

KATERINA GEORGIU

Physical and Life Sciences Directorate
Lawrence Livermore National Laboratory
website: www.kgeorgiou.com, email: georgiou1@llnl.gov

RESEARCH INTERESTS

Biogeochemistry • Soil Carbon Modeling • Microbial Dynamics • Numerical Methods • Chemical Kinetics

EDUCATION

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

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

RESEARCH EXPERIENCE

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

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

2020 – 2023 **Lawrence Research Fellow** | Physical & Life Sciences, Lawrence Livermore National Laboratory
Mentor: Jennifer Pett-Ridge

2018 – 2020 **USDA NIFA Postdoctoral Research Fellow** | Earth System Science, Stanford University
Mentor: Robert B. Jackson

2017 – 2018 **DOE SCGSR Graduate Fellow** | Climate & Ecosystem Sciences, Lawrence Berkeley Lab
Advisor: William J. Riley

2014 – 2017 **NSF GRFP Graduate Fellow** | Chemical & Biomolecular Engineering, UC Berkeley
Advisors: Margaret S. Torn, John Harte

2012 – 2013 **Graduate Student Researcher** | Chemical & Biomolecular Engineering, UC Berkeley

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

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

TEACHING EXPERIENCE

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

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

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

ACADEMIC HONORS & AWARDS

2022	LLNL Physical Life Sciences Directorate Award for Excellence in Publication
2020 – 2023	Lawrence Research Fellowship, <i>Lawrence Livermore National Laboratory</i>
2020 – 2023	REWIRE Fellowship (Marie-Curie Co-fund), <i>University of Vienna, Austria</i> (declined)
2018 – 2020	USDA NIFA Postdoctoral Fellowship, <i>Stanford University</i>
09/2017	Best Overall Student Oral Presentation, <i>6th International Symposium on SOM, Harpenden, UK</i>
03/2017	Graduate Division Travel Grant, <i>University of California at Berkeley</i>
2017	DOE Office of Science Graduate Student Research Fellowship, Lawrence Berkeley National Lab
12/2016	Outstanding Graduate Student Instructor (<10% of instructors), <i>UC Berkeley</i>
05/2015	Graduate Division Travel Grant, <i>University of California at Berkeley</i>
05/2014	Outstanding Graduate Student Instructor (<10% of instructors), <i>UC Berkeley</i>
2013 – 2018	NSF Graduate Research Fellowship, <i>UC Berkeley</i>
2011 – 2012	Cargill Chemical Engineering Award and Scholarship, <i>University of Minnesota</i>
2010 – 2012	Paula Zoromski Memorial Scholarship, <i>University of Minnesota</i>
2010 – 2011	H. Ted Davis Chemical Engineering Award and Scholarship, <i>University of Minnesota</i>
2010 – 2011	Ruth Jones Chemical Engineering Scholarship, <i>University of Minnesota</i>
2008 – 2012	College of Science and Engineering (CSE) Merit Scholarship, <i>University of Minnesota</i>

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) – <i>“Terraforming soil: Accelerating soil-based carbon drawdown through advanced genomics and geochemistry”</i> – \$19M
2023-2026	LLNL LDRD Strategic Initiative (co-PI and co-lead; PI: Jennifer Pett-Ridge) – <i>“Farming Carbon: Accelerating the science of carbon sequestration and water security in working lands”</i> – \$10.5M
2023-2025	Smithsonian's Life on a Sustainable Planet Initiative (co-PI; PI: Ellen Welti) – <i>“Evaluating megaherbivore effects on soil carbon via a global grassland network of partners”</i> – \$75K
2023-2025	LLNL LDRD Lab Wide (PI, with Katie Grant) – <i>“Data-driven constraints on soil carbon persistence in Earth system models”</i> – \$600K
2023-2025	LLNL LDRD Lab Wide (co-PI, with Kim Mayfield) – <i>“Growing plants and power: Quantifying climate impacts of agrivoltaics at the food-water-energy nexus”</i> – \$600K
2023-2025	DOE ESS (co-I, PI: Eric Slessarev) – <i>“Understanding the geochemical basis for soil organic matter storage at the global scale”</i> – \$400K
2021-2024	LLNL LDRD Exploratory Research (PI, with Eric Slessarev) – <i>“Advancing carbon cycle forecasts with global models of soil chemistry”</i> – \$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) – <i>“From microbes to the Earth system: Upscaling microbial community dynamics to macro-scale soil carbon models”</i> – \$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) – <i>“Defining and managing oxygen-limitations of soils for negative CO₂ emissions”</i> – \$100K
2018-2020	USDA NIFA Postdoc Fellowship (fellowship; PI) – <i>“Predicting the response of soil carbon stocks to changes in plant inputs across spatiotemporal scales”</i> – \$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 = 19 and citations > 2,050 from Google Scholar; ** denotes mentored student)

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* (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 Communications Earth, Environmental and Planetary Sciences Articles of 2022**
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 Millennium Version 2. *Soil Biology & Biochemistry*, 164, 108466 (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., Bastos A., De Kauwe M. G., **Georgiou K.**, Keeling R., McMahon S., Medlyn B., Moore D., Norby R., Zaehle S., Anderson-Teixeira K., Battipaglia G., Brien 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., Heilmann 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 CO₂ 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 Letters*, 141 (2), 109-123 (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.

PRESENTATIONS & CONFERENCE CONTRIBUTIONS (selected; ** denotes mentored student)

- **Georgiou K.** *Global capacity and temperature sensitivity of mineral-associated soil organic carbon*. PNNL Distinguished Soil Science Speaker Series 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 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*. CMES 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).
- **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, 2021 (Poster).
- **Georgiou K.**, Wieder W. R., Abramoff R. Z., Koven C. D., Riley W. J., Ahlström A., Bouskill N. J., Hartman M. D., Pierson D., Sulman B. N., Zhu Q., Pett-Ridge J., Jackson R. B. *Looking under the hood: benchmarking soil organic matter pool distributions at the global-scale*. AGU, 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 (Invited 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 (Invited Oral).
- Malhotra A., **Georgiou K.**, Todd-Brown K. E., Earl S., Harden J., Wieder W., Jackson R. B. *Heterogeneity in soil carbon stocks: Data-based or database-based?* ESA Virtual Annual Meeting, 2020 (Invited Oral).
- Jackson R. B., **Georgiou K.**, Piñeiro G., Terrer C., Villarino S. *Roots, Soil Carbon, and Negative Emissions*. Salk Institute Drawdown Workshop, 2020 (Invited Oral).
- **Abramoff R.**, Georgiou K., Guenet B., Torn M., Huang Y., Zhang H., Feng W., Jagadamma S., Kaiser K., Kothawala D., Mayes M., Ciais P. *How much more carbon can be sorbed to soil?* EGU Virtual 2020 (Oral).

- Pellegrini A., Caprio T., **Georgiou K.**, Finnegan C., Hobbie S. E., Hatten J., Jackson R. B. *Limited carbon cost of fire management in Californian forests: compensatory responses may buffer against long-term soil carbon losses*. AGU Fall Meeting, 2019 (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).
- Harden J., Sulman B., Hugelius G., Loisel J., Vinduskova O., Malhotra A., **Georgiou K.**, Ahlstrom A., Jackson R. *The role of soil research, databases, and soil indices in the drawdown of CO₂*. EGU Meeting, 2019 (Oral).
- **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).
- Abramoff R. Z., **Georgiou K.**, Riley W. J., Torn M. S. *Controls on SOC across space and time: Models with different acclimation schemes make similar spatial predictions but divergent warming predictions*. 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).
- Riley W. J., **Georgiou K.**, Abramoff R., Tang J., Torn M. S. *Modeling the vulnerability of soil C stocks to warming with a focus on minerals and microbes*. ESS PI Meeting, Potomac, MD, 2017 (Poster).
- Classen A., Sulman B., Moore J., Kivlin S., Averill C., Abramoff R. Z., Wieder W., **Georgiou K.**, Sridhar B. *Microbes, Meta-analysis, Mountains, Models, and Mechanics: Exploring Ecosystem Function under Global Change*. ESS PI Meeting, Potomac, MD, 2017 (Oral).
- **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*. Seminar in Rob Jackson's Lab, Stanford University, CA, 2016 (Invited 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).
- Koven C., Chambers J., **Georgiou K.**, Knox R., Negron-Juarez R., Riley W. J., Arora V., Brovkin V., Friedlingstein P., Jones C. *Productivity and Turnover Controls on Terrestrial Carbon Feedbacks in the CMIP5 ESMs*. ESA Annual Meeting, Baltimore, MD, 2015 (Oral).

- **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.**, Koven C., Tang J., Riley W. J., Torn M. S. *Towards Improved Model Structures for Analyzing Soil Response to Changes in Plant Inputs*. ECOSS meeting, Northern Arizona University, Flagstaff, AZ, 2015 (Invited Oral).
- Riley W. J., Dwivedi D., **Georgiou K.**, Tang J., Torn M.S. *Explicitly Representing Microbes, Enzymes, Mineral Interactions, and Tracer Transport to Better Predict Depth-Resolved SOM Stocks and Turnover Under Warming*. ESS PI Meeting, Potomac, MD, 2015 (Poster).
- **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 CO₂: 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).

COURSEWORK & TECHNICAL SKILLS

Additional Training:

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

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, Stat-Ease, Aspen HYSYS, COMSOL Multiphysics, Git, HTML, PostGIS & PostgreSQL

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, New Phytologist, Communications Earth & Environment, Biogeosciences, Biogeochemistry, Soil Biology & Biochemistry, Journal of Geophysical Research: Biogeosciences, Geoderma

Review Editor: Frontiers in Forests and Global Change

Conference Organizer/Convener:

AGU Fall Meeting 2022 Sessions: Soils in the Anthropocene: Mechanisms of Stabilization and Change Across Scales. (Co-conveners: Derek Pierson, Kate Lajtha); *Land Biogeochemical Cycling Under Global Environmental Change: Patterns, Drivers, and Mechanisms.* (Co-conveners: Kailiang Yu, Rose Abramoff)

AGU Fall Meeting 2021 Session: Soils in the Anthropocene: Mechanisms of Stabilization and Change Across Scales. (Co-conveners: Avni Malhotra, Kathe Todd-Brown, Samantha Weintraub)

AGU Fall Meeting 2020 Session: Soils in the Anthropocene: Mechanisms of Stabilization and Change. (Co-conveners: Xiaoqin Wu, Amrita Bhattacharyya, Kate Lajtha, Avni Malhotra, Nancy Cavallaro)

EGU General Assembly 2019 Session: Upscaling detailed models to landscape for long-term predictions and integration in Earth System Models. (Co-conveners: Stefano Manzoni, Claudia Cagnarini, Artem Vladimirov, Rose Abramoff)

AGU Fall Meeting 2017 Session: Microbial-Mineral Regulation of Soil Organic Matter: Mechanisms, Experimental Approaches, and Models II. (Co-conveners: Kevin Geyer, Caitlin Hicks-Pries, Rose Abramoff, Jeffrey Bird, Karin Block, Alain Plante)

AGU Fall Meeting 2016 Session: Soil Carbon Dynamics: Models and Experiments Investigating Controls on Soil Organic Matter Vulnerability in Dynamic Landscapes. (Co-conveners: Caitlin Hicks-Pries, Rose Abramoff, Asmeret Berhe, Jennifer Dungait)

CBE Student Symposium 2017: 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) 09/2012 – 05/2018
Elementary and middle school lessons with fun science presentations and real-world STEM experiences.

Engineers Without Borders (EWB) 09/2008 – 05/2012
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.