

LUCIANA CHAVEZ RODRIGUEZ

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PROFESSIONAL APPOINTMENTS

Postdoctoral Scholar, University of California Irvine, CA, USA 2021 - current
Advisor: Steven D. Allison, Department of Ecology and Evolutionary Biology
Topic: Trait-based and statistical modeling for soil carbon cycling.

EDUCATION AND RESEARCH TRAINING

Ph.D in Agricultural sciences (Dr. agrar.) 2017 - 2021
University of Hohenheim, Germany
Advisor: Thilo Streck
Thesis topic: “Modelling Microbial Regulation of Pesticide Turnover in Soil and Development of Mechanistic Up-scaled Process Descriptions”

Visiting Ph.D student 2018 - 2018
Department of Applied Mathematics at the University of Waterloo, Canada
Advisor: Brian Ingalls
Topic: “Mathematical modeling for pesticide degradation in soils”

Master of Science (MS) 2015 - 2017
University of Hohenheim, Germany
Advisor: Thilo Streck
Thesis topic: “Calibration and validation of the XN-GECROS model with Soybean (*Glycine max*) and Durum (*Triticum durum*) data from Southwest Germany”

Postgraduate Summer School 2016
Lincoln University, New Zealand
Topic: ECOL697 (ELLS Postgraduate Summer School for 2016) Ecological Restoration: Remediation of Degraded and Contaminated Land

Exchange Student 2012 - 2013
University of Turku, Finland
Topic: Exchange studies in Environmental sciences as part of the FINPE (Finland-Peru) project

Diploma in Environmental engineering 2013 - 2014
Universidad Nacional Agraria la Molina, Peru
Thesis topic: “Phytoremediation of lead-polluted soils with native plant species”

Bachelor in Environmental engineering 2007 - 2012
Universidad Nacional Agraria la Molina, Peru

PUBLICATIONS

Peer-reviewed:

6. Wirsching J., **Chavez Rodriguez, L.**, Ditterich R., Pagel H., He R., Uksa M., Zwiener C., Kandeler E., Poll C. (2023). Temperature and soil moisture change microbial allocation of pesticide-derived carbon. *European Journal of Soil Science*. <https://doi.org/10.1111/ejss.13417>
5. **Chavez Rodriguez, L.**, Parker, Scot., Fiore Nicole M., Allison, Steven D., Goulden, Michael L. (2023). Impact of drought on ecohydrology of Southern California grassland and shrubland. *Ecosystems*. <https://doi.org/10.1007/s10021-023-00876-8>
4. Schwarz, E., Khurana, S., Chakrawal, A., **Chavez Rodriguez, L.**, Wirsching, J., Streck, T., Manzoni, S., Thullner, M., & Pagel, H. (2022). Spatial Control of Microbial Pesticide Degradation in Soil: A Model-Based Scenario Analysis. *Environmental Science & Technology*, *acs.est.2c03397*. <https://doi.org/10.1021/acs.est.2c03397>
3. **Chavez Rodriguez, L.**, González-Nicolás, A., Ingalls, B., Streck, T., Nowak, W., Xiao, S., & Pagel, H. (2022). Optimal design of experiments to improve the characterisation of atrazine degradation pathways in soil. *European Journal of Soil Science*, *73*(1). <https://doi.org/10.1111/ejss.13211>
2. **Chavez Rodriguez, L.**, Ingalls, B., Meierdierks, J., Kundu, K., Streck, T., & Pagel, H. (2021). Modeling Bioavailability Limitations of Atrazine Degradation in Soils. *Frontiers in Environmental Science*, *9*, 706457. <https://doi.org/10.3389/fenvs.2021.706457>
1. **Chavez Rodriguez, L.**, Ingalls, B., Schwarz, E., Streck, T., Uksa, M., & Pagel, H. (2020). Gene-Centric Model Approaches for Accurate Prediction of Pesticide Biodegradation in Soils. *Environmental Science & Technology*, *54*(21), 13638–13650. <https://doi.org/10.1021/acs.est.0c03315>

In preparation:

2. Wijas, B., Flores-Moreno, H., Allison, S., **Chavez Rodriguez, L.**, Cheesman, A., Cernusak, L., Clement, R., Cornwell, W., Duan, E., Eggleton, P., Rosenfield, M., Yatsko, A., Zanne, A. Drivers of Wood Decay in Tropical Ecosystems: Termites vs. Microbes Along Spatial, Temporal and Experimental Precipitation Gradients. Submitted to *Functional Ecology*.
1. Duan, E.S, **Chavez Rodriguez, L.**, Hemming-Schroeder, N., Wijas, B., Flores-Moreno, H., Cheesman, A.W, Cernusak, L.A., Liddell, M.J, Eggleton P., Zanne, A.E, Allison S.D. Wood microclimate as a predictor of carbon dioxide fluxes from decaying wood in tropical Australia. *EGUsphere* [preprint], <https://doi.org/10.5194/egusphere-2023-1952>, 2023.

Non peer-reviewed:

3. Vargas-Soplín, A. de J., Alva-Alvarado, I. M., Castañeda-Santa-Cruz, E., Padilla-Huamán, D. A., Cueva-Llaja, M., Meléndez- Avila, P. Y., & **Chavez Rodriguez, L.** (2022). Toneladas de cabello: recomendaciones para contribuir al debate frente al uso del cabello como coadyuvante a la limpieza del derrame de petróleo en Ventanilla (Lima, Perú). *South Sustainability*, e055. <https://doi.org/10.21142/SS-0301-2022-e055>
2. **Chavez Rodriguez, L.** (2015), Phytoremediation of lead polluted soils with native plant species. *Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)*. 42-49.
1. **Chavez Rodriguez, L.** & Ponce de Leon M.A. (2014). Análisis territorial para el cultivo de *Chenopodium Quinoa*. *Revista Delos*, vol. 7, N° 21.

WORK & RESEARCH EXPERIENCE

Student Assistant University of Hohenheim, Germany Prepared study guides for the courses Environmental Modelling and Spatial Data Analysis with GIS	2016 - 2017
Research Assistant Helmholtz-Zentrum für Umweltforschung GmbH – UFZ, Germany Quantified phosphorus in bacteria from soil polluted with glyphosate	2015 - 2015
Research Assistant Universidad Nacional Agraria la Molina, Peru Examined carbon stock and soil quality changes due to land use change.	2015 - 2015
Internship Peruvian Society of Soil Science Organized of the 20th Peruvian and Latin-American congress of Soil science (abstract revision, moderator and logistics).	2014 - 2014
Internship Consultores Asociados en Naturaleza y Desarrollo (CANDES), Peru Updated vegetation coverage and agricultural classification maps of the Altomayo basin, and evaluated vicuña populations in Peru.	2012 - 2012

AWARDS AND HONORS

Scholarship , “Beca Presidente de la República – ALEPRONA”	2015 - 2017
Scholarship , FINPE (Finland-Peru)	2012 - 2013
Best GPA during 5 years of university studies Universidad Nacional Agraria la Molina, Peru.	2007 - 2012
Subvención de tesis de pregrado UNALM 2013 Funding for Diploma thesis Universidad Nacional Agraria la Molina, Peru.	2013

PRESENTATIONS

Invited talks:

5. **Chavez Rodriguez, L.** “Modeling the role of microbes in soil systems”. Ingalls Quantitative Cell Biology Lab, Department of Applied Mathematics at the University of Waterloo. October 2023.
4. **Chavez Rodriguez, L.** “Modelamiento de la regulación microbiana de la degradación de pesticidas en el suelo”. Club de Suelos, Universidad Zamorano, Honduras. September 2021.
3. **Chavez Rodriguez, L.** “Modeling Microbial Regulation of Pesticide Turnover in Soils”. Environmental Engineering Research seminars at the University of Newcastle University, England. January 2020
2. **Chavez Rodriguez, L.** “Milestone Presentation: Modeling Microbial Regulation of Pesticide Turnover in Soils”. Joint seminar of CRC CAMPOS and RTG Integrated Hydrosystem Modelling, Eberhard Karls Universität Tübingen, Germany. February 2019

1. **Chavez Rodriguez, L.** “Calibration and Validation of the XN-GECROS Model with Soybean (*Glycine max*) and Durum (*Triticum durum*) Data from Southwest Germany”. Joint seminar of CRC CAMPOS and RTG Integrated Hydrosystem Modelling, Eberhard Karls Universität Tübingen, Germany. January 2018

Contributed talks:

2. **Chavez Rodriguez L.,** Karaoz U., Malik A., Brodie E., Allison S. ”Emergent functional groups and microbial life history strategies of soil microbial communities under drought using genome-scale data”. AGU. December 2023.
1. **Chavez Rodriguez L.,** Karaoz U., Malik A., Brodie E., Allison S. ”Exploring fitness traits tradeoffs and microbial life history strategies using genome-scale data”. ESA. August 2023.

Contributed Posters:

8. **Chavez Rodriguez L.,** Karaoz U., Malik A., Brodie E., Allison S. ”Integrating omics data into trait-based models for litter decomposition”. Microbial communities at the interface between ecology and evolution. August 2022.
7. **Chavez Rodriguez L.,** Pagel H., Streck T., Ingalls B. “From Chemostat/Retentostat to Soil: Modeling bioavailability limitations on atrazine degradation”. The annual EGU General Assembly. May 2020.
6. **Chavez Rodriguez L.,** Pagel H., Ingalls B., Streck T. A biogeochemical model informed by genetic data for accurate prediction of pesticide degradation in soils”. The Society for Mathematical Biology annual meeting. July 2019.
5. **Chavez Rodriguez L.,** Pagel H., Ingalls B., Streck T. A biogeochemical model informed by genetic data for accurate prediction of pesticide degradation in soils”. The 69th annual conference of the Canadian society of microbiologist. June 2019.
4. **Chavez Rodriguez L.,** Pagel H., Uksa M., Wirsching J., Kandeler E., Poll C., Streck T. “Modeling of atrazine degradation: a gene – based model approach”. 2nd International soil modeling consortium conference: New perspectives on soil models. November 2018.
3. **Chavez Rodriguez L.,** Pagel H., Uksa M., Wirsching J., Kandeler E., Poll C., Streck T. “Gene- based approaches for pesticides-how to incorporate genetic information into biogeochemical models”. The biannual meeting of commission I ”Soil Physics and Soil Hydrology”. September 2018.
2. **Chavez Rodriguez L.,** Pagel H., Gonzales-Nicolas A., Nowak W., Streck T. “Modeling Microbial Regulation of Pesticide Turnover in Soils: Development of Up-scaled Process Descriptions”. The annual EGU General Assembly. April 2018.
1. **Chavez Rodriguez L.** “Calibration of the soil-crop model Expert-N for soybean (*Glycine Max*), durum wheat (*Triticum Durum*) and sunflower (*Helianthus Annuus*) in South Germany”. ELLS Scientific Student Conference: “Bio-Based Economy for a Sustainable Future” . November 2016.

TEACHING EXPERIENCE

Instructor:

2. **GPUs for parallel computing (computer exercises)** 2022 - 2023
CPUS for parallel computing (computer exercises)
Introduction to parallel and high performance computing (computer exercises)

Instituto Nacional de Investigación y Capacitación de Telecomunicacione - INICTEL, Peru
 - Free 4-session (16 hrs) course targeting students and young professionals.
 - I designed the course, created and taught the material for the sessions in a class of 12 students.
 - Topics included an exercises in SYCL, VTune and Advisor Profilers, C++, Jupyter Notebooks, version control Git.

1. **Environmental Modeling (computer exercises)** 2019 - 2020
 University of Hohenheim, Germany
 - I lectured computer exercises of the course Environmental modeling for 20 students of the Master Programs of ENVIROFOOD, ENVIRO and Landscape Ecology.

Invited Guest Lectures:

Introduction to Environmental Modeling 2022
 Universidad Andina del Cusco, Peru
 - Free 4-session (16 hrs) course targeting students from the last year of the environmental engineering program, young professionals, and the general public.
 - I designed the course and created the material for the sessions in a class of 40 students.

Teaching Assistantships:

Spatial Data Analysis with GIS 2018
 University of Hohenheim, Germany
 - Teaching assistant to support 20 students from the Master Program of ENVIROFOOD, ENVIRO and Landscape Ecology during computing exercises.

MENTORING EXPERIENCE

Anna Doménech i Pascual University of Girona	Current
Nicole Hemming-Schroeder University of California-Irvine	2022 - 2023
Elizabeth Siyi Duan Australia Wood Termites Fungi project University of California-Irvine	2022 - 2023
Carin Noerhadi Advice in Geographic information systems for master thesis elaboration University of Hohenheim	2020
Jairo Guzman Advice in Geographic information systems for master thesis elaboration University of Hohenheim	2019
Erik Schwarz Advice during Soil project elaboration University of Hohenheim	2018

SERVICE AND OUTREACH ACTIVITIES

Professional and University service:

- Co-convenor in the session From Traits to Predictions:
Novel Approaches to Understand and Distill the Complexity of Earth's Microbiomes.** 2023
AGU fall meeting 2023
- Panelist for "Finding (and Thriving as) a Postdoc"** 2023
ESA Annual Meeting
- Organizer of the "Microbial Modeling group"** 2022 - current
University of California, Department of Ecology and Evolutionary Biology
- Reviewer for: Plant and soil** 2022
- Co-organizer and session chair at the XX Peruvian and
Latin American Congress of Soil Science** 2014
- Student representative at the council of the Faculty of Science** 2010-2011
Universidad Nacional Agraria la Molina

Outreach:

- Representative Cientificos.pe** 2022 - current
Peruvian scientists and professionals committed to scientific communication in Peru.
- Volunteer Mentor** 2022 - current
"Sisay Peru", which connects STEM professionals with students from public Peruvian universities for online mentoring sessions.
- Diversity and Inclusion** 2021 - current
"Sensei Peru", which connects working professionals with current students for online mentoring sessions.
Universidad Nacional Agraria, La Molina
- Science Communication** 2022
Talk at the Laguna Woods College Club. "Why are they still there? - Understanding the processes and implications of long-term persistence of pesticides in soils"

ADDITIONAL SKILLS

Languages:

Spanish: Native

English: Fluent

German: Fluent

Portuguese: Basic communication skills

Software proficiency:

Spatial information software: ArcGIS, QGIS, AutoCAD and ERDAS.

Programing Languages: Matlab, R, Python.