Rose Abramoff

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Areas of specialization

Climate Change • Terrestrial Biosphere Modeling • Ecology

Appointments held

2022- Associate Scientist, Oak Ridge National Laboratory

2018-2021 Postdoctoral Researcher, Laboratoire des Sciences du Climat et de l'Environnement

2015-2018 Postdoctoral Researcher, Lawrence Berkeley National Laboratory

2009-2015 Teaching Fellow, Boston University

Education

2015 PhD in Biology: Ecology, Behavior and Evolution, Boston University

2015 Certificate in Biogeochemistry, Boston University

2009 BA in Biology, Amherst College

2009 BA in Theater and Dance, Amherst College

Publications & talks

Peer-reviewed articles

2022 Green J, Ballantyne A, **Abramoff RZ**, Gentine P, Makowski D, Ciais P. Surface temperatures reveal the patterns of vegetation water stress and their environmental drivers across the tropical Americas. *Globaly Change Biology* 28:9, DOI:10.1111/gcb.16139 Link to PDF

2022 Riley WJ, Sierra C, Tang JY, Bouskill NJ, Zhu Q, **Abramoff RZ**, Next generation soil biogeochemistry model representations: A proposed community open source model farm (BeTR-S). *in Multi-Scale Biogeochemical Processes in Soil Ecosystems: Critical Reactions and Resilience to Climate Changes, eds. Y. Yang, M. Keiluweit, N. Senesi and B. Xing.*

2022 **Abramoff RZ**, Guenet B, Zhang H, Georgiou K, Xu X, Viscarra-Rossel R, Yuan W, Ciais P, Improved global-scale predictions of soil carbon stocks with Millennial Version 2, *Soil Biology and Biochemistry* 164:108466, DOI:10.1016/j.soilbio.2021.108466 Link to PDF

2021 Saifuddin M, **Abramoff RZ**, Davidson EA, Dietze MC, Finzi AC, Identifying Data Needed to Reduce Parameter Uncertainty in a Coupled Microbial Soil C and N Decomposition Model. *JGR: Biogeosciences* 126:12, DOI:10.1029/2021JG006593 Link to PDF

2021 Huang Y, Ciais P, Santoro M, Makowski D, Chave J, Schepaschenko D, **Abramoff RZ**, Goll DS, Yang H, Chen Y, Wei W, Piao S, A global map of root biomass across the world's forests. *Earth System Science Data* 13:9, 4263–4274, DOI:10.5194/essd-13-4263-2021 Link to PDF

2021 Zhu P, **Abramoff RZ**, Makowski D, Ciais P, Uncovering the past and future climate drivers of wheat yield shocks in Europe with machine learning. *Earth's Future* 9:5, DOI:10.1029/2020EF001815 Link to PDF

2021 **Abramoff RZ**, Georgiou K, Guenet B, Torn MS, Huang Y, Zhang H, Feng W, Jagadamma S, Kaiser K, Kothawala D, Mayes MA, Ciais P, How much more organic carbon can be sorbed to soil? *Biogeochemistry Letters* 152, 127–142, DOI:https://doi.org/10.1007/s10533-021-00759-x Link to PDF

2020 Zhang H, Goll D, Wang YP, Ciais P, Wieder W, **Abramoff RZ**, Huang Y, Guenet B, Prescher A-K, Viscarra Rossel R, Barré P, Chenu C, Zhou G, Tang X, Microbial dynamics and soil physicochemical properties explain large scale variations in soil organic carbon. *Global Change Biology* 26:4, DOI:10.1111/gcb.14994 Link to PDF

2019 **Abramoff RZ**, Torn MS, Georgiou K, Tang J, Riley WJ, Soil organic matter temperature sensitivity cannot be directly inferred from spatial gradients. *Global Biogeochemical Cycles* 33:6, 761-776, DOI:10.1029/2018GB006001 Link to PDF

2018 Contributing author to: 2nd State of the Carbon Cycle Report. Chapter 12: Soils Link to PDF

2018 Sulman BN, Moore JAM, **Abramoff RZ**, Averill C, Kivlin S, Georgiou K, Sridhar B, Hartman M, Wang G, Wieder WR, Bradford MA, Luo Y, Mayes MA, Morrison E, Riley WJ, Salazar A, Schimel JP, Tang J, Classen AT, Multiple models and experiments underscore large uncertainty in soil carbon dynamics. *Biogeochemistry* 141:2, 109-123, DOI:10.1007/s10533-018-0509-z Link to PDF

2018 Savage K, Davidson EA, **Abramoff RZ**, Finzi AC, Giasson M-A, Partitioning Soil Respiration: Quantifying the Artifacts of the Trenching Method. *Biogeochemistry* 1-11. DOI:10.1007/s10533-018-0472-8 Link to PDF

2018 **Abramoff RZ**, Xu X, Hartmann M, O'Brien S, Feng W, Davidson EA, Finzi AC, Moorhead D, Schimel J, Torn MS, Mayes M (2018), The Millennial model: in search of measurable pools and exchanges in soil carbon cycling for the new century. *Biogeochemistry* 1-21, DOI:10.1007/s10533-017-0409-7 Link to PDF

2017 Georgiou K, **Abramoff RZ**, Harte J, Riley WJ, Torn MS (2017), Microbial community-level regulation explains soil carbon responses to long-term litter manipulations. *Nature Communications* 1223, 1-10, DOI: 10.1038/s41467-017-01116-z Link to PDF

2017 **Abramoff RZ**, Davidson EA, Finzi AC (2017), A parsimonious modular approach to building a mechanistic belowground carbon and nitrogen model. *JGR Biogeosciences* 122, DOI:10.1002/2017JG003796 Link to PDF

2016 **Abramoff RZ**, Finzi AC (2016), Seasonality and partitioning of root allocation to rhizosphere soils in a midlatitude forest. *Ecosphere* 7.11, e01547, DOI:10.1002/ecs2.1547 Link to PDF

2015 Finzi AC, **Abramoff RZ**, Darby BA, Spiller KS, Brzostek ER, Phillips RP (2015), Rhizosphere processes are quantitatively important components of terrestrial carbon and nutrient cycles. *Global Change Biology* 21.5, 2082-2094, DOI: 10.1111/gcb.12816 Link to PDF

2015 **Abramoff RZ**, Finzi AC (2015), Are above-and below-ground phenology in sync? *New Phytologist* 205.3, 1054-1061, DOI: 10.1111/nph.13111 Link to PDF

Datasets & Code Releases

2021 Abramoff R. rabramoff/DAMM-MCNiPvo: First release of DAMM-MCNiP. *Zenodo release of Gihub repostiroy* DOI: 10.5281/zenodo.5608424 Link to Repository

2017 Vaughn L, Zhu B, Bimueller C, Porras R, Curtis B, Chafe O, **Abramoff RZ**, Bill M, Torn MS, Soil Mesocosm CO_2 Emissions after 13C-glucose Addition, Soil Physical and Chemical Characteristics, and Microbial Biomass, Barrow, Alaska, 2014-2016. *Next Generation Ecosystems Experiment-Arctic, Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (US)* DOI: 10.5440/1364061

2016 **Abramoff RZ**, Finzi AC (2016), Phenology and Carbon Allocation of Roots at Harvard Forest 2011-2013. *Long Term Ecological Research Network*, Dataset. DOI:10.6073/pasta/b2fe6d68f23ad815f62a022826028328

Selected Invited Oral Presentations

2022 **Abramoff RZ**, Leveraging measurements to constrain models of soil carbon cycling. UW Madison Soil Science Department Webinar. April 2022.

2021 **Abramoff RZ**, Guenet B, Zhang H, Georgiou K, Xu X, Viscarra-Rossel RA, Yuan W, Ciais P. Improved global-scale predictions of soil carbon stocks with Millennial Version 2. American Geophysical Union. December 2021.

2021 **Abramoff RZ**, Ciais P, Zhu P, Hasegawa T, Wakatsuki H, Makowski D. Partitioning climate change impacts on yield variation due to temperature, CO_2 increase, and adaptation. ITES Soil Science Seminar. ETH Zurich. November 2021.

2020 **Abramoff RZ**, Microbes, minerals, and math: Mechanisms of soil C sequestration, the models used to make predictions, and their role in understanding global climate change. *Williams College Colloquium, Williamstown*

2019 **Abramoff RZ**, Georgiou K, Guenet B, Huang Y, Zhang H, Feng W, Jagadamma S, Kaiser K, Kothawala D, Mayes M, Camino-Serrano M, Ciais P, Maximum capacity of mineral-sorbed organic matter. *Soil process seminar, LUKE, Helsinki*

Grants, honors & awards

2020 H2020 LC-SFS-22-2020 Forest soils Research and Innovation Action (No.101000289) Task Leader

2018 Marie Curie Individual Fellowship (No.834169)

2018 Make Our Planet Great Again Fellowship

2017 LBNL EESA Early Career Development Grant

2015 BU Biogeoscience Symposium Outstanding Oral Presentation Award

2014 AAUW Dissertation Fellowship

2013 AGU Outstanding Student Paper Award

2012,2014 AGU Student Travel Grant Award

2012-2014 BU George R. Bernard, Jr. Travel Award

2011-2014 BU GRS Graduate Scholarship

2011-2012 NSF Graduate STEM in K-12 Education Fellowship

2010-2014 BU Teaching Fellowship

2010 NSF East Asia and Pacific Summer Institutes Fellowship

2009-2011 Amherst College Fellowship for Graduate Study

2009 BU Dean's Fellowship

2007 Howard Hughes Medical Institute Independent Research Fellowship

Teaching & Mentorship

2022- Postdoctoral co-advisor: Elisa Bruni

2018 ETH Zürich master's thesis reader: Valentino Weber

2013-2014 Pomona College undergraduate thesis advisor: Johanna Recalde

2012,2013 Harvard Forest REU Program Mentor: Samuel Knapp, Arline Gould, Johanna Recalde

2011-2015 Undergraduate Research Intern Mentor: Amanda Alon, Aubree Woods

2011-2012 NSF GK-12 GLACIER Teaching Fellow: Curley K-8 School

2010-2015 BU Teaching Fellow: Biology I, Biology II, Ecology

Service to the profession

Professional Service

2021- AGU Soil Processes and the Critical Zone Technical Committee Member

2021- Deep Soil Ecotron Scientific Advisory Board Member

2020 Expert Reviewer for EJP SOIL 1st Internal Call

2019-2021 Biogeo Seminar Series Co-organizer

2019- Ecological Forecasting Initiative Member

2019 Expert Reviewer for Working Group I IPCC Sixth Assessment Report

2017-2021 European Geophysical Union Member

2016-2019 LBNL Women Scientists and Engineers Council Empowerment Committee Member

2016-2017 CRS BASIS Steering Committee Member

2016 CCIWG International Decade of Soil Workshop Organizer

2015-2018 AGU Global Environmental Change Executive Committee Member

2014- Reviewer for 20+ journals, including: Nature Climate Change, Nature Communications, Global Change Biology, Ecology Letters, New Phytologist, Soil Biology $ Biochemistry, Geoscientific Model Development, Biogeosciences, Agricultural & Forest Meteorology

2013-2015 LTER Higher Education Working Group Member

2013-2015 LTER Harvard Forest Graduate Student Representative

2012-2015 Ecological Society of America Member

2012- American Geophysical Union Member

Outreach

2017-2018 The Climate Music Project Science Advisor

2015-2016 CRS BASIS Volunteer & Team Leader

2012-2015 BU Advocates for Literacy in Environmental Sciences Founding Member

(Received Graduate Student Organization Award for Excellence in Student Activities)

2013 Pierce School Climate Change Summit Moderator

2012 Curley K-8 School Science Fair Judge

2011 NSF GK-12 GLACIER Fundraiser Organizer

2011 Summer Pathways Program: Tech Savvy Program Coordinator

2011 Biology Inquiry & Outreach with Boston University Graduate Students Volunteer Instructor

Media Mentions

2018 One Planet Summit: Rose Abramoff concrétise son projet de recherche avec le programme Make Our Planet Great Again YouTube

2018 When Rainforest is Cleared for Palm Oil, a Jet Liner of Carbon is Produced Inverse

2017 EESA Leads Development of New-Generation Soil Carbon Model EESA News Page

2017 Editor's Highlight Journal of Geophysical Research: Biogeosciences

2017 EESA Research Shines Light on Role Soil Microbes Play in Carbon Sequestration EESA News Page

2015 Tracing Our Roots: GRS student digs deep into the carbon cycle BU Today

Programming Skills

R, Fortran, Python, Matlab, High Performance Computing