Kolby J. Jardine
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Education

Colorado School of Mines (Chemistry) transferred to New York University (Biochemistry), B.S. 1999

NSF fellow in Optical Biomolecular Devices, Department of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, 2001

South Dakota School of Mines and Technology (Atmospheric Chemistry), M.S., 2004

Stony Brook University, NSF fellow in Biosphere-Atmosphere Interactions (Atmospheric and Marine Sciences), Ph.D., 2008

University of Arizona and the National Center for Atmospheric Research (Biosphere-Atmosphere Interactions), Post-Doctoral fellow, 2008-2009

Experience

May 2019-Present:	Career Research Scientist, Lawrence Berkeley National Laboratory, Ecology Department.
Aug 2017-May 2019:	Career Research Scientist, Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division.
June 2015-present:	Adjunct faculty and professor, Departments of Climate and Environment (CLIAMB) and Tropical Forest Sciences (CFT), National Institute for Amazon Research.
June 2014-Aug 2017:	Term Research Scientist, Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division, Next Generation Ecosystem Experiments Tropics (NGEE Tropics).
June 2012-June 2014:	Project Scientist, Green Ocean Amazon (GoAmazon) Terrestrial Ecosystem Project, Lawrence Berkeley National Laboratory (Berkeley, CA, USA) and Instituto Nacional de Pesquisas da Amazônia (Manaus, Brazil)
April 2012-June 2012:	Visiting Scientist, University of Bielefeld, Bielefeld, Germany
July 2009-April 2012:	Assistant Research Professor, Biosphere 2, University of Arizona, Tucson, AZ
July 2010-Nov 2010:	Visiting scholar, Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil
July 2008-July 2009:	Postdoctoral Research Fellow, National Center for Atmospheric Research, Boulder, CO and Biosphere 2, University of Arizona, Tucson, AZ
Aug 2004-May 2008:	Biosphere-Atmosphere Research and Training (BART) Doctoral Research Fellowship; University of Michigan Biological Station
Jan 2001-Dec 2002:	Instructor, Chemistry I/II, Microbiology, Math for Electronics, and Algebra I, San Juan College, Farmington New Mexico
Jan 1997-May 1999:	Undergraduate Research Assistant, DNA Nanotechnology, Department of Chemistry, New York University, New York City, NY
Jan 1994-June 1996:	Research Internship, Fruit Fly Molecular Genetics, Department of Organismic and Evolutionary Biology, Harvard University, Cambridge, MA

Peer Reviewed Publications (Google Scholar citations = 1654; h-index = 25)

1. Rodrigues T, Baker C, Walker A, McDowell N, Rogers A, Higuchi N, Chambers J, **Jardine K** (2020) Stimulation of isoprene emissions and electron transport rates as a key mechanism of thermal tolerance in the tropical species *Vismia guianensis*, *Global Change Biology* (in press). https:/doi.org/10.1111/gcb.15213

2. Dewhirst R, Mortimer J, **Jardine K** (2020) Do cell wall esters facilitate forest response to climate? (2020), Trends in Plant Science. https:/doi.org/10.1016/j.tplants.2020.05.011
3. **Jardine K**, Piva L, Rodrigues T, Spanner G, Rodrigues J, Menezes V, Sampaio I, Oliveira D, Gimenez B, Higuchi N, Chambers J (2020) Volatiles Defenses of Amazon *Azteca* Ants (Repellent Ants), *BioRxiv*. https://doi.org/10.1101/2020.04.15.043547
4. Dewhirst R, Afseth C, Castanha C, Mortimer J, and **Jardine K** (2020) Cell wall *O*-acetyl and methyl esterification patterns of leaves reflected in atmospheric emission signatures of acetic acid and methanol, *PLoS ONE* 15(5), e0227591. https://doi.org/10.1371/journal.pone.0227591
5. **Jardine K**, Zorzanelli R, Gimenez B, Piva L, Teixeira A, Fontes C, Robles E, Chambers J, Higuchi N, Martin S (2020) Leaf isoprene and monoterpene emission distribution in the 5 most abundant tree genera in the Amazon Basin, *Phytochemistry*, Vol. 175, 112366. https://doi.org/10.1016/j.phytochem.2020.112366
6. **Jardine K**, Zorzanelli R, Gimenez B, Robles E, Piva L (2020) Development of a portable leaf photosynthesis and volatile organic compounds emission system, *MethodsX*, Vol. 7, 100880 https://doi.org/10.1016/j.mex.2020.100880
7. Gimenez B, **Jardine K**, Niro H, Negron-Juarez R, Sampaio-Filho I, Cobello L, Fontes C, Dawson T, Charuleka V, Christianson D, Araujo A, Warren J, Newman B, Jennifer H, Koven C, McDowell N (2019) Species-specific shifts in diurnal sap velocity dynamics and hysteretic behavior of ecophysiological variables during the 2015-2016 El Nino event in the Amazon forest, *Front. Plant Sci.* https://dx.doi.org/10.3389/fpls.2019.00830.
8. Grossiord C, Christoffersen B, **Jardine K**, et al. (2019) Precipitation mediates sap flux sensitivity to evaporative demand in the neotropics, *Oecologia*. https://doi.org/10.1007/s00442-019-04513-x
9. Batista C, Ye J, Ribeiroa I, Guimarãesa P, Medeirosa A, Barbosab R, Oliveira R, Duvoisin S, **Jardine K**, Guf D, Guenther A, McKinney K, Martins L, Souza R, Martin S (2019) Intermediate-scale horizontal isoprene concentrations in the near-canopy forest atmosphere and implications for emission heterogeneity, Vol. 16, No. 39, *Proceedings of the National Academy of Sciences*. https://doi.org/10.1073/pnas.1904154116
   Garcia S, **Jardine K**, Souza F, Manzi A, Higuchi N, Chambers J, Gonçalves J (2019) Reassimilation of leaf internal CO_2 contributes to isoprene emission in the neotropical species *Inga edulis* Mart., Forests, 10(6), 472. https://doi.org/10.3390/f10060472
10. Piva L, **Jardine K**, Gimenez B, Menezes V, Durgante F, Cobello L, Higuchi N, Chambers J (2019) Volatile monoterpene 'fingerprints' of resinous *Protium* tree species in the Amazon Rainforest, *Phytochemistry*, 160, 61. https://doi.org/10.1016/j.phytochem.2019.01.014
11. Fontes C, Dawson T, **Jardine K**, McDowell N, Gimenez B, Anderegg L, Negron-Juarez R, Higuchi N, Fine P, Araujo A, Chambers J (2018) Dry and hot: the hydraulic consequences of a climate change-type drought for Amazonian trees, *Philisophical Transactions B*, Vol 373, No. 1760. http://dx.doi.org/10.1098/rstb.2018.0209
12. Piva L, **Jardine K**, Cobello L, Gimenez B, Durgante F., Higuchi N, Chambers J (2018). Demonstration of a strict molecular oxygen requirement of yellow latex oxidation in the Amazônia Ocidental canopy tree Muiratinga (*Maquira sclerophylla* (Ducke) C.C. Berg), *Revista Virtual Quimica*, 10 (5).
13. Sampaio Filho I, **Jardine K**, Oliveira R, Gimenez B, Cobello L, Piva L, Candido L, Higuchi N, Chambers J (2018) Below versus above ground plant sources of abscisic acid (ABA) at the heart of tropical forest response to warming, *International Journal of Molecular Sciences, 19*(7), 2023. http://dx.doi.org/10.3390/ijms19072023.
14. Christianson D, Varadharajan C, Christoffersen B, Detto M, Faybishenko B, Hendrix V, **Jardine K**, Negron-Juarez R, Gimenez B, Pastorello G and Powell T (2017). A metadata reporting framework (FRAMES) for synthesis of ecohydrological observations, *Ecological Informatics*. http://dx.doi.org/10.1016/j.ecoinf.2017.06.002

15. **Jardine K**, Chambers J, Oikawa P, Fernandez de Souza V, Higuchi N, Bill M, Porras R, Niinemets U (2017) Integration of C_1 and $C_{2,3}$ metabolism in trees, *International Journal of Molecular Sciences*, *18*(10), 2045. http://dx.doi.org/10.3390/ijms18102045
16. **Jardine K**, Jardine A, Holm J., Lombardozzi D, Negron-Juarez R, Martin S, Chambers J, Higuchi N (2017) Monoterpene 'thermometer' of tropical forest response to climate warming, *Plant Cell and Environment,* 40: 441–452. http://dx.doi.org/10.1111/pce.12879
17. Jardine A, Barden D, **Jardine K.** (2016) Measuring carbon tetrachloride atmospheric mixing ratios in the central Amazon rainforest, *Chromatography Online*, *12*(17), 14-20.
18. **Jardine K**, Gimenez B, Araújo A, Cunha R, Felizzola J, Piva L, Chambers J, and Higuchi N (2016) Diurnal Pattern of Leaf, Flower and Fruit Specific Ambient Volatiles above an Oil Palm Plantation in Pará State, Brazil, *Journal of the Brazilian Chemical Society*., 0(0), 1-9. http://dx.doi.org/10.5935/0103-5053.20160194
19. S.T. Martin, P. Artaxo, **K. Jardine**, et al. (2016) The Green Ocean Amazon Experiment (GoAmazon2014/5) Observes Pollution Affecting Gases, Aerosols, Clouds, and Rainfall over the Rain Forest. *Bulletin of the American Meteorological Society (BAMS)*, early view. http://dx.doi.org/10.1175/BAMS-D-15-00221.1
20. **Jardine K** and Jardine A, Biogenic volatile organic compounds in Amazonian forest ecosystems (2016) Chapter 4, in "Interactions Between Biosphere, Atmosphere and Human Land Use in the Amazon Basin", Springer, Ecological Studies, Editors: Nagy L., Forsberg B., Artaxo P. http://dx.doi.org/10.1007/978-3-662-49902-3
21. **Jardine K**, Jardine A, Souza V, Carneiro V, Ceron J, Gimenez B, Soares C, Durgante F, Higuchi N, Manzi A, Gonçalves J., Garcia S, Martin S., Zorzanelli R., Piva L., Chambers J (2016) Methanol and Isoprene Emissions from the Fast Growing Tropical Pioneer Species *Vismia guianensis* (Aubl.) Pers. (Hypericaceae) in the Amazon Basin, *Atmospheric Chemistry and Physics,* 16, 6441-6452. http://dx.doi.org/10.5194/acp-16-6441-2016
22. **Jardine K**, Chambers J., Holm J., Jardine A., Fontes C., Piva L., Zorzanelli R., Souza V., Garcia S., Meyers K, Gimenez B, Higuchi N, Artaxo P, Martin S, Manzi A (2015) Green leaf volatile emissions during high temperature and drought stress in a central Amazon rainforest, *MDPI Plants*, Plant senescence special issue *4*(3), 678-690. http://dx.doi.org/10.3390/plants4030678
23. Alves E, **Jardine K**, Tota J, Jardine A, Yáñez-Serrano A, Karl T, Tavares J, Nelson B, *et al.* (2015) Seasonality of isoprenoid emissions from a primary rainforest in central Amazonia. *Atmospheric Chemistry and Physics*, 16, 3903-3925. http://dx.doi.org/10.5194/acp-16-3903-2016
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25. Jardine A, **Jardine K**, Fuentes J, Martin S, Martins G, Durgante F, Carneiro V, Higuchi N, Manzi A, Chambers J (2015) Highly-reactive light-dependent monoterpenes in the Amazon Basin, *Geophysical Research Letters*, *42*. http://dx.doi.org/1010002/2014GL062573

26. **Jardine K**, Yañez-Serrano A, Williams J, Kunert N, Jardine A, Taylor T, Abrell L, Artaxo P, Guenther A, Hewitt C.N., House E., Florentino A P, Manzi A, Kesselmeier J, Behrendt T, Veres P R, Derstroff B, Fuentes J, Martin S, Andreae M O (2015) Dimethyl Sulfide in the Amazon Forest, *Global Biogeochemical Cycles*, 29(1) 19-32. http://dx.doi.org/10.1002/2014GB004969
27. Yañez-Serrano A, Nölscher A, Williams J, Wolff S, Alves E, Martins G, Bourtsoukidis E, Brito J, **Jardine K**., Artaxo P, and Kesselmeier J. (2015) Diel and seasonal changes of biogenic volatile organic compounds within and above an Amazonian Rainforest site. *Atmospheric Chemistry and Physics*, 15, 3359-3378. http://dx.doi.org/10.5194/acp-15-3359-2015
28. **Jardine K**, Chambers J, Alves E, Tiexiera A, Garcia S, Holm J, Higuchi N, Manzi A, Abrell L, Fuentes J, Nielsen L, Torn M, Vickers C (2014). Dynamic balancing of isoprenoid intermediates reflect leaf photosynthetic and photorespiratory responses to temperature stress. *Plant Physiology*, 166: 1-14. http://dx.doi.org/10.1104/pp.114.247494
29. Holm J, **Jardine K**, Guenther A, Chambers J, Tribuzy E (2014) Evaluation of MEGAN-CLM parameter sensitivity to predictions of isoprene emissions from an Amazonian rainforest. *Atmospheric Chemistry and Physics Discussions,* 14: 23995-24041. http://dx.doi.org/10.5194/acpd-14-23995-2014
30. Niinemets U, Fares S, Harley P, **Jardine K** (2014) Bidirectional exchange of biogenic volatiles with vegetation. *Plant Cell and Environment*, 37(8): 1790-1809. http://dx.doi.org/10.1111/pce.12322
31. Alves E., Harley P., Gonçalves F., & **Jardine K** (2014). Effects of temperature on isoprene emission of the tropical tree species *Eschweilera coriacea* during leaf phenology in the central Amazon. *Acta Amazonica*, 44(1): 9-18. http://dx.doi.org/10.1590/S0044-59672014000100002
32. **Jardine K**, Wegener F, Abrell L, van Haren J, Werner C (2014) Phytogenic biosynthesis and emission of methyl acetate. *Plant Cell and Environment*, 37: 414-424. http://dx.doi.org/10.1111/pce.12164
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35. **Jardine K**, Abrell L, Jardine A, Saleska S, Arneth A, Monson R, Karl T, Goldstein A, Fares S, Loreto F, & Huxman T (2012) Within-plant isoprene oxidation confirmed by direct emissions of oxidation products methyl vinyl ketone and methacrolein. Global Change Biology 18(3):973-984. http://dx.doi.org/10.1111/j.1365-2486.2011.02610.x
36. **Jardine K**, Abrell, L, Yanez Serrano, A, Arneth A, Alves E, Kesselmeier J., Huxman T., Saleska S., Jardine A., Taylor T., and Artaxo P (2011) Ecosystem-scale compensation points of formic and acetic acid in the central Amazon. Biogeosciences 8: 3709-3720. http://www.biogeosciences.net/8/3709/2011/bg-8-3709-2011.pdf
37. **Jardine, K.**, Abrell, L., Yanez Serrano, A. M., Arneth, A., Yoko Ishida, F., Huxman, T., Saleska, S., Jardine, A., Karl, T., and Artaxo, P. (2011) Within-Canopy Sesquiterpene Ozonolysis in Amazonia. *J.* Geophys. Res., 116, D19301. http://dx.doi.org/10.1029/2011JD016243

38. Karl T, Harley P, Emmons L, Thornton B, Guenther A, Basu C, Turnipseed A & **Jardine K** (2010) Efficient atmospheric cleansing of oxidized organic trace gases by vegetation. Science 330: 816-819. http://dx.doi.org/10.1126/science.1192534
39. **Jardine K**, Sommer E, Saleska S, Huxman T, Harley P & Abrell L (2010) Gas-phase measurements of pyruvic acid and its volatile metabolites. Environmental Science & Technology 44: 2454-2460. http://dx.doi.org/10.1021/es903544p
40. **Jardine K**, Abrell L, Kurc SA, Huxman T, Ortega J & Guenther A (2010) Volatile organic compound emissions from *Larrea tridentata* (creosotebush). Atmospheric Chemistry and Physics 10: 12191-12206. http://www.atmos-chem-phys.net/10/12191/2010/acp-10-12191-2010.pdf
41. **Jardine K**, Karl T, Lerdau M, Harley P, Guenther A & Mak JE (2009) Carbon isotope analysis of acetaldehyde emitted from leaves following mechanical stress and anoxia. Plant Biology 11: 591-597. https://doi.org/10.1111/j.1438-8677.2008.00155.x
42. **Jardine K**, Henderson W, Huxman T & Abrell L (2010) Dynamic Solution Injection: a new method for preparing pptv & ppbv standard atmospheres of volatile organic compounds. Atmospheric Measurement Techniques 3: 1569-1576. http://www.atmos-meas-tech.net/3/1569/2010/amt-3-1569-2010.pdf
43. **Jardine K**, Harley P, Karl T, Guenther A, Lerdau M & Mak JE (2008) Plant physiological and environmental controls over the exchange of acetaldehyde between forest canopies and the atmosphere. Biogeosciences 5: 1559-1572. http://www.biogeosciences.net/5/1559/2008/bg-5-1559-2008.pdf
44. Karl T, Guenther A, Turnipseed A, Patton EG & **Jardine K** (2008) Chemical sensing of plant stress at the ecosystem scale. Biogeosciences 5: 1287-1294. http://www.biogeosciences.net/5/1287/2008/bg-5-1287-2008.pdf
45. Karl T, Harley P, Guenther A, Rasmussen R, Baker B, **Jardine K** & Nemitz E (2005) The bi-directional exchange of oxygenated VOCs between a loblolly pine (*Pinus taeda*) plantation and the atmosphere. Atmospheric Chemistry and Physics 5: 3015-3031. http://hal.archives-ouvertes.fr/docs/00/29/57/81/PDF/acp-5-3015-2005.pdf

Datasets

1. **Jardine K**; Zorzanelli R; Gimenez B; Robles E; Rosa L (2020): Leaf isoprene and monoterpene emission data-set across hyperdominant tree genera in the Amazon basin. 1.0. NGEE Tropics Data Collection. *(dataset).* http://dx.doi.org/10.15486/ngt/1602142
2. **Jardine K**; Zorzanelli R; Gimenez B; Robles E; Rosa L (2020): Raw leaf gas exchange data in the Amazon basin, 2014-2016. 1.0. NGEE Tropics Data Collection. (dataset). http://dx.doi.org/10.15486/ngt/1602143
3. **Jardine K**, Zorzanelli R, Gimenez B, Robles E, Rosa L (2020): Raw leaf isoprene and monoterpene emission GC-MS chromatograms/calibrations for MassHunter software, Brazil, 2014-2016. 1.0. NGEE Tropics Data Collection. (dataset). http://dx.doi.org/10.15486/ngt/1602144
4. **Jardine K**., Chambers, J., Gimenez, B., Negron-Juarez, R., Sampaio, I., Cobello, L., et al. (2019) Raw/Translated data and metadata from sensor and leaf sample measurements at Manaus, Brazil 24 May 2016 -16 March 2017 [Data set] https://doi.org/10.15486/NGT/1507767
5. **Jardine K** (2019). Monoterpene emission data during 2015/2016 El Nino in Manaus, Brazil. http://dx.doi.org/10.15486/ngt/1570411
6. **Jardine K** (2019) Volatile monoterpene 'fingerprints' of resinous Protium tree species in the Amazon rainforest [Data set], Phytochemistry. http://dx.doi.org/10.15486/ngt/1570410
7. **Jardine K** (2019) Latex Oxidation Defenses in Muiratinga (Maquira sclerophylla) in Manaus, Brazil. NGEE Tropics Data Collection. http://dx.doi.org/10.15486/ngt/1570409

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9. **Jardine K**, Rodrigues T (2019). Isoprene, Chlorophyll fluorescence, and leaf temperature data from Manaus, Brazil, 2017 - 2018. NGEE Tropics Data Collection. http://dx.doi.org/10.15486/ngt/1570407
10. Sampaio I, **Jardine K**, Candido L, Araujo A, Gimenez B, Higuchi N, Chambers J (2020). Air temperature and relative humidity raw data from June 2016-Jan2018 at the K34 tower in Manaus, Brazil. NGEE Tropics Data Collection. Accessed at http://dx.doi.org/10.15486/ngt/1602468
11. Sampaio I, **Jardine K**, Candido L, Araujo A, Gimenez B, Higuchi N, Chambers J (2020). Raw leaf temperature data from May 2017- Aug 2017 at the B34 and K34 towers in Manaus, Brazil. NGEE Tropics Data Collection. http://dx.doi.org/10.15486/ngt/1602455.
12. Sampaio I, **Jardine K**, Candido L, Araujo A, Gimenez B, Higuchi N, Chambers J (2020). Stomatal conductance and leaf temperature raw data from Aug 2016-Nov 2017 at the B34 tower in Manaus, Brazil. NGEE Tropics Data Collection. http://dx.doi.org/10.15486/ngt/1602454.
13. Sampaio I, **Jardine K**, Candido L, Araujo A, Gimenez B, Higuchi N, Chambers J (2020). Stomatal conductance and leaf temperature raw data from Aug 2016-Nov 2017 at the K34 tower in Manaus, Brazil. NGEE Tropics Data Collection. http://dx.doi.org/10.15486/ngt/1602449.
14. Sampaio I, **Jardine K**, Candido L, Araujo A, Gimenez B, Higuchi N, Chambers J (2020). Air temperature and relative humidity raw data from June 2017-Oct 2018 at the B34 tower in Manaus, Brazil. NGEE Tropics Data Collection. http://dx.doi.org/10.15486/ngt/1602481.

Other publications

Invention of dynamic ^{13}C-pulse tracing (patent pending): http://www.lbl.gov/TT/techs/lbnl2013-110.html
LBNL personal page: http://esd.lbl.gov/profiles/kolby-jeremiah-jardine/
Amazon VOCs wiki page: https://voc-amazon.wikispaces.com/home
Jardine K & Jardine A (2010) In Person: How Our Adventures Led to Careers in Science. Science Careers.
http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2010_09_03/caredit.a1000086
Arizona Public Media interview: https://www.azpm.org/s/3681-biosphere-2-air-quality-research/
Kolby Jardine's Environmental Science and Adventure Page: http://kolbala.livejournal.com/

Research Funding

1. Principal investigator, Office of Science Early Career Research Project, DOE National Laboratory LAB 17-1761, "*O*-Acetylation and methylation engineering of plant cell walls for enhanced biofuel production". $500,000/year (10/01/18-08/01/23).
2. Co-investigator, Next Generation Ecosystem Experiment (NGEE) Tropics, US Department of Energy, Office of Science, Office of Biological and Environmental Research through contract No. DE-AC02-05CH11231 to LBNL, as part of DOE's Terrestrial Ecosystem Science Program. $200,000.00/year (7/1/14 – 9/31/18).
3. Co-investigator, Green Ocean Amazon (GoAmazon) terrestrial ecosystem experiments (GECO), US Department of Energy, Office of Science, Office of Biological and Environmental Research through contract No. DE-AC02-05CH11231 to LBNL, as part of DOE's Terrestrial Ecosystem Science Program. $150,000.00/year (7/1/14 – 9/31/18).

Synergistic Activities

1. ***Associate Editor*:** *Frontiers in Forests and Global Change* (2017), Biogeosciences: (2013 – 2015).
2. ***Grant Reviewer:*** Austrian Science Foundation, Environmental Protection Agency (EPA), NSF Atmospheric Chemistry, DOE Terrestrial Ecosystem Science.
3. ***Journal Reviewer:*** Analytical Chemistry, Atmospheric Measurement Techniques, Biogeosciences, Atmospheric Chemistry and Physics, Global Change Biology, Oecology, New Phytologist, Phytochemistry, Atmospheric Environment, Plant Physiology, Phytochemistry, International Journal of Molecular Sciences.
4. ***Invited talks:*** Gordon Research Conference on Biogenic Hydrocarbons in the Atmosphere (2014 and 2018), LBNL EcoSense workshop (2017), Stanford University (2016), University of California Irvine (2016), GoAmazon Joint Principal Investigators Meeting (2014), American Geophysical Union (2014-2016), GoAmazon 2014/5 Science Conference (2015), Environmental System Science PI Meeting (2015-18), DOE Terrestrial Ecosystem Science focus area review (2014), Gordon Research Conference on Plant Volatiles (2014), Whittier College Capstone Program (2014), Seasonality of Photosynthesis 2014, Amazon Tall Tower (ATTO 2015-2017) and EMRAPA collaborations meeting (2015).
5. ***Meeting Organizer*** of GoAmazon and NGEE Tropics graduate student training meetings (2014-2018). 2-day research training meetings in Manaus, Brazil with the primary goal of practicing scientific presentations, initiating collaborations, and training in data analysis tools and analytical chemistry instrumentation methods. Meeting Co-Chair: AGU 2011-2012 session B31: Exchange Dynamics of Volatile Organic Compounds between Plant Ecosystems and the Atmosphere (San Francisco, CA).
6. ***Research Mentor and Instructor***: DOE SULI undergraduate research mentor (2019), Amazon-PIRE and INPA Forest Management program (Brazil, July 2015-2018), MC^2 High School Program (Ohio, 2010-2011), high school teacher science curriculum educator (AZ STEM program, 2010-2011), high school science instruction with MC^2 (Cleveland, OH) and GEAR UP (Tucson) 2010-2011, Brazil Undergraduate Research program (ZF2, 1 month 2014-2018). INPA ZF2 Forest Management Field course in Brazil (grad students 1 month, teachers 1 week, 1 month 2014-2018).

Collaborators and Co-editors

Allesandro Araujo, Brazilian Agricultural Research Corporation	Paulo Artaxo, University of Sao Paulo	Jeffrey Chambers University of California, Berkeley	Todd Dawson, University of California, Berkeley
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Alex Guenther, University of California, Irvine	Niro Higuchi, National Institute of Amazon Research	Thomas Karl, University of Innsbruck	Juergen Kesselmeier, Max Planck Institute for Chemistry
Danica Lombardozzi, National Center for Atmospheric Research	Antonio Manzi, National Institute for Space Research	Scot Martin, Harvard University	Nate McDowell, Pacific Northwest National Laboratory
Pawel Misztal, University of California, Berkeley	Russell Monson, University of Arizona	Bruce Nelson, National Institute of Amazon Research	Ülo Niinemets, Estonian University of Life Sciences
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Graduate Advisees

Eliane Alves (MS and PhD), National Institute for Amazon Research (INPA)	Tayana Barrozo (MS), INPA	Leticia Cobello (MS), INPA	Vinicius Fernandes de Souza (PhD), INPA
Clarissa Fontes (PhD), University of California, Berkeley	Sabrina Garcia (PhD), INPA	Bruno Gimenez (PhD), INPA	Angela Jardine (PhD), INPA
Giordani Martins (PhD), INPA	Valdiek Menezes (MS) INPA	Kimberly Meyers (MS), University of Arizona	Bruna Oliveira (MS), INPA
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Posdoctoral Advisees

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