

# Rose Abramoff

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## Areas of specialization

Forest Ecology • Biogeochemistry • Terrestrial Biosphere Modeling

## 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 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 press, 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 Millennium 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 Github repository* 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<sub>2</sub> Emissions after <sup>13</sup>C-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

- 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<sub>2</sub> 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*
- 2018 **Abramoff RZ**, Torn MS, Georgiou K, Tang J, Riley WJ, A tale of four models, or Spatial gradients can hide the temperature sensitivity of soil organic matter to warming. *Enviro-Lunch Seminar, UC Merced*

#### 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