Fernanda Santos

Oak Ridge National Laboratory

E-mail: santosf@ornl.gov
Website: www.fsantosresearch.com

Research areas: soil biogeochemistry, ecosystem ecology, disturbances, global change

---

EDUCATION

Ph.D., **Earth and Environmental Sciences**, The Graduate Center, City University of NY — 2014
Dissertation tittle: 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 tittle: 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 Emoke Madari

Teaching certificate (*Licenciatura*), **Geography**, State University of Rio de Janeiro, Brazil — 2004

RESEARCH EXPERIENCE

Postdoctoral Research Associate, *Oak Ridge National Laboratory, TN* — 2020-*present*

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
Queens College, CUNY, Flushing, NY

Research Fellow, *Univ. of Michigan Biological Station, Pellston, MI* 2012-2009

Visiting Graduate Student, *Global Institute of Sustainability, Arizona State U., AZ* 2011

Visiting Graduate Student, *Department of Geography, U. of Zurich, Switzerland* 2010

Graduate Research Assistant, *Department of Geography, Hunter College, CUNY, NY* 2007-2005

Undergraduate Research Assistant, *Soil Research Institute of the Brazilian Agricultural Research Corporation, Rio de Janeiro, Brazil* 2004-2001

Undergraduate Research Assistant, *State U. of Rio de Janeiro, Rio de Janeiro, Brazil* 2002-2001

AWARDS AND HONORS

2020. ESA 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

2018. Interdisciplinary Small Grants Program, UC Merced ($3,000)

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)

WORKS IN PROGRESS

Santos, F., Rice, D., Bird, A. J., Berhe, A. A. Pyrolysis temperature and soil depth interactions influence PyC turnover and induced soil organic carbon priming. *Biogeochemistry* (accepted with minor revisions)

MANUSCRIPTS IN PREPARATION

Santos, F., Bird, A. J., Berhe, A. A. The influence of pyrolysis temperature and soil depth on pyrogenic carbon leaching from a forest soil of Sierra Nevada, California: results from a 2-year incubation study. *Biogeochemistry* (in preparation; manuscript draft available upon request).

Santos, Fernanda; Yan, Jing; Bird, Jeffrey; Parikh, Sanjai; Ghezzehei, Teamrat; Blanchette, Francois; Berhe, Asmeret Asefaw. Sorption of dissolved pyrogenic carbon in reactive soil minerals. Geoderma (in preparation; manuscript draft available upon request).

Li, H., **Santos,** F., Butler, K., Herndon E. A critical review on the multiple roles of Mn in stabilizing and destabilizing soil organic matter. *Journal of Environmental Sciences & Technology*

PAPERS PUBLISHED OR IN PRESS

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. *Nature communications*

Future of Fire Consortium (it includes **Fernanda Santos** as a co-author). Fire as a fundamental ecological process. *Journal of Ecology/Essay Review*.

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 , Sasha

Reed, **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

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

TEACHING EXPERIENCE

Guest Lecturer, Chemical properties of soils, *UC-Merced* 2018

Guest Lecturer, Nitrogen cycle, *UC-Merced* 2017

Guest Lecturer, Critical Zone Science, *UC-Merced* 2016

Guest Lecturer, "What is soil, and what do we investigate?" *UC-Merced* 2015

Guest Lecturer, "Energy, radiation and greenhouse effects", Physical Geography, 2015
Department of Earth, Environmental, and Geographic Sciences, Northern Michigan University

Guest Lecturer, "Physical and chemical properties of soils", Forest Ecology, *Department of Forestry, Michigan State University* 2014

Guest Lecturer, "Soils", Earth System Sciences, *School of Earth and Environmental Sciences, Queens College, CUNY* 2013

Adjunct Instructor, Introduction to the Environment, 2007, 2008, 2012, 2013
School of Earth and Environmental Sciences, Queens College, CUNY

Adjunct Instructor, Weather and Climate, *Department of Geography, Hunter College, CUNY* 2007

Language Instructor, Portuguese, *Inlingua Language Center, New York* 2006-2007

Teaching intern, Geography, *Centro Supletivo de Ensino Fundamental e deEnsino Médio (Adult Education) – InvestUERJ, State University of Rio de Janeiro* 2002

STUDENTS MENTORED

Naivy Morales, undergraduate student. Mentored Naivy in the lab. 2018

Lesly Lopez, graduate student. Mentorship support 2018
as part of the UC-Merced Women in STEM mentoring program.

Angel Kongsomboonvech, graduate student. Mentorship support 2017
as part of the UC-Merced Women in STEM mentoring program.

Morgan Barnes, graduate student. Mentorship support 2015-2017
as part of the UC-Merced Women in STEM mentoring program.

Diana Lu, Grade 11, Detroit Country Day School, MI. Co-mentored Diana over a seven-week 2014
period as part of the Michigan State University High School Honors Science/ Mathematics/Engineering Program.

TECHNICAL SKILLS

- Molecular characterization of organic compounds: liquid-state ^{1}H Nuclear Magnetic Resonance Fourier, transform infrared (FTIR) spectroscopy Diffuse Reflectance (DRIFT), and UV-VIS
- Pyrogenic C in soil, air, and water: benzene polycarboxylic acids approach; chemical-oxidation method; thermo/optical approach; molecular markers approach
- Microbial community: phospholipid fatty acids (PLFAs)

- Carbon and nitrogen stable isotopes: ^{13}C in soils, CO_2, dissolved organic C, and PLFAs; ^{15}N in soils, and total inorganic nitrogen
- Stable isotope (^{13}C and ^{15}N) labeling ofplants
- High performance liquid and gas chromatography; isotope ratio mass spectrometry (^{13}C, liquid and gas), and spectrophotometry (UV-VIS), C and N elemental analyzer for solid samples (dry combustion, and Walkley-Black method for soil C)
- Scanning electron microscope
- Batch sorption experiment
- Iron and aluminum oxides and dissolved organic matter extraction techniques
- Soil organic matter density fractionation method
- Water-stable aggregates in soils

COMPUTER SKILLS

- Windows, Linux, Sigma Plot, SPSS, Systat, R, MNova, Matlab, ArcGIS, QGIS, Fragstats

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

- 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, NatureBridge 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 forClimate 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
- Soil Science Society of America; American Geophysical Union; Society of Woman Geographers; Sociedade Brasileira de Ciência do Solo

COLLABORATORS (Past 48 months)

Baquerizo, D. M. (U. of Colorado-Boulder); Berhe, A. A. (UC Merced); Bird, J. A. (CUNY); Butman, D. (U. of Washington), Fierer, Noah (U. of Colorado-Boulder); Fraser, M. (Arizona State U.); Ghezzehei, A.T. (UC Merced); Jaffe, R. (Florida International U.); Lang, F. (Albert Ludwig U. of Freiburg, Germany); LiWang, A. (UC Merced); Maestrini, B. (U. of Zurich); McDowell, W. (U. of New Hampshire), Midgley, M. (The Morton Arboretrum); (Miesel, J. (Michigan State U.); Nadelhoffer, N. (U. of Michigan); Parikh, S. (UC-Davis); Rice, D. (UC Merced); Rhoades, C. (U.S. Forest Service); Rothstein, D. (Michigan State U.); Russell, D. (Genentech); Sulman, B. (Oak Ridge National Lab), Wagner, S. (Skidaway Institute of Oceanography); Wymore, A. (U. of New Hampshire), Yan, J (UC Merced).

SERVICES

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 — Present
- NEON Terrestrial Biogeochemistry Technical Working Group — Present
- 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 co-organizer and/or moderator

- Symposium: New Insights on Biogeochemical Processes in Forest Ecosystems as Revealed by Isotopic and Biomarker Approaches, Soil Science Society of America — 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

- 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, 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.

LANGUAGE PROFICIENCY

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

INVITED TALKS

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*, 1-17 Dec, 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 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 meeting*, Tampa, FL

Bird*, J. A.; **Santos, F.**; Winner, A.; Singh, N.; Maestrini, B.; Abiven, S.; Schmidt, M. W. I.; Torn, M. S. (September). Turnover and microbial utilization of pyrogenic organic matter in forest soils. In *246th American Chemical Society National Meeting and Exposition. *Presenter*

2010

Santos, F.; Torn, M.; Bird, J. A. (December). An incubation study on black carbon degradation in temperate forest soils. In *University of California Stable Isotope Facility Symposium*, Davis, CA.

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*.

Santos, F., Torn, M.S. and Bird*, J. (March). Microbial utilization of black carbon in temperate

forest soils. In *Stable isotopes and biogeochemical cycles in terrestrial ecosystems*. *Presenter

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*

2008

Santos, F; Bird, J. A., & Torn, M. S. (2008, December). Biological Degradation of Black Carbon in Temperate Forest Soils: Effects of Clay Mineralogy and Nitrogen Availability. In *AGU Fall Meeting Abstracts* (Vol. 1, p. 0369).

2003

Santos, F. A., Mafra, N. M. C., Madari, B. E. Identificação de mudanças nas características e propriedades de um solo sob cobertura vegetal distinta na microbacia da Estrangina, Petrópolis, RJ. Rio de Janeiro: X Simpósio Brasileiro de Geografia Física Aplicada. In: Revista do Departamento de Geografia - GEOUERJ (Edição Especial). Rio de Janeiro: UERJ, Departamento de Geografia, 2003. [ISSN 1415-7543]

Santos, F. A. Estudo comparativo entre o efeito de duas coberturas vegetais distintas sobre as características e propriedades de um mesmo tipo de solo: Microbacia da Estrangina, Petrópolis, RJ. In: XII Semana de Iniciação Científica da UERJ, Rio de Janeiro: UERJ, Department of Support to Human Sources, 2003, p. 160.

2002

Souza, L. F. de L., **Santos, F**. A., Mafra, N. M. C. Inventário das condições pedogeomorfológicas da bacia do córrego do Paiolzinho (Petrópolis, RJ) para fins de avaliação da capacidade de uso agrário. In: IV Simpósio Nacional de Geomorfologia. UFMA, vol. 1, 2002.

Santos, F. A., Souza, L. F. de L., Carvalho, G. F., Portocarrero, H., Andrade, A. G., Tavares, S. R. L. Desenvolvimento de *Acacia mangium*, *Albizia guachapelle*, *Mimosa bimucronata* e *Mimosa caesalpiniifolia* em taludes de corte e aterro, Aeroporto Internacional do Rio de Janeiro - Galeão/Antonio Carlos Jobim. In: V Simpósio Nacional sobre Recuperação de Áreas Degradadas. Belo Horizonte: SOBRADE, 2002, p. 356-357.

Santos, F. A., Souza, L. F. de L., Mafra, N. M. C. Influência das diferentes coberturas vegetais nas características e propriedades dos solos em áreas de microbacia, Bacia do Rio bonito, Petrópolis, RJ. In: IV Simpósio Nacional de Geomorfologia. UFMA, vol.1, 2002.

Santos, F. A., Souza, L. F. de L. Considerações sobre o estudo da relação solo-planta e o estado de conservação dos solos em área serrana: microbacia da Estrangina, Petrópolis, RJ. XI Semana de Iniciação Científica, Rio de Janeiro: UERJ, Department of Support to Human Sources, 2002, p. 244. Orientação: Neusa Maria Costa Mafra.

Mendes, L. D., Mafra, N. M. C., Ull, F. V., **Santos, F.** A., Souza, L. F. de L., Silva, J. R., Rodrigues, E., Aguiar, M. H., Miranda, M. Ocorrência de solos com epípedons húmicos em área serrana no Rio de Janeiro e sua relação com o uso agrícola. In: XIV Reunião Brasileira de Manejo e Conservação do Solo e da Água, Cuiabá: UFMT, 2002.

2001

Andrade, A. G., **Santos, F.** A., Tavares, S. R. L., Franco, A. A., Menezes, C. E. G., Silva, M. S., Oliveira, J. A. Degradation of the Atlantic Forest in Paraíba do Sul River Valley (RJ, Brazil) and proposals for its rehabilitation. In: 3rd International Conference on Land Degradation and Meeting of the IUSS subcommission C – Soil and Water conservation (Conference guide, program and book of abstracts). Rio de Janeiro: Embrapa solos, 2001,p. 155.

Santos, F. A., Mendes, L. D. Ocorrência de solos com horizontes superficiais húmicos e sua relação com o suo agrícolas: município de Petrópolis, RJ. X Semana de Iniciação Científica, Rio de Janeiro: UERJ, Departamento de Capacitação e Apoio à formação de Recursos Humanos, 2001, p. 299. Orientação: Neusa Maria Costa Mafra.

Santos, F. A., Lisboa, A. Considerações sobre o estudo da relação solo-planta na bacia do Rio Bonito (Petrópolis, RJ). In: IX Semana de Iniciação Científica, Rio de Janeiro: UERJ, Departamento de Capacitação e Apoio à formação de Recursos Humanos, 2000, p. 535. Orientação: Neusa Maria Costa Mafra.

Santos, F. O estudo dos solos no maciço alcalino de Tinguá: formação e os processos atuantes. In: XII Encontro Nacional de Geógrafos, UFSC: Rio de Janeiro, 2000, p. 516.