

RODRIGO VARGAS

Department of Plant and Soil Sciences
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(a) Education and Training

Universidad Nacional Autónoma de México, Mexico City, Mexico, Biology Licenciatura, 2002
University of California, Riverside, CA, USA, Environmental Sciences, Ph.D., 2007
University of California, Berkeley, CA, USA, Ecosystem Ecology, Post-doctoral Research, 2009

(b) Research and Professional Experience

2021 – present Professor, Plant and Soil Sciences, University of Delaware
2012 – 2021 Associate Professor, Plant and Soil Sciences, University of Delaware
2012 – 2017 Assistant Professor, Plant and Soil Sciences, University of Delaware
2009 - 2012 Assistant Professor, Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE)

(c) Research interests

Ecosystem ecology, global environmental change, biogeochemical cycles, soil-plant-atmosphere interactions, big data, blue carbon, extreme events, environmental networks

(d) Recent Honors and Awards

2021 Mid-Career Faculty Excellence in Scholarship Award at the University of Delaware
2021 Earth Leadership Program fellow
2019 Highly Cited Researcher Web of Science (category: cross-field)
2019-2023 *Investigador Nacional* Level 3
(SNI-CONACyT; Mexican recognition for scientific productivity [highest level])
2018 Mentorship/Advancement award of the Hispanic/Latino Graduate Student Association (HLGSA) at the University of Delaware
2018 Mexican Carbon Program National Award
(for contributions to carbon cycle science in Mexico)

(e) Recent Publications

Fifteen recent publications (out of >150 total publications)

Total citations = >10,000; h-index = 50; i10 index = 98

Google Scholar Statistics (revised on 7/2021)

Total publications with >100 citations each = 27

** Student; ** Postdoc; Letters in bold represent members of the Vargas lab*

Barba J**, Poyatos R, **Capooci***, **Vargas R** (2021) Spatiotemporal variability and origin of CO₂ and CH₄ tree stem fluxes in an upland forest. *Global Change Biology*.

- <https://doi.org/10.1111/gcb.15783>
- Hill A***, **Vazquez-Lule A***, **Vargas R** (2021) Linking vegetation spectral reflectance with ecosystem carbon phenology in a coastal salt marsh. *Agricultural and Forest Meteorology*. 307:108481 <https://doi.org/10.1016/j.agrformet.2021.108481>
- Stell E***, Warner D, Jian J, Bond-Lamberty B, **Vargas R** (2021) Spatial biases of information influence global estimates of soil respiration: How can we improve global predictions? *Global Change Biology*. 27(16):3923-3938. <https://doi.org/10.1111/gcb.15666>
- Guevara M***, Taufer M, **Vargas R** (2021) Gap-free global annual soil moisture: 15km grids for 1991-2018. *Earth System Science Data*. 13:1711-1735 <https://doi.org/10.5194/essd-13-1711-2021>
- Villarreal S*** & **Vargas R** (2021) Representativeness of FLUXNET sites across Latin America. *Journal of Geophysical Research-Biogeosciences*.126(3):e2020JG006090 <https://doi.org/10.1029/2020JG006090>
- Vazquez-Lule AD*** & **Vargas R** (2021) Biophysical drivers of net ecosystem and methane exchange across phenological phases in a tidal salt marsh. *Agricultural and Forest Meteorology*. 300:108309 <https://doi.org/10.1016/j.agrformet.2020.108309>
- Delwiche KB, et al (2021) FLUXNET-CH4: A global, multi-ecosystem dataset and analysis of methane seasonality from freshwater wetlands. *Earth System Science Data*. 13:3607-3689 <https://doi.org/10.5194/essd-2020-307>
- Jian J, **Vargas R**, Anderson-Teixeira K, **Stell E***, Herrmann V, Horn M, Kholod N, Manzon J, Marchesi R, Paredes D, Bond-Lamberty B (2021) A restructured and updated global soil respiration database (SRDB-V5). *Earth System Science Data*. 13:255-267 <https://doi.org/10.5194/essd-13-255-2021>
- Hill A***, **Barba J****, Hom J, **Vargas R** (2021) Patterns and drivers of multi-annual CO₂ emissions within a temperate suburban neighborhood. *Biogeochemistry*. 152:35-50 <https://doi.org/10.1007/s10533-020-00731-1>
- Cueva A***, Bullock SH, Mendez-Alonzo R, Lopez E, **Vargas R** (2021) Foliage senescence as a key parameter for modeling gross primary productivity in a Mediterranean shrubland. *Journal of Geophysical Research-Biogeosciences*. 126(1):e2020JG005839 <https://doi.org/10.1029/2020JG005839>
- Velasco E, Segovia E, Choong AMF, Lim BKY, **Vargas R** (2021) Carbon dynamics in a residential lawn of a tropical city. *Journal of Environmental Management*. 280:111752 <https://doi.org/10.1016/j.jenvman.2020.111752>
- Trifunovic B***, **Vazquez-Lule A***, **Capooci M***, Seyfferth AL, Moffat C, **Vargas R** (2020) Carbon dioxide and methane emissions from a temperate salt marsh tidal creek. *Journal of Geophysical Research-Biogeosciences* 125(8):e2019JG005558 <https://doi.org/10.1029/2019JG005558>
- Ward N, et al (2020) Representing the function and sensitivity of coastal interfaces in Earth System Models. *Nature Communications*. 11(2458) <https://doi.org/10.1038/s41467-020-16236-2>
- Llamas RM***, **Guevara M***, Rorabaugh D, Taufer M, **Vargas R** (2020) Spatial gap-filling of ESA CCI satellite-derived soil moisture based on geostatistical techniques and multiple regression. *Remote Sensing*. 12(4),665. <https://doi.org/10.3390/rs12040665>

Hannun RA, Wolfe GM, Kawa SR, Hanisco TF, Newman PA, Barrick J, Clark KL, DiGangi JP, Diskin G, Kustas WP, Noormets A, Nowak JB, Thornhill KL, **Vargas R** (2020) Spatial heterogeneity in CO₂ and CH₄ fluxes: insights from airborne eddy covariance measurements over the Mid-Atlantic region. *Environmental Research Letters*. 15(3):035008 <https://doi.org/10.1088/1748-9326/ab7391>

(f) Career funded research grants

Funding to Vargas as PI: \$5,020,496

Funding to Vargas as Co-PI: \$5,798,918

Total funding to Vargas: \$10,819,414

(d) Presentations and Outreach

- Invited speaker for >25 international and >35 national presentations.
- Author or co-author of >150 presentations at professional society meetings (e.g., American Geophysical Union, Ecological Society of America, North American Carbon Program).
- Presenter at outreach and extension events (4 national, 2 international)

(d) Synergistic Activities

- Associate Editor (*JGR-Biogeosciences* 2016-present; *Oecologia* 2020-present); Special Issue Editor (*Soil Systems* 2018-2019; *Environmental Research Letters* 2020-present); Editorial Advisory Board (*Global Change Biology* 2011-2017, 2020-present)
- Scientific committee member for: United States National Committee on Soil Science (*National Academy of Sciences*), North American Forestry Commission (NAFC), Mexican Carbon Program (PMC), North American Carbon Program (NACP); NASA-Carbon Monitoring Systems; MexFlux (Mexican eddy covariance network); AmeriFlux (eddy covariance network of the Americas); Science and the Arts in the Earth and Environmental Science Cluster of *The Franklin Institute*
- Co-Chair of the committee meeting for the 5th North American Carbon Program (NACP) meeting; Organizing committee member for the 4th and 6th NACP meetings, and AGU meeting of the Americas (Mexico 2013); Convener and Session Chair in AGU fall meetings (2008-2013, 2016, 2018, 2019, 2021).
- Chapter co-leader for the second State of the Carbon Cycle Report (SOCCR-2, 2018), and contributing author for FAO's "Status of the World's Soil Resources 2015"