

Fernanda Santos

Staff Scientist, Oak Ridge National Laboratory

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Research areas: disturbances, belowground processes, soil biogeochemical cycles, carbon cycling

EDUCATION

- Ph.D., **Earth and Environmental Sciences**, The Graduate Center, City University of NY 2014
Dissertation title: Carbon and nitrogen dynamics from slow pools of soil organic matter in a temperate forest: pyrogenic organic matter and root litter. Advisor: Dr. Jeffrey A. Bird
- MA, **Physical Geography**, Hunter College, City University of NY 2007
Thesis title: Quantifying the scales of the land surface heterogeneity.
Advisor: Dr. Haydee Salmun
- BS, **Geography**, State University of Rio de Janeiro, Brazil 2004
Independent research title: The effect of two distinct land cover types on the characteristics and properties of a soil to assess its degradation conditions: Estrangina microbasin, Petrópolis, Rio de Janeiro. (*Estudo comparativo entre o efeito de duas coberturas vegetais distintas sobre as características e propriedades de um solo, para fins de avaliação das condições de degradação do mesmo: microbia da Estrangina, Petrópolis, RJ.*)
Advisor: Dr. Neusa Maria Costa Mafra; Co-advisor: Dr. Beata Eموke Madari
- Teaching certificate (*Licenciatura*), **Geography**, State University of Rio de Janeiro, Brazil 2004

RESEARCH EXPERIENCE

- Staff Scientist**, *Oak Ridge National Laboratory, Oak Ridge, TN* 2022-present
- Adjunct Assistant Professor**, *University of Tennessee Knoxville, TN* 2021-present
- Postdoctoral Research Associate**, *Oak Ridge National Laboratory, TN* 2020-2022
- UC Chancellor's Postdoctoral Fellow**, *University of California-Merced, CA* 2017-2019
PIs.: Dr. Asmeret Asefaw Berhe (UC Merced) and Dr. Sanjai Parikh (UC-Davis)
- Postdoctoral Scholar**, *University of California-Merced, CA* 2015-2017
PI.: Dr. Asmeret Asefaw Berhe
- Visiting Scientist**, *Florida International University, FL* March, 2015
- Postdoctoral Research Associate**, *Michigan State University, MI* February 2014-April 2015
PI.: Dr. Jessica Miesel
- Graduate Research Assistant**, *School of Earth and Environmental Sciences* 2012, 2011, 2008

Research Fellow , <i>Univ. of Michigan Biological Station, Pellston, MI</i>	2012-2009
Visiting Graduate Student , <i>Global Institute of Sustainability, Arizona State U., AZ</i>	2011
Visiting Graduate Student , <i>Department of Geography, U. of Zurich, Switzerland</i>	2010
Graduate Research Assistant , <i>Department of Geography, Hunter College, CUNY, NY</i>	2007-2005
Undergraduate Research Assistant , <i>Soil Research Institute of the Brazilian Agricultural Research Corporation, Rio de Janeiro, Brazil</i>	2004-2001
Undergraduate Research Assistant , <i>State U. of Rio de Janeiro, Rio de Janeiro, Brazil</i>	2002-2001

AWARDS AND HONORS

2020. ESA Strategies for Ecology Education, Diversity and Sustainability (SEEDS) Interdisciplinary Power of Data Research Travel Award

2019. Nominated and selected by the Soil Science Society of America/Range & Wildland Soils Divisions for the S.A. Wilde Early Career Achievement Award

2017. Recipient of the University of California Chancellor's Postdoctoral Fellowship (\$120k)

2016. NSF ASSIST Travel Grant to attend the Society of Hispanic Professional Engineers Faculty Development Institute organized by the Society of Hispanic Professional Engineers.

2015. Finalist - U. of California President's Postdoctoral Fellowship Program

2015. Novus Research Coordination Network Scientist Exchange Program (\$1,500)

2015. Michigan State University/Committee on Institutional Cooperation (CIC, \$500) 2015. CIC/Alliances for Graduate Education and the Professoriate (\$250)

2014. Fulbright Scholar travel award proposal recommended for funding in the first phase of a rigorous review process.

2013. Office of the Dean of the Division of Mathematics and Natural Sciences, QC, CUNY (\$250)

2012. Paul Roux Scholarship Fund, School of Earth and Environmental Sciences, QC, CUNY (\$1,000)

2012. U. of Michigan Biological Station Mort Neff Graduate Student Research Fund (\$1,020)

2011. U. of Michigan Biological Station Henry Allan Gleason Fellowship (\$2,080)

2011-2009. NSF-IGERT Biosphere-Atmosphere Research and Training Fellowship (\$60,000) 2009-2007. CUNY The Graduate Center Science Fellowship (\$24,000)

2009. Research Grant for CUNY Doctoral Students (\$1,000)

2008. CUNY Alliances for Graduate Education and the Professoriate Summer Grant (\$5,000) 2008. Sue Rosenberg Zalk Travel & Research Fund Award (\$300)

2008-2007. NSF/CUNY Alliances for Graduate Education and the Professoriate Grant (\$2,550) 2008. Geological Society of America Joint Annual Meeting Student Travel Fund Award (\$75)

2006. Gamma, Theta, Upsilon International Geographical Honor Society 2006. Society of Woman Geographers Graduate Fellowship Award (\$5,000)

GRANTS

2023. Co-Investigator of the ORNL-Laboratory Directed Research and Development (LDRD) research proposal entitled “SoilCosm phenotyping to counteract priming for sequestration”. Principal Investigator: Larry York. Initiative: Transformational Decarbonization Initiative (TDI) (*\$1,2k*)

2022. Co-Investigator of the ORNL-Laboratory Directed Research and Development (LDRD) research proposal entitled “Investigating ecosystem-scale resilience to thermal extremes”. Principal Investigator: Natalie Griffiths. Initiative: Integrated Studies of Complex Biological and Environmental Systems (*\$764k*)

2022. Principal investigator of the ORNL-Laboratory Directed Research and Development (LDRD) Strategic Hire research proposal entitled “Assessing the impacts of disturbances on soil carbon cycling” (*\$500k*)

2022. Co-authored a letter of intent and full proposal entitled “Pyrogenic signals: How unique is microbial diversity and organic matter chemistry in rivers and streams drained from burned watersheds relative to unburned watersheds?” and led by Allison Myers-Pigg (PNNL) for research activities at the Environmental Molecular Sciences Laboratory (EMSL) as part of the Facilities Integrating Collaborations for User Science (FICUS). Resources were not awarded for this proposal.

2021 Collaborator in a CITRIS Seed Grant, Challenge 1: Climate Resilience/Built Environment. Title: “Developing Resilient Materials and Sensors for Improved Building Performance” led by Lilian Davila (UC-Merced). Co-PIs: Jeannette Cobian-Iñiguez (UC Merced) and Scott Moura (UC Berkeley) (*\$60k*)

2021. Co-authored proposal for the Virtual fire database workshop (Sep 1-2, 2021) funded by ORNL Biological and Environmental Systems Science Directorate and supported by the Consortium of Appalachian Fire Managers & Scientists (*\$50k*)

2020 Co-authored proposals to synchrotron user facilities (NSLS, APS and CLS) and was awarded 33 shifts across four beamlines. Authors: Li, H., Santos, F., Butler, K., and Herndon, E. Title: “Interactions between manganese and organic matter in forest ecosystems”

2018. Interdisciplinary Small Grants Program, UC Merced (*\$3k*)

PAPERS PUBLISHED OR IN PRESS

Santos, F., Bailey, J. K., & Schweitzer, J. A. (2023). The eco-evolutionary role of fire in shaping terrestrial ecosystems. *Functional Ecology*, 37(8), 2090-2095.

Santos, F., Herndon E. (2023) Plant-soil relationships influence observed trends between Mn

and C across biomes. *Global Biogeochemical Cycles*, 37(1), e2022GB007412.

Shuman, J. K., Balch, J. K., Barnes, R. T., Higuera, P. E., Roos, C. I., Schwillk, D. W., **Santos, F.**,... & Zhang, X. (2022). Reimagine fire science for the anthropocene. *Proceedings of the National Academy of Sciences (PNAS) Nexus*, 1(3), pgac115.

Santos, F., Bird, J. A., & Berhe, A. A. (2022). Dissolved pyrogenic carbon leaching in soil: Effects of soil depth and pyrolysis temperature. *Geoderma*, 424, 116011.

Li, H., **Santos, F.**, Butler, K., Herndon E. (2021). A critical review on the multiple roles of Mn in stabilizing and destabilizing soil organic matter. *Environmental Science & Technology*, 55, 18, 12136–12152

Santos, F., Rice, D. M., Bird, J. A., & Berhe, A. A. (2021). Pyrolysis temperature and soil depth interactions determine PyC turnover and induced soil organic carbon priming. *Biogeochemistry*, 153(1), 47-65.

Delgado-Baquerizo, Manuel; Reich, Peter; Bardgett, Richard; Eldridge, David; Lambers, Hans; Wardle, David; Reed, Sasha; Plaza, Cesar ; Png, G. Kenny ; Neuhauser, Sigrid; Berhe, Asmeret ; Hart, Stephen; Hu, Hang-Wei; He, Ji-Zheng ; Bastida, Felipe; Abades, Sebastián; Alfaro, Fernando ; Cutler, Nick; Gallardo, Antonio; García-Velázquez, Laura; Hayes, Patrick; Hseu, Zeng-Yei ; Pérez, Cecilia; **Santos, Fernanda**; Siebe, Christina; Trivedi, Pankaj; Sullivan, Benjamin; Weber-Grullon, Luis; Williams, Mark; Fierer, Noah. The influence of soil age on ecosystem structure and function across biomes. (2020) *Nature communications* 11(1), pp.1-14.

Future of Fire Consortium (it includes **Fernanda Santos** as a co-author) Fire as a fundamental ecological process: Research advances and frontiers. (2020) *Journal of Ecology*; 108: 2047-2069.

Delgado-Baquerizo, Manuel; Richard Bardgett , Peter Vitousek , Fernando Maestre , Mark Williams , David Eldridge , Hans Lambers , Antonio Gallardo , Osvaldo Sala , Sebastián Abades , Fernando Alfaro , Asmeret Asefaw Berhe , Matthew Bowker , Courtney Currier , Nick Cutler , Laura García-Velázquez , Stephen Hart , Patrick Hayes , Zeng-Yei Hseu , Martin Kirchmair , Sigrid Neuhauser , Victor Peña , Cecilia Pérez , SashaReed, **Fernanda Santos**, Christina Siebe , Benjamin Sullivan , Luis Weber-Grullon , Noah Fierer. Multiple elements of soil biodiversity drive ecosystem functions across biomes. (2020) *Nature Ecology & Evolution*, 210–220.

Bastida, F, Eldridge, DJ, Abades, S, Fernando D. Alfaro Antonio Gallardo Laura García-Velázquez Carlos García Stephen C. Hart Cecilia A. Pérez Fernanda Santos Pankaj Trivedi Mark A. Williams Manuel Delgado-Baquerizo. (2019) Climatic vulnerabilities and ecological preferences of soil invertebrates across biomes. *Molecular Ecology*; 00: 1– 10.

Stutz, Kenton P.; Kaiser, Klaus; Wambsganß, Janna; **Santos, Fernanda**; Berhe, Asmeret Asefaw; Lang, Friederike. (2019) Lignin from white-rotted European beech deadwood and soil physicochemical processes. *Biogeochemistry* 145(1-2), 81-105.

Bastida, Felipe; Carlos García, Noah Fierer, David J. Eldridge, Matthew A. Bowker, Sebastián Abades, Fernando D. Alfaro, Asmeret Asefaw Berhe, Nick A. Cutler, Antonio Gallardo, Laura García-Velázquez, Stephen C. Hart, Patrick E., Hayes, Teresa Hernández, Zeng-Yei Hseu, Nico Jehmlich, Martin Kirchmair, Hans Lambers, Sigrid Neuhauser, Víctor M. Peña-Ramírez, Cecilia A. Pérez, Sasha C. Reed, **Fernanda**

Santos, Christina Siebe, Benjamin W. Sullivan, Pankaj Trivedi, Alfonso Vera, Mark A. Williams, José Luis Moreno, Manuel Delgado-Baquerizo (2019). Global ecological predictors of the soil priming effect. *Nature Communications*.

Santos, F., Abney, R., Barnes, M., Bogie, N., Ghezzehei, T. A., Jin, L., Moreland, K., Sulman, B. N., Berhe, A. A. (2019). The role of the physical properties of soil in determining biogeochemical responses to soil warming. In *Ecosystem Consequences of Soil Warming* (pp. 209-244). Academic Press.

Santos, F., Wymore, A. S., Jackson, B. K., Sullivan, S. M. P., McDowell, W. H., & Berhe, A. A. (2019). Fire severity, time since fire, and site-level characteristics influence streamwater chemistry at baseflow conditions in catchments of the Sierra Nevada, California, USA. *Fire Ecology*, 15(1), 3.

James, J. N., Gross, C. D., Dwivedi, P., Myers, T., **Santos, F.**, Bernardi, R., Marianne Fidalgo de Faria, Iraê Amaral Guerrini, Rob Harrison, & Butman, D. (2019). Land use change alters the radiocarbon age and composition of soil and water-soluble organic matter in the Brazilian Cerrado. *Geoderma*, 345, 38-50.

Delgado-Baquerizo, Manuel, Bardgett, Richard D., Vitousek, Peter M., Maestre, Fernando T., Williams, Mark A., Eldridge, David J., Lambers, Hans, Neuhauser, Sigrid, Gallardo, Antonio, García-Velázquez, Laura, Sala, Osvaldo E., Abades, Sebastián R., Alfaro, Fernando D., Berhe, Asmeret A., Bowker, Matthew A., Currier, Courtney M., Cutler, Nick A., Hart, Stephen C., Hayes, Patrick E., Hseu, Zeng-Yei, Kirchmair, Martin, Peña-Ramírez, Victor M., Pérez, Cecilia A., Reed, Sasha C., **Santos, Fernanda**, Siebe, Christina, Sullivan, Benjamin W., Weber-Grullon, Luis, Fierer, Noah. (2019). Changes in belowground biodiversity during ecosystem development. *Proceedings of the National Academy of Sciences*, 201818400.

Santos, F., Wagner, S., Rothstein, D., Miesel, J. R., Jaffe, R. 2017 Impact of a historical fire event on pyrogenic carbon stocks and dissolved pyrogenic carbon in spodosols in Northern Michigan. *Frontiers in Earth Science: Biogeoscience. Research topic: From Fires to Oceans: Dynamics of Fire-Derived Organic Matter in Terrestrial and Aquatic Ecosystems*.

Santos, F., Russell, D., Berhe, A. A. 2016. Thermal alteration of water extractable organic matter in climosequence soils from the Sierra Nevada, California. *Journal of Geophysical Research: Biogeosciences* 121, 2877–2885.

Santos, F., Nadelhoffer, K., & Bird, J. A. 2016. Rapid fine root C and N mineralization in a northern temperate forest soil. *Biogeochemistry*, 128(1-2), 187-200.

Santos, F., Fraser, M. P., Bird, J. A. 2014. Atmospheric black carbon deposition and characterization of biomass burning tracers in a northern temperate forest in MI, USA. *Atmospheric Environment* 95, 383-390.

Santos, F., Torn, M.S., Bird, J.A., 2012. Biological degradation of pyrogenic organic matter in temperate forest soils. *Soil Biology & Biochemistry* 51, 115-124.

Chatterjee, S., **Santos, F.**, Abiven, S., Itin, B., Stark, R. E., Bird, J. A., 2012. Elucidating the chemical structure of pyrogenic organic matter by combining magnetic resonance, mid-infrared spectroscopy and mass spectrometry, *Organic Geochemistry* 51, 35-44.

Yarnes, C., **Santos, F.**, Singh, N., Abiven, S., Schmidt, M.W.I., Bird, J.A., 2011. Stable isotopic

analysis of pyrogenic organic matter in soils by liquid chromatography–isotope-ratio mass spectrometry of benzene polycarboxylic acids. *Rapid Communications in Mass Spectrometry* 25, 3723-3731.

Salmun, H., Molod, A., Albrecht, J., **Santos, F.**, 2009. Scales of variability of surface vegetation: Calculation and implications for climate models. *Journal of Geophysical Research: Biogeosciences*, 114, G02007.

Andrade, A. G.; Mendes, C. A. R.; Mahler, C. F.; Lumbreiras, J. F.; **Santos, F. A.**; Portocarrero, Hugo; Carvalho, G. F., 2004. Aspectos da Perda de Solos: A Agricultura Migratória e a Convencional. [*Soil losses: shifting cultivation versus conventional farming*] In: Resende, A. S. de; Campello, E. F. C. (Org.). Seminário Sobre Agricultura Migratória na Região Serrana do Rio de Janeiro.: Embrapa Agrobiologia, p. 40-52.

Mafra, N. M. C.; Lopes, M. R. S.; Sathler, R.; Lisboa, A.; Mendes, L. D.; Portocarrero, H.; **Santos, F.**; Ull, F. V., 2002. Inventário das condições do meio físico para avaliação do potencial das terras com fins de planificação de uso: Aplicação às bacias hidrográficas nos distritos de Posse e Pedro do Rio, município de Petrópolis, RJ. [*Inventory of landscape's physical characteristics to assess land-use potential and planning: the case of watersheds in Posse and Pedro do Rio districts, municipality of Petropolis, RJ*]. In: G. J. Marafon; M. F. Ribeiro. (Org.). Estudos de Geografia Fluminense. Rio de Janeiro: Livraria e editora Infobook Ltda, p. 1-208.

PRESS RELEASE

Oak Ridge National Laboratory, Oak Ridge (2023, September 10). [Fernanda Santos: Virtual reality field trip and teen outreach](#). Retrieved from:

<https://ornl.sharepoint.com/SitePages/Article.aspx?articleid=44296>

Podcast by the British Ecological Society Journals (2023, September). [Functional Ecology Special Feature: Fire as a dynamic ecological and evolutionary force](#). Retrieved from:

<https://soundcloud.com/besjournals/fe-special-feature-fire-as-a-dynamic-ecological-and-evolutionary-force>

Oak Ridge National Laboratory, Oak Ridge (2023, August 2). Retrieved from:

<https://www.ornl.gov/news/scientists-dig-wildfire-predictions-long-term-impacts>

Oak Ridge National Laboratory, Oak Ridge (2023, July 28). Retrieved from:

<https://www.ornl.gov/news/improving-wildfire-predictions-earth-scale-climate-models>

University of California, Merced (2019, April 23). [UC Merced Researchers Help Uncover Soil Biodiversity](#).

Retrieved from: <https://snri.ucmerced.edu/news/2019/uc-merced-researchers-help-uncover-soil-biodiversity>

New Hampshire Agricultural Experiment Station, University of New Hampshire (2019, April 15). [Wildfires Alter Stream Chemistry for Years](#). Retrieved from:

<https://nifa.usda.gov/blog/wildfires-alter-stream-chemistry-years>

TEACHING EXPERIENCE

Guest Lecturer , Chemical properties of soils, <i>UC-Merced</i>	2018
Guest Lecturer , Nitrogen cycle, <i>UC-Merced</i>	2017
Guest Lecturer , Critical Zone Science, <i>UC-Merced</i>	2016
Guest Lecturer , “What is soil, and what do we investigate?” <i>UC-Merced</i>	2015
Guest Lecturer , “Energy, radiation and greenhouse effects”, Physical Geography, <i>Department of Earth, Environmental, and Geographic Sciences, Northern Michigan University</i>	2015
Guest Lecturer , “Physical and chemical properties of soils”, Forest Ecology, <i>Department of Forestry, Michigan State University</i>	2014
Guest Lecturer , “Soils”, Earth System Sciences, <i>School of Earth and Environmental Sciences, Queens College, CUNY</i>	2013
Adjunct Instructor , Introduction to the Environment, <i>School of Earth and Environmental Sciences, Queens College, CUNY</i>	2007, 2008, 2012, 2013
Adjunct Instructor , Weather and Climate, <i>Department of Geography, Hunter College, CUNY</i>	2007
Language Instructor , Portuguese, <i>Inlingua Language Center, New York</i>	2006-2007
Teaching intern , Geography, <i>Centro Supletivo de Ensino Fundamental e de Ensino Médio (Adult Education) – InvestUERJ, State University of Rio de Janeiro</i>	2002

STUDENTS MENTORED

Kathleen Coffman, Science Undergraduate Laboratory Internship (SULI) Summer program, ORNL. Trained Kathleen on a decomposition incubation study.	2023
Shailen Chugh, Science Undergraduate Laboratory Internship (SULI) Summer program, ORNL. Trained Shailen on a leaf litter chemical composition study.	2023
Sophie McDuffee, Science Undergraduate Laboratory Internship (SULI) program, ORNL. Trained Sophie in environmental data analysis using R packages.	2021
Naivy Morales, undergraduate student, UCM. Trained Naivy in UV-VIS spectroscopy in the lab.	2018
Lesly Lopez, graduate student. Mentorship support as part of the UC-Merced Women in STEM mentoring program.	2018
Angel Kongsomboonvech, graduate student. Mentorship support as part of the UC-Merced Women in STEM mentoring program.	2017
Morgan Barnes, graduate student. Mentorship support as part of the UC-Merced Women in STEM mentoring program.	2015-2017

SHORT COURSES

- Radiocarbon Short Course, U. of California-Irvine, July 21-26, 2014

- Stable Isotope Biogeochemistry & Ecology (Iso-Camp), U. of Utah, June 9-20,2008

PROFESSIONAL DEVELOPMENT AND ASSOCIATIONS

- NSF-Wildfire and the Biosphere initiative (virtual workshop; May 17, 18, 19, 21, and 26, 2021)
- Future of Fire Workshop, Chautauqua National Historic Landmark, Boulder, CO, November6-7, 2017
- Faculty Development Institute, Society of Hispanic Professional Engineers, Seattle, November 3rd, 2016
- Wildland Fire Science Workshop, Nature Bridge Crane Flat Campus, Yosemite National Park, August 15 & 16, 2016
- Student Engagement in (Large-Enrollment) Classrooms – Special Topic, UC Merced Center for Engaged Teaching & Learning, June 17th, 2016
- Climate & Water Tools & Resources for Informed Agricultural Decisions. Center for Climate Communication Workshop Series. UC Merced, May 12th, 2016
- Cross-Critical Zone Observatory Biogeochemistry Workshop. UC Riverside, September28-29, 2015
- Mastering the classroom with 1st generation college students, UC Merced Center for Engaged Teaching & Learning, May 6th, 2015
- Developing Communication and Conflict Management Skills for Successful Collaborations Workshop, Michigan State University, February 6, 2015
- How to be a successful professional workshop, Michigan State University, January 31, 2015
- Write winning grant proposals workshop, Michigan State University, January 8, 2015
- MSU NSF-AGEP Alliance for Graduate Education and the Professoriate, Fall 2014
- Networking and communication, Earth Science Women’s Network, U. of Wisconsin-Madison, June 4-6, 2012
- Ecological Society of America; Soil Science Society of America; American Geophysical Union; Sociedade Brasileira de Ciência do Solo

COLLABORATORS (Past 48 months)

Abney, R. (UGA); Bailey, J. (UTK); Baquerizo, D. M. (U. of Colorado-Boulder); Berhe, A. A. (UC Merced); Bird, J. A. (CUNY); Cregger, M. (ORNL); Davila, L. (UC Merced); Herndon, E (ORNL); Hui, Li (ORNL); Mao, J. (ORNL); Midgley, M. (The Morton Arboretum); Miesel, J. (Michigan State U.); Nave, L. (U. of Michigan); Rhoades, C. (U.S. Forest Service); Schweitzer, J. (UTK); Sulman, B. (ORNL); Wymore, A. (U. of New Hampshire)

SERVICES

Editorial

- **Santos, F.**, Bailey, J., and Schweitzer, J. (2023). Guest editors of a Special Feature in *Functional Ecology*: “Fire as a dynamic ecological and evolutionary force”.

Leadership Recognition and Committees

- Member of advisor committee for Niriele Bruno Rodrigues’s Master thesis, *Federal Rural University of Rio de Janeiro, Rio de Janeiro, Brazil* 2020
- SSSA Chair of the Golden Opportunity Scholars Institute Selection Committee 2020
- SSSA Golden Opportunity Scholars Institute and Mentor Selection Committee 2019
- SSSA Soil Chemistry and Mineralogy Award Committee 2020
- NEON Terrestrial Biogeochemistry Technical Working Group 2020-2021
- Outstanding Women Leadership Subcommittee 2018
- AGU Biogeosciences Early Career Committee 2017
- Recipient of the Outstanding Womxn’s Award at the Womxn's Empowerment Conference, UC Merced 2017
- Chair of The Union for Postdocs (UAW5810) at UC-Merced 2016 to 2018
- Treasurer - Woman in Science, Technology, Engineering, and Math, UC-Merced 2015 to 2017
- Executive and Admissions Committee, Earth and Environmental Sciences Ph.D. program, The Graduate Center, CUNY 2008-2010

Symposium organizer and/or moderator

- AGU Session: “Measuring and Modeling Disturbance and Its Effects on Biogeochemical Processes”, Biogeosciences, Dec 15 2023
- Symposium and Topical Session – Impacts of minerals and micronutrients in the biogeochemical cycling of soil organic carbon, SSSA 2021
- Symposium: New Insights on Biogeochemical Processes in Forest Ecosystems as Revealed by Isotopic and Biomarker Approaches, SSSA 2017
- Graduate Students Research Symposium, MSU 2015

Seminar and conferences co-organizer/-leader

- Co-organizer of the Enviro-Lunch Seminar, UC-Merced 2015-2017
- Co-leader of the W-STEM Grant Writing Workshop Event, UC-Merced 2016
- Co-leader of the W-STEM Mentoring Program Kick-Off Event, UC-Merced 2015
- Co-organizer of GeoSeminar Series, CUNY 2006-2007
- Volunteer of the 3rd International Conference on Land Degradation and Meeting of the IUSS Subcommission C-ICLD3 2001

Outreach

- August 2022. Presentation on my career path and work at ORNL in an Inspire session entitled “Putting an Ecology Degree to Work” in the Ecological Society of America meeting.
- October 2021 (virtual). “Research Night: Pursuing Undergraduate Research Opportunities”, a virtual event organized by the Society of Women Engineers at UC Merced with the goal of demystifying research and expand undergraduate research opportunities for SWE members in STEM disciplines
- 2021 Takeover for 500 Women Scientists' Gage Account on Twitter, July 31st, 2021, to discuss my day and research with their followers.
- 2018 Fernanda Santos and Benjamin Sulman. “Soil Science at UC Merced”. 1st Earth

Science Sustainability Festival (K-12), April 28, Patterson, CA

- 2018 Fernanda Santos and Michelle Gilmore. “The Science of Fire”. Edison Science Days event (6th-grade), April 26. Shaver Lake, CA.

Manuscript reviewer

Research journals: Nature, Nature Ecology & Evolution, Global Change Biology, Biogeochemistry, Ecological Indicators, Soil Biology and Biochemistry, European Journal of Soil Science, Soil Research, Geoderma, Environmental Chemistry, Journal of Geophysical Research - Earth Surface, Water, Journal of Visualized Experiments, Environmental Science and Pollution Research, Elementa: Science of the Anthropocene - Ecology and Earth Systems.

Proposal reviewer

- UK’s Natural Environmental Research Council
- NSF Research Traineeship program
- Cal Poly's McIntire-Stennis program

LANGUAGE PROFICIENCY

Portuguese (native speaker); English (fluent); Spanish (read well)

INVITED TALKS

Santos, F. Impacts of fires on belowground C dynamics. RUBISCO Soil Organic Carbon Working Group (virtual) meeting, August 31st, 2022

Santos, F. Careers as a Research and Development Staff Associate in a National Laboratory, August 18th, 2022. Inspire panel: Putting an Ecology Degree to Work. Ecological Society of America, Montreal, Canada

Santos, F. Impacts of fires on belowground C dynamics. DOE PNNL SFA River Corridor group (virtual) meeting, June 29th, 2022

Santos, F. Impacts of fires on belowground C dynamics. University of Arizona, April 8th, 2022

Santos, F., and E. Herndon. The Influence of Manganese Availability and Warming on CO₂ Fluxes from Soils during Decomposition. Oral Presentation (virtual) in the session: Impacts of Minerals and Micronutrients in the Biogeochemical Cycling of Soil Organic Carbon. Soil Science Society of America, November 10th, 2021.

Santos, F. & Herndon, E. Responses of CO₂ fluxes to manganese availability and warming during decomposition. Department of Agricultural and Environmental Sciences, *Tennessee State University*, October 14, 2021

Santos, F. & Herndon, E. Interactive effects of manganese availability and warming on CO₂ fluxes from soils during decomposition. *ORPA's virtual Research Symposium*, July 28, 2021

Santos, F. The effects of fire, soil warming, and micronutrient availability on C dynamics. Virtual seminar in Ecology. *College of the Holy Cross*, 03/09/21

- Santos, F.** & Herndon, E. (2020). Climatic and edaphic influences of manganese and carbon interactions in plants and soils across biomes in the US. Session B104: Soils in the Anthropocene: Mechanisms of Stabilization and Change (Big-Data Syntheses) II. *American Geophysical Union Virtual Fall Meeting*, 1-17Dec, USA
- Santos, F.** (2020). The influence of fire on soil carbon dynamics in temperate forests. Seminar of the Department of Ecology & Evolutionary Biology on January 24th, *University of Tennessee, Knoxville, USA*
- Santos, F.** (2019). The Influence of fire on carbon loss pathways in temperate forest soils. Sergei A. Wilde Early Career Achievement Award Lectureship, November 13th. *Soil Science Society of America Annual Meeting, San Antonio, TX, USA*
- Santos, F.** (2019). The Influence of fire on carbon loss pathways in temperate forest soils. Environmental Sciences Division and Earth Sciences Group, August 30, *Oak Ridge National Laboratory, Oak Ridge, TN, USA*
- Santos, F.** (2019). The effects of fire on soil carbon mobility and transport. *Department of Environmental Science and Policy, University of California, Davis (March); Department of Earth and Planetary Sciences, University of California, Santa Cruz (February); Department of Environmental Sciences, University of California, Riverside (January)*
- Santos, F.** (2019) Invited symposium presenter. Soils of Wildfire-affected Landscapes: Linking Belowground Ecology & Watershed Processes. *Soil Science Society of America Annual Meeting, San Diego, California.*
- Santos, F.** (2018) The effects of fire on soil carbon dynamics. Seminar Series. *Department of Earth and Environmental Sciences (October), University of California, Irvine.*
- Santos, F.** (2018) Dynamics of fire-transformed organic carbon in soils. *UC Merced Environmental Systems Seminar (September), University of California, Merced*
- Santos, F.** (2018) O fogo que arde sem se ver: Biogeociências e os efeitos dos incêndios na matéria orgânica do solo e da água. *Multidisciplinary Institute of Federal Rural University of Rio de Janeiro, Nova Iguaçu, Brazil.*
- Santos, F.** (2018) Ecosystem perturbations and soil organic matter dynamics: soil responses and implications for freshwater systems. *Ecology and Evolutionary Biology Seminar (March), University of California, Irvine*
- Santos, F.** (2018) Postdoctoral panelist speaker of the W-STEM organization at the University of California, Merced. *February 22.*
- Santos, F.** (2017) Impacts of fire on soils and rivers. *UC Merced Environmental Systems Seminar (September), University of California, Merced*
- Santos, F.** (2016) Heat-induced changes in water-extractable soil organic matter. *Enviro-Lunch Seminar (February), University of California, Merced*
- Santos, F.** (2015) Tracing the fate of slow cycling soil C pools in temperate forests. *Department of Forestry (January) Hanover Seminar, Michigan State University*

POSTER AND ORAL PRESENTATIONS

2019

Santos, F.; Jing Yan, Teamrat Ghezzehei, Francois Blanchette, Jeffrey A. Bird, Asmeret Asefaw Berhe. Mobility of Pyrogenic Organic Matter in Sorption Experiments. *Soil Science Society of America annual meeting. San Diego, California.*

Santos, F.; Jeffrey A. Bird, Asmeret Asefaw Berhe. From Soils to Streams: Post-Fire Changes in Dissolved Organic Carbon Concentration and Composition. *Soil Science Society of America annual meeting. San Diego, California.*

2017

Santos, F.; Bird, J.A.; Berhe, A.A. Responses of soil carbon turnover rates to pyrogenic carbon additions to a forest soil of Sierra Nevada, California: effects of pyrolysis temperature and soil depth. *American Geophysical Union Annual Meeting, New Orleans, LA*

Santos, F.; Bird, J.A.; Berhe, A.A. Effects of pyrolysis temperature and soil depth on pyrogenic carbon dynamics from a forest soil of Sierra Nevada, California. *Soil Science Society of America annual meeting. Tampa, FL*

2016

Santos, F., Wymore, A., Berhe A. A. Thermal alteration of dissolved organic matter: observations from a lab heating experiment and fire-impacted watersheds of the Sierra Nevada, California. *American Geophysical Union Annual Meeting, San Francisco, CA*

Santos, F., Russell, D., Berhe A. A. Chemical structure of WEOC from thermally-altered soils of Sierra Nevada, California. *2016 ASA, CSSA, and SSSA Annual Meeting in Phoenix, AZ*

2015

Santos, F., Wagner, S., Rothstein, D., Miesel, J., Jaffe, R. Evaluating the influence of fire history on dissolved pyrogenic C exported from coniferous and deciduous forest soils in the northern Great Lakes Region. *American Geophysical Union Fall Meeting (December), San Francisco, CA*

Santos, F. Transformations and fate of fire-derived (pyrogenic) C in soils. *School of Natural Sciences, Spotlight Social for Postdocs (December), University of California, Merced*

Santos, F. Carbon goes on: transformations and fate of fire-derived C in soils. *Enviro-Lunch Seminar (September), University of California, Merced*

2013

Santos, F. C and N dynamics of slow turnover soil organic matter in temperate forests: pyrogenic organic matter and fine roots. *School of Earth and Environmental Sciences Fall 2013 Colloquium, Queens College, CUNY*

Santos, F.; Nadelhoffer, K., Bird, J. A. (November). Environmental controls of fine-roots decomposition dynamics in a northern temperate forest soil. In *Soil Science Society of America*

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Santos, F.; Fraser, M.; Bird, J. A. (December). Measurements of black carbon aerosols in a rural temperate forest in Northern Michigan. In *American Geophysical Union Fall Annual Meeting*.

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Santos, F. A study of black carbon biological degradation, export pathways and atmospheric deposition in a temperate forest soil (Michigan, USA). (February). *Department of Geography Seminar, University of Zurich, Switzerland*.

2009

Santos, F. Quantifying black carbon dynamics in a temperate forest ecosystem. *School of Earth and Environmental Sciences Fall 2009 Colloquium, Queens College, CUNY*

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