting, 2021 (Oral).
- **Georgiou K.** *Machine learning emulators reveal divergence in soil carbon controls between observations and process-based models.* CLAND Workshop on Machine Learning for Climate, 2020 (<u>Invited</u> Oral).
- **Georgiou K.,** Malhotra A., Ennis J. H.[++], Wieder W. R., Hartman M. D., Sulman B. N., Berhe A. A., Grandy A. S., Kyker-Snowman E., Moore J., Pierson D., Jackson R. B. *Biome- to global-scale controls on soil carbon storage: divergence between observations and process-based models.* AGU Virtual Meeting, 2020 (Oral).
- **Georgiou K.** *Machine learning emulators reveal divergence in soil carbon controls between observations and process-based models.* DOE RUBISCO Meeting, 2020 (<u>Invited</u> Oral).
- Jackson R. B., **Georgiou K.,** Piñeiro G., Terrer C., Villarino S. *Roots, Soil Carbon, and Negative Emissions.* Salk Institute Drawdown Workshop, 2020 (<u>Invited</u> Oral).
- **Georgiou K.,** Malhotra A., Ennis J. H.[++], Wieder W. R., Hartman M. D., Sulman B. N., Grandy A. S., Moore J., Jackson R. B. *Leveraging model-generated hypotheses and cross-network observations to understand biome-to global-scale controls on soil organic matter stocks*. AGU Fall Meeting, 2019 (Poster).
- **Georgiou K.,** Jackson R. B., Feng W., Harden J., Abramoff R. Z., Riley W. J., Torn M. S. *The mineralogical capacity of soils to store carbon: sequestration and vulnerability in a changing climate.* EGU Meeting, Vienna, Austria, 2019 (Oral).
- **Georgiou K.,** Feng W., Abramoff R. Z., Riley W. J., Jackson R. B., Torn M. S. *The role of mineral content and composition on the capacity of soils to store carbon.* AGU Fall Meeting, Washington DC, 2018 (Oral).
- **Georgiou K.,** Abramoff R. Z., Riley W. J., Torn M. S. *Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability*. ESS PI Meeting, Potomac, MD, 2018 (Poster).
- **Georgiou K.,** Abramoff R. Z., Harte J., Riley W. J., Torn M. S. *Microbial community-level regulation explains carbon responses to long-term litter manipulations.* ESS PI Meeting, Potomac, MD, 2018 (Poster).
- **Georgiou K.,** Abramoff R. Z., Riley W. J., Torn M. S. *Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability*. EGU Meeting, Vienna, Austria, 2018 (Oral).
- **Georgiou K.,** Abramoff R. Z., Riley W. J., Torn M. S. *The role of organo-mineral interactions on the capacity of soils to store carbon.* AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
- Li Z.[++], **Georgiou K.,** Torn M. S. *The effect of long-term changes in plant inputs on soil carbon stocks.* AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *Microbial community-level regulation explains carbon responses to long-term litter manipulations.* SOM Symposium, Harpenden, UK, 2017 (Oral).
  Awarded Best Student Oral Presentation in Session & Overall
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *Density-dependent microbial turnover improves soil carbon model predictions of long-term litter manipulations.* EGU Meeting, Vienna, Austria, 2017 (Oral).
- Abramoff R., Harden J., **Georgiou K.** (presenting author), Tang J., Torn M. S., Riley W. J. *Managing for soil carbon sequestration: a modeling framework for decision-making.* EGU Meeting, Austria, 2017 (Oral).
- **Georgiou K.** *Density-dependent microbial turnover improves soil carbon model predictions of long-term litter manipulations.* Seminar in Rob Jackson's Lab, Stanford University, CA, 2016 (<u>Invited</u> Oral).
- **Georgiou K.,** Abramoff R., Harte J., Riley W. J., Torn M. S. *(A)biotic processes control soil carbon dynamics: quantitative assessment of model complexity, stability and response to perturbations for improving ESMs.* AGU Fall Meeting, San Francisco, CA, 2016 (Oral).
- **Georgiou K.,** Abramoff R., Koven C. D., Riley W. J., Torn M. S. *Soil carbon vulnerability to land-cover change and implications for the global carbon cycle.* AGU Fall Meeting, San Francisco, CA, 2015 (Poster).
- **Georgiou K.,** Riley W. J., Torn M. S. *Response of Soil Carbon Storage to Temperature and Carbon Input Variability in Earth System Models*. CFCC, Paris, France, 2015 (Poster).
- **Georgiou K.,** et al. *Towards Improved Model Structures for Analyzing Soil Response to Changes in Plant Inputs*. ECOSS meeting, Northern Arizona University, Flagstaff, AZ, 2015 (<u>Invited</u> Oral).
- **Georgiou K.,** Riley W. J., Tang J., Torn M. S. *Emergent Responses of Soil C Dynamics to Seasonal Variability in Nonlinear SOM-microbial Models*. ESS PI Meeting, Potomac, MD, 2015 (Poster).

- **Georgiou K.,** Tang J., Riley W. J., Torn M. S. *Characterizing Feedback Control Mechanisms in Nonlinear Microbial Models of Soil Organic Matter Decomposition by Stability Analysis.* AGU Fall Meeting, San Francisco, CA, 2014 (Poster).
- **Georgiou K.,** Koven C., Riley W. J., Torn M. S. *First-order Models of Soil Organic Matter Decomposition Exhibit a Bias in Response to Elevated CO_2: Implications for Representing Soil Priming in Earth System Models.* Graduate Climate Conference, Seattle, WA, 2014 (Poster).
- **Georgiou K.** *Targeted Delivery of Polymer Vesicles to Breast Cancer Cells: Colocalization and siRNA Delivery*. Honors Thesis Presentation, University of Minnesota, Minneapolis, MN, 2012 (Oral).
- **Georgiou K.** and Escalante D. *Stochastic Simulation of the Fission Yeast Cell Cycle with a Minimal CDK Control Network*, Presentation in Biomedical Engineering, Univ. of Minnesota, Minneapolis, MN, 2011 (Oral).

TEACHING EXPERIENCE

Fall 2016   **Graduate Instructor:** *Transport Process (CBE 250A; graduate-level course)* | UC Berkeley
         * Awarded the *UC Berkeley Outstanding Graduate Student Instructor Award*

Spring 2014   **Graduate Instructor:** *Fluid Dynamics & Heat Transfer (CBE 150A; undergrad)* | UC Berkeley
         * Awarded the *UC Berkeley Outstanding Graduate Student Instructor Award*

Fall 2012   **Graduate Instructor:** *Intro to Chemical Engineering Design (CBE 40; undergrad)* | UC Berkeley

COURSEWORK & TECHNICAL SKILLS

Additional Training:

2015   Community Land Model (CLM) Tutorial Training (1-week workshop)
         National Center for Atmospheric Research, USA

2012   Pedagogy: Teaching and Learning in Higher Education (15-week course)
         University of California, Berkeley, USA

Field Experience: Blodget Forest CA (2016, 2017, 2018, 2019), Hopland CA (2016, 2017, 2021), Sequoia CA (2017), American Prairie Reserve MT (2022), Tongass National Forest AK (2022)

Other Certifications:
     WASI Scuba Certification (2007)
     Yoga Alliance 200hr Teacher Certification (2017)
     AIARE Level 1 Avalanche Safety Certification (2020)

Courses: *Carbon cycle dynamics, Scalable spatial analytics, Statistical models: theory and application, Modeling ecological and meteorological phenomena, Biochemistry, Applied linear algebra, Diffusion and transport phenomena, Biomolecular engineering, Chemical reaction kinetics, Numerical methods, Process control, Probability and statistics, Mathematical modeling, Polymers, Thermodynamics, Statistical mechanics, Environmental fluid mechanics, Air quality engineering*

Teaching: *Introduction to Chemical Engineering Design (undergraduate level), Transport Process: Fluid Dynamics and Heat Transfer (undergraduate level), Transport Process (graduate level)*

Software and Programming: Python, R, MATLAB, Java, Mathematica, LaTeX, Excel, COMSOL Multiphysics

Languages: fluent in English and Greek, intermediate Spanish, beginner French and Italian

SERVICE & OUTREACH

Peer Reviewer: Nature, Nature Geosciences, Nature Ecology & Evolution, Nature Communications, Global Change Biology, Ecology Letters, New Phytologist, PNAS Nexus, Communications Earth & Environment, SOIL, Biogeosciences, Biogeochemistry, Soil Biology & Biochemistry, Journal of Geophysical Research: Biogeosciences, Geoderma, Geoderma Regional

Topical Editor: SOIL (2024 – present); **Review Editor:** Frontiers in Forests and Global Change (2018 – present)

Conference Organizer/Convener:

2023 AGU Fall Meeting: Soils in the Anthropocene: Mechanisms of Stabilization and Change Across Scales (session chair); Land Biogeochemical Cycling Under Global Environmental Change: Patterns, Drivers, and Mechanisms (session convener).

2022 AGU Fall Meeting: Soils in the Anthropocene: Mechanisms of Stabilization and Change Across Scales (session chair); Land Biogeochemical Cycling Under Global Environmental Change: Patterns, Drivers, and Mechanisms (session convener).

2021 AGU Fall Meeting: Soils in the Anthropocene: Mechanisms of Stabilization and Change Across Scales (session convener).

2020 AGU Fall Meeting: Soils in the Anthropocene: Mechanisms of Stabilization & Change (session chair).

2019 EGU General Assembly: Upscaling detailed models to landscape for long-term predictions and integration in Earth System Models (session chair).

2017 AGU Fall Meeting: Microbial-Mineral Regulation of Soil Organic Matter: Mechanisms, Experimental Approaches, and Models (session convener).

2016 AGU Fall Meeting: Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes (session convener).

2017 CBE Student Symposium: 2nd Annual UC Berkeley Chemical & Biomolecular Engineering (CBE) Symposium with poster and oral presentations (organizer).

Society Membership: AGU, EGU, ESA, ASM, SSSA, BSSS

Media Interviews:

Interviewed for **Nature Careers Feature**:
Baker, Monya. Scientific computing: Code alert, *Nature,* 541, 563-565 (2017).

Interviewed for **BBC Radio Feature**:
Episode on *Carbon Farming*, hosted by Taylor Kate Brown (interviewed Nov. 5th 2018).

Volunteering:

Bay Area Science Festival & Stanford Science Festival   2018, 2019
Science fairs to educate children and parents about careers in STEM with interactive presentations.

Bay Area Scientists in Schools (BASIS)   2012 – 2018
Elementary and middle school lessons with fun science presentations and real-world STEM experiences.

Engineers Without Borders (EWB)   2008 – 2012
Uganda Project and Fundraising: Water treatment, sanitation, and groundwater distribution for a school in Kyetume, Uganda, in collaboration with Uganda Rural Fund, a non-government organization.