

# Teamrat A. Ghezzehei

Curriculum Vitæ  
June 30, 2024

5200 N Lake Road  
Merced, CA 95343  
soilphysics.ucmerced.edu  
taghezzehei@ucmerced.edu  
University of California, Merced

## Academic Career

University of California, Merced | Life & Environmental Sciences Dept.

2019 – **Professor**

2019 – 2022 **Department Chair**

2014 – 2019 **Associate Professor**

2009 – 2014 **Assistant Professor**

Lawrence Berkeley National Laboratory | Earth & Environmental Science Area

2009 – **Affiliate Scientist**

2004 – 2009 **Scientist (Career)**

Eidgenössische Technische Hochschule (ETH) Zürich

2016 **Visiting Professor (sabbatical)**, *Environmental Systems Science Department*

University of Asmara | Soil & Water Conservation Department

1995 – 1997 **Assistant Instructor**

## Education

2001 – 2004 **Postdoc, Hydrology**, *Lawrence Berkeley National Lab*, Advisor: Stefan Finsterle

1997 – 2001 **PhD, Soil Science (Soil Physics)**, *Utah State University*, Advisor: Dani Or

1991 – 1995 **B.Sc. Soil & Water Conservation**, *University of Asmara*, with Distinction

## Honors and Awards

2024 **Editor's Citation**, *Excellence in Refereeing, Water Resources Research*

2022 **Fellow**, *Soil Science Society of America*

2018,19,21,24 **You Made a Difference**, *nominated by graduating senior(s) for meaningful impact*

2015 – 2017 **Faculty Fellow (Water Theme)**, *Center for Humanities, UC Merced*

2012 **Hellman Family Fellow**, *UC Merced*

2007 **Laboratory Director's Outstanding Performance Award**, *Berkeley Lab*

2004 **Recognition of Commitment to Excellence**, *Civilian Radioactive Waste Management, DOE*

2004 **Sigma Xi**, *The Scientific Research Society*

2004 **Phi-Kappa-Phi**, *National Honor Society for top 10% of grad student body*

- 2000 **Outstanding Student Paper Award**, AGU Fall Meeting  
 1999 **Outstanding Graduate Student Award**, College of Agriculture, Utah State

## University Service

### Academic Senate

- AY2024/25 **Committee on Academic Personnel**  
 AY2022/23 **Equity, Diversity, and Inclusion Committee**, (Spring semester only)  
 2016 – 2019 **Graduate Council**, (3 terms)  
 • 2017 – 2019: Academic Planning Working Group Rep  
 • AY2017/18: Member & Undocumented Students' Support Services Working Group Rep  
 • AY2017/18: Chair and Representative to CCGA  
 • AY2016/17: Vice-Chair and Representative to PROC  
 2011 – 2014 **Undergraduate Council**, (3 terms)  
 • 2011 – 2013: Undergraduate Teaching Award Sub-committee (2 terms)  
 • 2013 – 2014: Undergraduate Admissions Sub-committee

### Department and Academic Programs

#### **Environmental Systems Graduate Program**, *member*

- 2019 – 2022: Executive Committee (3 years)
  - 2012/13: Educational Policy Committee
  - 2009 – 2011: Admissions and Recruitment Committee (Chair for one year)
- 2015 – 2018 **Earth Systems Science**, *Chair and Assessment Organizer (3 years)*

### University Service

- 2024 – **School of Natural Sciences Executive Council**  
 2023 – **Grad Student and Research Support Working Group**, *Graduate Division and ORED*  
 2023 – **Combustion Lab Planning Team**, *ORED and Facilities*  
 2023 – 2024 **Provost and Executive Vice-Chancellor Search Advisory Committee**  
 2020 – 2022 **Academic Misconduct Investigation Committee**, *ORED*  
 2020 – 2021 **UC Merced Chief Counsel Search Advisory Committee**  
 2019 – 2021 **Executive Committee of UC Merced Community and Labor Center**  
 2018 – 2019 **Faculty Advisory Committee on Sustainability**  
 2014 – 2019 **Global Climate Leadership Council, Faculty Engagement & Education Working Group**  
 2014/15 & **Merced Vernal Pools and Grassland Reserve Advisory Committee**  
 2018/19  
 2014 – 2016 **Chancellor's Advisory Board on Sustainability**  
 2011 – 2012 **School of Natural Sciences Executive Council**

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- Outreach and Engagement
- 03-02-2024 **Roads to Removal Symposium**, *Panel discussion on soil CO<sub>2</sub> removal opportunities in California's Central Valley*
- 02-29-2024 **Roads to Removal Community Event**, *Presentation and panel discussion on regional opportunities for CO<sub>2</sub> removal*
- 10-12-2023 **Adelante HSI: Preparing Future Faculty Bootcamp**, *Thriving as Postdoc and Faculty, attending First Generation and Minoritized Groups*, Graduate Division
- 2019 – 2022 **African Student Union**, *Faculty Adviser*
- 2011 – 2013
- 2017 – 2019 **Earth Systems Science Student Club**, *Faculty Adviser*
- 2016 **Opportunities Beyond Academia**, *Panelist*, ESWN Forum at AGU
- 2014 **Dual Careers in Academia, the good, the bad, and the ugly**, *Panelist*, Goldschmidt Conference
- 2010 **Coalition for National Science Funding's (CNSF) 16th Annual Exhibition and Reception**, *SSSA Delegate*, US Capitol
- 2009 – 2010 **ASUCM Sustainability Stakeholder**, *Faculty Adviser*

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## Leadership Roles and Service in Professional Societies

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- International Soil Modeling Consortium (ISMC)
- 2023 – **Executive Board memeber**
- 2019 – 2022 **Co-Chair of Consortium**
- Co-lead establishment of ISMC as a tax-exempt non-profit organization registered in Germany
  - Co-lead growth of consortium to 600+ members across multiple continents
  - Helped establish monthly news letter
  - Helped establish several topical soil modeling working groups
- 2017 – 2018 **Co-Chair of Data-Model Integration Science Panel & Executive Board memeber**
- 2016 **Founding member**
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- Soil Science Society of America (SSSA)
- 2022 – 2023 **Soils and Environmental Quality Division, Officer**
- 2021 – 2023 **Henry Lin Travel Grant Award Committee (Member 2 years, Chair 1 year)**
- 2022 **Joint SSS America & SSS China Working Group**, *Established formal partnership between the two national societies*
- 2021 **Soil Physics and Hydrology Early Career Award Committee**
- 2019 – 2021 **Soil Physics and Hydrology Division Officer**
- 2021: Past-Chair
  - 2020: Chair
  - 2019: Chair-elect
- 2018 – 2019 **Don and Betty Kirkham Soil Physics Award Committee (two years)**
- 1998 & 2004 **Membership and Identity Committee**, *Member*

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- Associate Editor
- 2020 – 2022 **European Journal of Soil Science**
- 2017 – 2021 **Water Resources Research**
- 2006 – 2008 **Soil Science Society of America Journal**
- 2015 – 2018
- 2009 – 2014 **Vadose Zone Journal**
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- American Geophysical Union (AGU) – Hydrology Section
- 2013 – **Unsaturated Zone Technical Committee, Member**
- 2017 – 2018 **Unsaturated Zone Technical Committee, Chair**
- 2015 – 2016 **Unsaturated Zone Technical Committee, Deputy Chair**
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- Western Multi-state Soil Physics Technical Committee
- 2018 **Multi-institution 2021-2025 proposal development committee, Member**
- 2016 **Chair**
- 2015 **Secretary**
- 2014 **Multi-institution 2015-2020 proposal development committee, Member**
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- Other Professional Service
- 2019 – **Consortium of Universities for the Advancement of Hydrologic Science, Inc (CUAHSI), 1/3 Institutional representative of UC Merced**
- 2019 **CUAHSI Diversity and Inclusion Committee, member**
- 2011 **External Review Panel of Environmental and Molecular Science Lab, Pacific Northwest National Lab, for Office of Science (DOE)**
- 2009 **Soil Science Science Curriculum External Review Panel, Texas A & M University**

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## Advising, Mentoring, and Teaching

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- Postdoctoral Fellows Advised
- 2024 – 2025 **Xiaoxuan Li**  
Prediction of Evapotranspiration
- 2020 – 2021 **Si Gao, Co-advised by R. Ryals and A.A. Berhe**  
Biochar and compost on soil functions
- 2017 – 2019 **Jing Yan**  
Engineering rhizosphere nutrient dynamics
- 2017 – 2019 **Nathaniel Bogie, co-mentored by A.A. Berhe**  
Drought and soil structure
- 2012 – 2016 **Roger Bayala, based in Thies, Senegal, co-mentored by I. Diedhou and R. Dick**  
Intercropping with native shrubs and Sahelian resource islands
- 2010 – 2012 **Thomas Gebrenegus**  
Hysteresis, and modeling of crack propagation in clayey soils.

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## PhD Students Advised (Environmental Systems)

- 2021 – . **Anna Jurusik**  
Coupled hydrology and biogeochemistry of fire-affected and seasonally frozen soils
- 2019 – 2025 **Yulissa Perez-Rojas**  
Dissertation topic: Role of soil hydrologic and thermal episodicity on biogeochemical cycling
- 2018 – 2025 **Jennifer AlvarezSagrero**  
Dissertation topic: Long-term impact of reduced tillage and cover cropping on soil health and functions
- 2018 – 2023 **Touyee Thao**  
Dissertation topic: Soil physical alterations by addition of biochar
- 2021 – 2022 **Manisha Dolui**, *co-advised by A.A. Berhe*, Coupled hydrology and biogeochemistry of seasonally frozen soils  
**Current position:** Postdoc, Lawrence Livermore National Lab
- 2018 – 2022 **Toshiyuki Bandai**, Dissertation: Physics informed deep learning for forward and inverse modeling of soil water dynamics  
**Current position:** Postdoc, Lawrence Berkeley National Lab
- 2014 – 2019 **Samuel N. Araya**, Dissertation: Soil Structure and Land Surface Controls on Soil Hydraulic Properties and Processes: Applications of Machine Learning, Unmanned Aircraft Systems, and Observations from Long-Term Conservation Agriculture Management  
**Current position:** Soil Data Scientist, Corteva Agriscience
- 2011 – 2016 **Nathaniel Bogie**, Dissertation: Hydrologic Relations Between Native Woody Shrubs and Food Crops in the Peanut Basin, Senegal  
**Current position:** : Assistant Professor, San Jose State University
- 2009 – 2014 **Chelsea Arnold**, (*co-advised by A.A. Berhe*), Dissertation: Coupled hydrological and biogeochemical dynamics in high elevation meadows: thresholds, resiliency and change  
**Current position:** Director of CALTEACH, UC Merced
- 2009 – 2014 **Ammar Albalasmeh**, Dissertation: Biophysical controls on rhizosphere dynamics  
**Current position:** Vice-Dean of Agriculture, Jordan University of Science & Technology

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## MS Students Advised (Environmental Systems)

- 2021 – 2023 **Maeve McCormick**  
Non-thesis MS
- 2020 – 2022 **Cameron Zuber**, *co-advised by Safeeq Khan*  
Thesis: Response of selected soil physical and hydrological properties to soil-applied and incorporated wood biomass in almond orchards
- 2014 – 2019 **Mathew Jian**  
Thesis: Alterations of Soil Physical and Biogeochemical Properties Induced by Low Intensity Fire
- 2014 – 2019 **Vivian Lopez**  
Thesis: Biochar as a soil amendment: Impact on hydraulic and physical properties of an arable loamy sand soil

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## PhD Committees

Unless noted, the students were in the Environmental Systems Graduate Program

- 2025 – . . . **Evelyn Perez-Agredano**
- \*2025 – . . . **Lisa Wu**
- \*2024 – . . . **Berhanu Sineshaw**

2022 – . . .	<b>Seth Gilchrist</b>
2022 – . . .	<b>Zachary Malone</b>
*2019 – . . .	<b>Cameron Zuber</b>
2025	<b>Melinda Gonzalez</b>
2024	<b>Dean Wu</b> , <i>Quantitative and Systems Biology, UC Merced</i>
2024	<b>Leila Wahab</b>
*2024	<b>Hope Hauptman</b>
*2023	<b>Stefano Casirati</b>
2023	<b>Elena Bischak</b>
*2023	<b>Britne Elizabeth Clifton</b>
2023	<b>Brendan Harrison</b>
2022	<b>Brandon Hendrickson</b>
2020	<b>Kimber Moreland</b>
2019	<b>Rose Shillito</b> , <i>Hydrogeology, University of Nevada Las Vegas</i>
*2019	<b>Angel Santiago Fernandez Bou</b>
*2019	<b>Melissa Thaw</b> , (Qualifying exam and defense chair)
2018	<b>Morgan Barnes</b> , (Qualifying exam committee only, exam chair)
*2017	<b>Andrew Zumkher</b> , (Qualifying exam and defense chair)
*2017	<b>James William Roche</b> , (Qualifying exam and defense chair)
*2016	<b>Donald Schweizer</b>
*2016	<b>Ryan G. Lucas</b> , (Qualifying exam and defense chair)
*2016	<b>Diganta Adhikari</b> , (Qualifying exam and defense chair)
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	PhD External Examiner/Evaluator
2020	<b>Coleen Carranza</b> , <i>Wageningen University &amp; Research, The Netherlands</i>
2019	<b>Robert Mangani</b> , <i>University of Pretoria, South Africa</i>
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	MS Committees
2024 – . . .	<b>Aaryn Wilson</b>
2024 – . . .	<b>Simone Graham</b> , <i>Kentucky State University</i>
2018	<b>Christina Tham</b>
2018	<b>Anna Franciska Fryjoff-Hung</b>
2015	<b>Jorge Morande</b>
2015	<b>Michael Pickard</b>
2014	<b>Molly Small</b>
2013	<b>Lynn Sullivan</b>
2010	<b>Patrick Barnes</b>
2009	<b>Chris Butler</b>
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	Undergraduate Student Researchers Advised
2023	<b>Noelia Venettia Agramont</b> , <i>ESS</i>

2023 **Gabriel Tejeda**, *ESS*  
 2023 **Elie Lopez**, *(BRAAG)*  
 2023 **Simone Graham**, *(BRAAG)*  
 2023 **Jinniah Ali**, *(BRAAG)*  
 2022 **Elie Lopez**, *(FACTS)*  
 2022 **Mya Tabares**, *(FACTS)*  
 2021 **Lauren Hur**, *(FACTS)*  
 2017-2019 **Joseph Veneracion**, *ESS*  
 2017-2019 **Lythia Meza**, *Applied Math*  
 2017-2018 **Mimi Pomephimkham**, *Biology*  
 2017 **Abraham Housini**, *ESS*  
 2017-2019 **Fidel Machado-Perez**, *ESS*  
 2018 **Luis Davila**, *ESS*  
 2016-2018 **Yulissa Perez-Rojas**, *ESS&UCLEADS-Scholar*, outstanding presentation awardee at SACNAS  
 2017-2018 **Mary Jo Barker**, *ENVE*  
 2015 **Alex Moreno**, *Chemistry*  
 2015 **Dawit Tekeste**, *Mechanical Engineering*  
 2014 **Presley Ramirez**, *ESS, USDA-HSI Fellow*  
 2014 **Ang Diku Sherpa**, *Environmental Sciences at Sonoma State, Yosemite-REU student*  
 2013 **Julia Greendyk**, *Biology at Montclair State, Yosemite-REU student*  
 2013 **Ashia Burns**, *Engineering student at Central State University, summer intern in Senegal*  
 2012-2013 **Haroutun Nigohossian**, *Environmental Engineering*  
 2012 **Jamie Sweet**, *Environmental Engineering, CAMP Fellow*  
 2012 **Thaddeus McCants**, *Engineering student at Central State University, summer intern in Senegal*  
 2012 **David Bethel**, *Soil student at Ohio State University, summer intern in Senegal*  
 2011 **Jose Moreno**, *Chemistry, UCLEADS-scholar*  
 2011 **Stephen Ho**, *Environmental Engineering*  
 2011 **Jam Jam James Perey**, *Environmental Engineering*  
 2009-2011 **Juan Lopez Arriaza**, *Applied Math, UCLEADS-scholar*  
 2009-2010 **Sunny Grunloh**, *ESS*

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#### Regular Courses

2009-2015 ES 292 Nanofabrication  
 2009-2015 ESS 002 Sustainability Science  
 2016-2018 ESS 110 Hydrology and Climate  
 2009-2018 ESS 112 Subsurface Hydrology  
 2014-2020 ES 286 Environmental Modeling

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#### Intensive Short Courses and Guest Lectures

2023 **Natural nanomaterials**, *ES 292 Nanofabrication*, multi-gradgroup course developed for CONDESA

- 2012-2023 **Soil physics lab**, *ESS 170 Fundamentals of Soil Science*, every Spring (except 2013 & 2016)
- 2014-2018 **Introduction to Soils**, *CORE 1*, every semester (except Spring 2016)
- 2016 **Merging Experiments and Mathematical Models**, *Intensive PhD Course in Soil Mechanics*, Aarhus University, Denmark
- 2014 **Soil physical conditions affecting soil microbial activity**, *Microtrop II*, Advanced Training in Tropical Microbiology for Early Career Scientists, Dakar, Senegal  
(10 US and 10 African PhD students and postdocs)
- 2012 **Soil physical conditions affecting soil microbial activity**, *Microtrop I*, Advanced Training in Tropical Microbiology for Early Career Scientists, Dakar, Senegal  
(10 US and 10 African PhD students and postdocs)

## Research Funding at UC Merced

- 2023-2028 **NASA ACRES: A Climate Resilient Ecosystem Approach to Strengthening US Agriculture**, Ghezzehei, TA (PI)  
NASA: **\$599,300**
- 2023-2025 **Rapid decision support for optimal carbon-nutrient-water benefits from California's methane policy**, Ryals, R (PI), Ghezzehei, TA  
UCOP Climate Action Grant-UCM Sub-award: **\$281,351**
- 2023-2025 **Compost as an Equitable Climate Solution in the San Joaquin Valley**, Ryals, R (PI), Ghezzehei, TA (Co-PI), Arnol, C (Co-PI)  
UC Merced Climate Action Grant: **\$1,000,000**
- 2021-2026 **Securing a climate resilient water future for agriculture and ecosystems through innovation in measurement, management, and markets**, Viers, J (PI), Medellin-Azuara, J (Co-PI), Harmon, T. (Co-PI), Abatzoglou, J (Co-PI), Naughton, C (Co-PI), Ghezzehei, TA  
USDA-NIFA-AFRI: **\$10,000,000**
- 2021-2024 **Boosting Representation of African-Americans in the Geosciences (BRAAG)**, Ghezzehei, TA (PI), Berhe, AA (Co-PI)  
UCOP: **\$328,709**
- 2019-2022 **Distributed Water and Fertilizer Delivery for Minimizing Nitrogen Losses by Leaching and Volatilization**, Ghezzehei, TA (PI), Patahk, T. (Co-PI), Bali, S (Co-PI)  
CDFA-FREP: **\$224,089.80**
- 2019-2022 **Mobile Biochar Production for Methane Emission Reduction and Soil Amendment**, Diaz, G. (PI), Berhe, AA (Co-PI), Chen, YQ (Co-PI), Keske, CMH (Co-PI), Ghezzehei, TA (Co-PI), Ryals, R (Co-PI)  
Strategic Growth Council, State of California: **\$3,040,240**
- 2016-2021 **Can induced rhizosphere hydraulic-redistribution be engineered to enhance macronutrient uptake efficiency?**, Ghezzehei, TA (PI)  
USDA-NIFA: **\$357,300**
- 2018-2018 **Application of Hydrochar as a potential soil conditioner in Almond Orchards**, Ghezzehei, TA (PI) and C.L. Arnold  
Almond Board of California: **\$49,908**
- 2018-2020 **Increasing Water Use Efficiency and Drought Resilience in California Agriculture**, Mitchell, J (PI), Ghezzehei, TA (Co-PI)  
California Department of Water Resources: **\$86,350**



- 2016-2019 **UC Consortium for Drought and Carbon Management**, *Berhe, AA (PI), Ghezzehei, TA (Co-PI)*  
UCOP: \$290,845 (UCM budget)
- 2015-2019 **MRI: Acquisition of an Upright Laser Scanning Confocal Microscope to Advance Research and Education at the University of California, Merced**, *Ghezzehei, TA (Co-PI), Bala Subramaniam, A (PI), Ghosh, S (Co-PI)*  
NSF-MRI: \$282,661
- 2013-2016 **Collaborative Research: Alterations of Soil Physical and Geochemical Properties Induced by Low-intensity Fire**, *Ghezzehei, Teamrat A (PI), Berhe, Asmeret Asefaw (Co-PI), Berli, Markus (Co-PI)*  
NSF-EAR: \$449,000
- 2010-2016 **Hydrologic Redistribution and Rhizosphere Biology of Resource Islands in Degraded Agroecosystems of the Sahel: A PIRE in Tropical Microbial Ecology**, *Dick, R (PI), Ghezzehei, TA (Co-PI), Gardener, BC (Co-PI), Reeve, J (Co-PI)*  
NSF-IRE: \$2,599,994 (UCM expenditures 330,000)
- 2010-2013 **Spatial and temporal dynamics of soil structure as influenced by wetting drying cycles**, *Ghezzehei, TA (PI)*  
USDA-NIFA-AFRI: \$217,000
- 2009-2011 **Evolution of Soil-pore Architecture by Wetting and Drying Cycles**, *Ghezzehei, TA (PI)*  
Kearney Foundation of Soil Science: \$95,000
- 2008-2011 **Collaborative Research: Root-Induced Changes of Soil Physical Properties Using Synchrotron X-ray Microtomography (CMT) and Micromechanical Simulations**, *Berli, M. (PI), Ghezzehei, TA (Co-PI), Menon, M (Co-PI), Tyler, SW (Co-PI)*  
NSF-EAR: \$423,791

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## Invited Talks Since July 1, 2021

- 08-21-2021 **Soil Physics in the Age of Machine Learning and Global Change**  
China Agricultural University and Chinese Academy of Sciences, Beijing, China
- 02-29-2024 **Local Opportunities for Carbon Drawdown**, (*Opening Remark*)  
Roads to Removal Report Tour, Merced CA
- 02-16-2024 **Post-tillage soil structure dynamics**  
UC Merced Applied Mathematics Graduate Program Seminar, Merced, CA
- 05-09-2024 **Advancing Science, Serving Society: Our Responsibility to Address Global Challenges and Foster Inclusive Excellence**, (*Keynote*)  
International Soil Modeling Consortium Conference, Tianjin, China

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## Peer-reviewed Publications

\*Names of students and postdocs I (co-)advised

- 2024 Bandai, T., Sadeghi, M., Babaeian, E., Jones, S. B., Tuller, M., and **Ghezzehei, T.A.** Estimating soil hydraulic properties from oven-dry to full saturation using shortwave infrared imaging and inverse modeling. *Journal of Hydrology*, page 131132, 2024.

- 2024 Mitchell, J. P., Cappellazzi, S. B., Schmidt, R., Chiartas, J., Shrestha, A., Reicosky, D., Ferris, H., Zhang, X., **Ghezzehei, T.A.** and Araya, S, Kelly, C., Fonte, S. J., Light, S. E., Liles, G., Willey, T., Roy, R., Bottens, M., Crum, C., Horwath, W. R., Koch, G. M., and Scow, K. M. No-tillage, surface residue retention, and cover crops improved san joaquin valley soil health in the long term. *California Agriculture*. University of California Agriculture and Natural Resources, 5 2024.
- 2024 Harrison, B. P., Gao, S., Thao, T., Gonzales, M. L., Williams, K. L., Scott, N., Hale, L., **Ghezzehei, T.A.**, Diaz, G., and Ryals, R. A. Methane and nitrous oxide emissions during biochar-composting are driven by biochar application rate and aggregate formation. *GCB Bioenergy*, volume 16, page e13121, 2024.
- 2024 Clifton, B., **Ghezzehei, T.A.**, and Viers, J. H. Carbon stock quantification in a floodplain restoration chronosequence along a mediterranean-montane riparian corridor. *Science of The Total Environment*, page 173829, 2024.
- 2024 Bischak, E., **Ghezzehei, T.A.**, and Ryals, R. Nitrogen and phosphorus mineralization dynamics in human excreta-derived fertilizers. *Frontiers in Agronomy Plant-Soil Interactions*, pages (accepted, June 25, 2024), 2024.
- 2024 Bandai, T., Ghezzehei, T. A., Jiang, P., Kidger, P., Chen, X., and Steefel, C. I. Learning constitutive relations from soil moisture data via physically constrained neural networks. *Water Resources Research*, volume 60, page e2024WR037318, 2024. e2024WR037318 2024WR037318.
- 2024 Albalasmeh, A. A., Mohawesh, O., Gharaibeh, M. A., and **Ghezzehei, T.A.** A novel approach for determining soil carbohydrates using UV spectrophotometry. *Journal of the Saudi Society of Agricultural Sciences*, page S1658077X24000109, February 2024.
- 2023 Wang, G., Liu, Y., Yan, Z., Chen, D., Fan, J., and **Ghezzehei, T.A.** Soil physics matters for the land–water–food–climate nexus and sustainability. *European Journal of Soil Science*, volume 74, page e13444, 2023.
- 2023 Thao, T., Harrison, B. P., Gao, S., Ryals, R., Dahlquist-Willard, R., Diaz, G. C., and **Ghezzehei, T.A.** The effects of different biochar-dairy manure co-composts on soil moisture and nutrients retention, greenhouse gas emissions, and tomato productivity: Observations from a soil column experiment. *Agrosystems, geosciences & environment*, volume 6, page e20408, 2023.
- 2023 Thao, T., Arora, B., and **Ghezzehei, T.A.** Impact of biochar amendments on soil water and plant uptake dynamics under different cropping systems. *Vadose Zone Journal*, page e20266, 2023.
- 2023 Gao, S., Harrison, B., Thao, T., Gonzales, M., An, D., **Ghezzehei, T.A.**, Diaz, G., and Ryals, R. Biochar co-compost improves nitrogen retention and reduces carbon emissions in a winter wheat cropping system. *Global Change Biology: Bioenergy*, volume 00, pages 1–16, 2023.
- 2023 **Ghezzehei, T.A.** Aggregation. In Goss, M. J. and Oliver, M., editors, *Encyclopedia of Soils in the Environment*, pages 8–15. Academic Press, Oxford, second edition edition, 2023.
- 2023 Basset, C., Abou Najm, M., **Ghezzehei, T.A.**, Hao, X., and Daccache, A. How does soil structure affect water infiltration? a meta-data systematic review. *Soil and Tillage Research*, volume 226, page 105577, 2023.
- 2022 Bayala, R., Diedhiou, I., Bogie, NA, Bright, M. B. H., Badiane, Y. N., **Ghezzehei, T.A.**, and Dick, R. P. Intercropping with guiera senegalensis in a semi-arid area to mitigate early-season abiotic stress in a. hypogea and p. glaucum. *Journal of Agronomy and Crop Science*, page 158–167, 2022.

- 2022 Bandai, T. and Ghezzehei, T. A. Forward and inverse modeling of water flow in unsaturated soils with discontinuous hydraulic conductivities using physics-informed neural networks with domain decomposition. *Hydrology and Earth System Sciences*, volume 26, pages 4469–4495, 2022.
- 2022 Araya, S. N., Mitchell, J. P., W., H. J., and **Ghezzehei, T.A.** Long-term impact of cover crop and reduced disturbance tillage on soil pore size and soil water storage. *SOIL*, volume 8, page 177–198, 2022.
- 2022 Rath, D., Bogie, N., Deiss, L., Parikh, S., Wang, D., Ying, S., Tautges, N., Berhe, A. A., **Ghezzehei, TA**, and Scow, K. Effect of guiera senegalensis intercropping on crop developmental stages and growth. *Soil Discussion*, volume 8, page 59–83, 2022.
- 2022 Novick, K., Ficklin, D., Baldocchi, D., Davis, K., **Ghezzehei, TA**, Konings, A., MacBean, N., Scott, R., Shi, Y., and Sulman, B. Confronting the water potential information gap. *Nature Geosciences*, volume 15, page 158–164, 2022.
- 2022 Mitchell, J. P., Shrestha, A., Epstein, L., Dahlberg, J. A., **Ghezzehei, T.A.**, Araya, S., Richter, B., Kaur, S., Henry, P., Munk, D. S., Light, S., Bottens, M., and Zaccaria, D. No-tillage sorghum and garbanzo yields match or exceed standard tillage yields. *California Agriculture*, volume 75, pages 112–120, 2022.
- 2022 Longbottom, T., Wahab, L., Min, K., Jurusik, A., Moreland, K., Dolui, M., Thao, T., Gonzales, M., Rojas, Y. P., Alvarez, J., Malone, Z., Yan, J., **Ghezzehei, T.A.**, and Berhe, A. A. What's soil got to do with climate change? *GSA Today*, volume 32, 2022.
- 2022 Harrison, B., Gao, S., Gonzales, M., Thao, T., Bischak, E., **Ghezzehei, TA**, Berhe, A. A., Diaz, G., and Ryals, R. Dairy manure co-composting with wood biochar plays a critical role in meeting global methane goals. *Environmental Science and Technology*, volume xx-xxxx, 2022.
- 2022 Del Valle, I., Gao, X., **Ghezzehei, T.A.**, Silberg, J. J., and Masiello, C. A. Artificial soils reveal individual factor controls on microbial processes. *mSystems*, volume 7, pages e00301–22, 2022.

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\* \* \* Submitted for previous review cycle \* \* \*

- 2021 Bandai, T and **Ghezzehei, T.A.** Physics-informed neural networks with monotonicity constraints for richardson-richards equation—estimation of constitutive relationships and soil water flux density from volumetric water content measurements. *Water Resources Research*, volume 57, page e2020WR027642, 2021.
- 2021 Araya, S. N., Fryjoff-Hung, A., Anderson, A., Viers, J. H., and **Ghezzehei, T.A.** Advances in soil moisture retrieval from multispectral remote sensing using unmanned aircraft systems and machine learning techniques. *Hydrology and Earth System Sciences*, volume 25, page 2739–2758, 2021.
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\*Non-refereed publications, including reports, conference proceedings, and abstracts are not listed.