Teamrat A. Ghezzehei

Associate Professor, Environmental Soil Physics

Life and Environmental Sciences
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Professional Positions and Affiliations

Associate Professor	Life & Environmental Sci.	University of California, Merced	07.2014- present
Assistant Professor	Life & Environmental Sci.	University of California, Merced	01.2009- 06.2014
Guest Scientist	Earth Sciences Division	Lawrence Berkeley National Lab	01.2009- present
Research Scientist	Earth Sciences Division	Lawrence Berkeley National Lab	04.2004-12.2008
Postdoctoral Fellow	Earth Sciences Division	Lawrence Berkeley National Lab	09.2001-04.2004
Instructor	Soil & Water Conservation	University of Asmara	09.1995-08.1997

Education

Ph.D. in Soil Science (emphasis in Soil Physics), Utah State University — 10.1997-08.2001
DISSERTATION: Post-tillage dynamics of soil structural and hydraulic properties induced by capillary forces and external loading.
ADVISOR: Prof. Dani Or (now at Institute of Terrestrial Ecosystems ETH-Zurich, Switzerland)

B.Sc. in Soil and Water Conservation, University of Asmara — 09.1990-07.1995
HONOR: *distinction* (top of class)

Peer-reviewed Publications*

Published Papers

1. Kaiser, M., M. Kleber, TA GHEZZEHEI, D Myrold, A.A. Berhe. Calcium carbonate and charcoal applications promote storage and stabilization of organic matter associated with silt-sized aggregates. *Soil Society of America Journal.* (accepted pending minor revisions).

2. GHEZZEHEI, T.A. and [2]A.A. Albalasmeh, Spatial distribution of exudates provides built-in water potential gradient in the rhizosphere, *Ecological Modeling* (accepted)

3. [2]Aravena, J.E., M. Berli, S. Ruiz, F. Suarez, T.A. GHEZZEHEI, SW Tyler, Quantifying geo-engineering of roots using x-ray micro-tomography and numerical simulations, *Plant and Soil*, 376:95-110, 2014.

4. [2]Albalasmeh, A.A. and T.A. GHEZZEHEI, Interplay between soil drying and root exudation in rhizosheath development *Plant and Soil*, 374(1-2): 739-751, 2014.

5. [3]Sarkhot, D.V., T.A. GHEZZEHEI, and AA Berhe, Effectiveness of Biochar for recovery of major nutrient ions from dairy manure effluent, *Journal of Environmental Quality*, 42:1545-1554. 2013.

6. [2]Albalasmeh, A.A., AA Berhe and T.A. GHEZZEHEI, A new method for rapid determination of carbohydrate and total carbon concentrations using UV spectrophotometry, *Carbohydrate Polymers*, 97(2): 253-261. 2013.

7. [1]Ariazza, J.L. and T.A. GHEZZEHEI, Explaining longitudinal hydrodynamic dispersion using variance of pore size distribution, *Journal of Porous Media*, 16(1):11-19. 2013.

8. [2]Albalasmeh, A.A., M Berli, DS Shafer and T.A. GHEZZEHEI Degradation of moist soil aggregates by rapid temperature rise under low intensity fire, *Plant and Soil*, 362:335-344, 2013.

9. GHEZZEHEI, T.A., Linking sub-pore scale heterogeneity of biological and geochemical deposits with changes in permeability, *Advances in Water Resources*, 39:1-6. 2012.

10. [3]Sarkhot, D.V., AA Berhe and T.A. GHEZZEHEI, Impact of biochar enriched with dairy manure effluent on carbon and nitrogen dynamics, *Journal of Environmental Quality*, 41(4):1107-14. 2012.

11. Dobson, P.F., T.A. GHEZZEHEI, P.J. Cook, JA Rodriguez, L Villalba, R de la Garza, Heterogeneous seepage at the Nopal I natural analogue site, Chihuahua, Mexico, *Hydrogeology Journal* , 20(1): 155-166. 2012.

12. [3]Ghebrenugus, T. and T.A. GHEZZEHEI, An Index for Degree of Hysteresis in Water Retention, *Soil Science Society of America Journal*, 75:2122-2127. 2011.

13. [3]Ghebrenugus, T., T.A. GHEZZEHEI and M Tuller Physico-chemical Controls on Initiation and Evolution of Desiccation Cracks in Bentonite-Sand Mixtures: X-ray Imaging and Stochastic Modeling, *Journal of Contaminant Hydrology*, 126:100-112. 2011.

14. [2]Aravena, JE, M Berli, T.A. GHEZZEHEI and SW Tyler, Effects of root-induced compaction on rhizosphere hydraulic properties–x-ray micro-tomography imaging and numerical simulations, *Environmental Science and Technology*, 45:425-431. 2011.

15. GHEZZEHEI, T.A., and T.J. Kneafsey, Capillary pressure and relative permeability of methane hydrate bearing sediments, *Offshore Technology Conference*, DOI: 10.4043/20550-MS. 2010.

16. Berli, M, A Carminati, T.A. GHEZZEHEI and D Or, Evolution of unsaturated hydraulic conductivity of aggregated soils due to compressive forces, *Water Resources Research*, 44, W00C09. 2008.

17. Dobson, P.F., P. Goodell, M. Fayek, T.A. GHEZZEHEI, F. Melchor, M. Murrell, I. Reyes, R. de la Garza, and A. Simmons, Stratigraphy of the PB-1 well, Nopal I uranium deposit, Sierra Peña Blanca, Chihuahua, Mexico, *International Geology Review*, 50(11):959-974. 2008.

18. GHEZZEHEI, T.A., Errors in determination of soil water content using time-domain reflectometry caused by compaction around wave guides, *Water Resources Research*, 44, W08451. 2008.

19. Salve, R, T.A. GHEZZEHEI, and R Jones, Natural infiltration of floodwaters into fractured bedrock, *Water Resources Research*, 44, W01434. 2008.

20. GHEZZEHEI, T.A., TJ Kneafsey, GW Su, Correspondence of the Gardner and van GenuchtenâĂŞMualem relative permeability function parameters, *Water Resources Research*, 43(10): W10417. 2007.

21. Cortis, A and T.A. GHEZZEHEI, On the transport of emulsion in porous media, *Journal of Colloids and Interface Science*, 313(1):1-4, *[Priority Communication]*. 2007.

22. Or, D and T.A. GHEZZEHEI, Traveling liquid bridges in unsaturated fractured porous media, *Transport in Porous Media*, 68(1):129-151. 2007.

23. GHEZZEHEI, T.A. and D Or, Liquid fragmentation and intermittent flow regimes in unsaturated fractured media, *Water Resources Research*, 41(12): W12406. 2005.

24. GHEZZEHEI, T.A., Flow diversion around cavities in fractured media. *Water Resources Research*, 41(11): W11501. 2005.

25. GHEZZEHEI, T.A., Constraints for flow regimes on smooth fracture surfaces. *Water Resources Research*, 40(11): W11503. 2005.

26. GHEZZEHEI, T.A., R Trautz, S Finsterle, PJ Cook, and C.F. Ahlers, Coupled evaporation and seepage into ventilated cavities, *Vadose Zone Journal*, 3: 806-818. 2004.

27. GHEZZEHEI, T.A. and D. Or, Stress-induced volume reduction of isolated pores in wet soil, *Water Resources Research*, 39(3): 1067, (Erratum WRR, 39(5): 1124). 2003.

28. GHEZZEHEI, T.A. and D. Or, Pore space dynamics in soil aggregate bed under steady external load, *Soil Science Society of America Journal*, 67(1): 12-19. 2003.

29. Leij, FJ, T.A. GHEZZEHEI, and D Or, Analytical Models for Soil Pore-Size Distribution After Tillage, *Soil Science Society of America Journal*, 66(4): 1104-1114. 2002

30. Leij, FJ, T.A. GHEZZEHEI, and D Or, Modeling the dynamics of the soil pore-size distribution, *Soil and Tillage Research*, 64(1-2): 61-78. 2002.

31. Or, D and T.A. GHEZZEHEI, Modeling post-tillage structural dynamics in aggregated soils: a review. *Soil and Tillage Research*, 64(1-2): 41-59. 2002.

32. GHEZZEHEI, T.A. and D Or, Rheological properties of wet soils and clays under steady and oscillatory stresses, *Soil Science Society of America Journal*, 65(3): 624-637. 2001.

33. Or, D, FJ Leij, V Snyder, and T.A. GHEZZEHEI, Stochastic model for posttillage soil pore size evolution, *Water Resources Research*, 36(7): 1641-1652. 2000.

34. D Or and T.A. GHEZZEHEI, Dripping into cavities from unsaturated fractures under evaporative conditions, *Water Resources Research*, 36(2): 381-393. 2000.

35. GHEZZEHEI, T.A. and D Or, Dynamics of soil aggregate coalescence governed by capillary and tillage processes, *Water Resources Research*, 36(2): 367-379. 2000.

Comments and Reviews

36. GHEZZEHEI, T.A., Book review: "Clay Swelling and Colloid Stability" by Martin Smelly, *Soil Science Society of America Journal*, 72(1): 277, 2008.

37. Or, D and T.A. GHEZZEHEI, Comment on "Computer simulation of two-phase immiscible fluid motion in unsaturated complex fractures using a volume of fluid method" by H. Huang, P. Meakin, and M. Liu, *Water Resources Research*, 42(6): W07601, 2006.

Peer-reviewed Book Chapters and Major Reports

38. [2]Aravena, J.E., M. Berli, T.A. GHEZZEHEI and S. W. Tyler, Synchrotron x-ray microtomography–New means to quantify root induced changes of rhizosphere physical properties in *Soil-Water-Root Processes: Advances in Tomography and Imaging*, pp. 39-67, SSSSA Special Publication 61, S.H. Anderson and J.W. Hopmans (Eds.), Soil Science Society of America, Madison, Wis. 2013. [Invited]

39. GHEZZEHEI, T.A., Soil Structure, in *Handbook of Soil Sciences: Vol. 1 Properties and Processes*, (2nd Ed), P.M. Huang, Y. Li, M.E. Sumner (Eds.), CRC Press, Boca Raton, Fla. 2012. [Invited]

40. GHEZZEHEI, T.A., *Using test data to reduce uncertainty in total system performance assessment seepage abstraction*, Total System Performance and Assessment and Integration Report 3.25, Bechtel SAIC, LLC, Las Vegas, NV. Berkeley Lab Report LBID-2529. 2004.

41. GHEZZEHEI, T.A., *Integration between three-dimensional unsaturated zone flow, multiscale thermal-hydrologic, and drift seepage models*, Total System Performance and Assessment and Integration Report 3.11, BSC, Las Vegas, NV. Berkeley Lab Report LBID-2536. 2004.

42. GHEZZEHEI, T.A. and H. H. Liu, *Calibrated Properties Model*, (MDL-NBS-HS-000004 REV02). BSC, Las Vegas, Nevada, Analysis and Model Report to Support the License Application for the Yucca Mountain Nuclear Waste Repository. 2004.

43. S. Finsterle, T.A. GHEZZEHEI, R. C. Trautz, and P. Cook, *Seepage Calibration Model and Seepage Testing Data*(MDL-NBS-HS-000004 REV02). BSC, Las Vegas, Nevada, Analysis and Model Report to Support the License Application for the Yucca Mountain Nuclear Waste Repository. 2004.

Manuscripts in Review

44. GHEZZEHEI. T.A., [3]DV Sarkhot, AA Berhe Biochar can be used to recapture essential nutrients from dairy wastewater and improve soil quality Solid Earth Discussions 6, 1101-1125,2014.

45. [2]Arnold, CL and T.A. GHEZZEHEI A method for characterizing desiccation induced consolidation and permeability loss of soft soils Water Resources Research

46. [2]Arnold, CL, T.A. GHEZZEHEI, and and AA Berhe Soil organic matter decomposition in high elevation wetlands is driven by hydrological thresholds Soil Biology and Biochemistry

47. [2]Arnold, CL, T.A. GHEZZEHEI, and and AA Berhe, Extreme seasonality elicits rapid ecosystem response in the high elevation meadows of the Central Sierra Nevada, *PLOS ONE*, (submitted Sep 2013).

Non-refereed Publications

1. [2]Cherubini, C., T.A. GHEZZEHEI, and G.W. Su The drift shadow phenomenon in an unsaturated fractured environment, in D.G. Toll , C.E. Augarde, D. Gallipoli, and S.J. Wheeler (Eds), *Unsaturated Soils. Advances in Geo-Engineering*, pp. 761-764, Taylor & Francis Group, London, ISBN 978-0-415-47692-8. 2008.

2. Berhe, A.A. and T.A. GHEZZEHEI, Biogeochemical Feedbacks. In S.G. Philander (Ed.), *Encyclopedia of Global Warming and Climate Change*, Sage Publications Inc. 2008.
   2012: Edited version was republished in 2nd edition

3. Berhe, A.A. and T.A. GHEZZEHEI, Climate Data—Sediment Records. In S.G. Philander (Ed.), *Encyclopedia of Global Warming and Climate Change*, Sage Publications Inc. 2008.
   2012: Edited version was republished in 2nd edition.

4. Su, G.W., T. J. Kneafsey, T.A. GHEZZEHEI, B. Marshall, and P. J. Cook Field investigation of the drift shadow, *Proceedings of 11th International High Level Radioactive Waste Management Conference*, American Nuclear Society, p.48-52, 2006.

5. GHEZZEHEI, T.A., P. F. Dobson, J. A. Rodriguez, and P. J. Cook Infiltration and seepage through welded fractured tuff, *Proceedings of 11th International High Level Radioactive Waste Management Conference*, American Nuclear Society, p.105-110, 2006.

6. Paces, J., L. Neymark, T.A. GHEZZEHEI and P.F. Dobson Testing the concept of drift shadow at Yucca Mountain, Nevada, *Proceedings of 11th International High Level Radioactive Waste Management Conference*, American Nuclear Society, p.278-285, 2006.

7. GHEZZEHEI, T.A., R. A. Trautz, and S. A. Finsterle Evaluating the effectiveness of liquid diversion around an underground opening when evaporation is non- negligible. *International TOUGH Symposium Proceedings*, Berkeley, California. 2004.

8. Ahlers, C. F., T.A. GHEZZEHEI, and S. A. Finsterle Development and testing of a method for efficient simulation of evaporation from a seepage face. *International TOUGH Symposium Proceedings*, Berkeley, California. 2004.

9. Berli, M., T.A. GHEZZEHEI, and D. Or Modeling bulk soil compaction using a Rheologically-based pore closure model. *Environmental Geomechanics*. Vulliet and Laloui (Eds.) Monte Verita, Switzerland.2003.

10. Fedors, R, T.A. GHEZZEHEI, and D. Or Dripping into subterranean cavities from unsaturated fractures under ventilated conditions. *SEM Proceedings*. Littleton, Colorado, 2000.

Honors and Awards

2007 Outstanding Performance Award, Lawrence Berkeley National Laboratory

2004 Recognition of Commitment to Excellence, OCRWM, US Dept of Energy

2004 Sigma Xi (The Scientific Research Society)

2004 Phi-Kappa-Phi (National Honor Society, top 10% of grad student body)

2000 Outstanding Student Paper Award, AGU Fall Meeting

Research Grants at UC Merced

Awarded: External funding

Total UC Merced share of external funding: **$825,095** + **>$60,000** in field equipment

10.2013 – 12.2016 Collaborative Research: Alterations of Soil Physical and Geochemical Properties Induced by Low-intensity Fire
T.A. GHEZZEHEI (PI), A.A. Berhe, and M. Berli
NSF-EAR: $449,000 (UC Merced portion: $222,844)

06.2012 – 06.2013 Hydro-ecological implications of tephra layers in the high-elevation meadows of the Southern Sierra Nevada
T.A. GHEZZEHEI (SOLE PI)
Hellman Family Faculty Fund: $20,000

10.2010 – 12.2015 Hydrologic Redistribution and Rhizosphere Biology of Resource Islands in Degraded Agroecosystems of the Sahel
Dick, R., T.A. GHEZZEHEI (CO-PI) , J. Reeve, and B. McSpadden
NSF-PIRE: $2,599,994 (UC Merced sub-award: $270,251 + >$60,000 in field equipment). Travel to/from and within Senegal, undergraduate student and postdoc support in Senegal, and lease of research plots is covered by main contract in OSU.

01.2010 – 12.2013 Spatial and temporal dynamics of soil structure as influenced by wetting and drying cycles
T.A. GHEZZEHEI (SOLE PI)
USDA-AFRI, Soil Processes Program: $217,000

01.2009 – 06.2011 Evolution of Soil-pore Architecture by Wetting and Drying Cycles
T.A. GHEZZEHEI (SOLE PI)
Kearney Foundation of Soil Science: $95,000

09.2008 – 08.2011 Collaborative Research: Root-Induced Changes of Soil Physical Properties Using Synchrotron X-ray Microtomography and Micromechanical Simulations
M. Berli, S.W. Tyler, M. Young, M. Menon, and T.A. GHEZZEHEI (CO-PI)
NSF-DEB: $423,791

Awarded: Internal funding

06/2012-06/2013 *Developing a new sensor for measuring soil water potential*
T.A. GHEZZEHEI
Graduate and Research Council: $5,000

06-12/2011 *The effect of fire on soil aggregation and physical stability of soil organic matter*
A.A. Berhe and T.A. GHEZZEHEI
Graduate and Research Council: $10,000

06/2010-12/2010 *Fluid phase discontinuities in porous media*
T.A. GHEZZEHEI
Graduate and Research Council: $4,920
Chancellor's Award: $5,000

Awarded: Facility Access

01-07/2013 *Visualization and quantification of biologically enhanced water retention in soils*
T.A. GHEZZEHEI and A.A. Albalsmeh
12 shifts at X-ray Microtomography Beamline, Advanced Light Source, LBNL

07-12/2011 *Imaging Soil Structure Alterations Around Plant Roots*
M. Berli, J.E. Aravena, T.A. GHEZZEHEI and S.W. Tyler
9 shifts X-ray Microtomography Beamline, Advanced Light Source, LBNL

07-12/2010 *Root Induced Changes of Soil Physical Properties using Synchrotron X-Ray Microtomography (CMT) and Micromechanical Simulations.*
M. Berli, T.A. GHEZZEHEI, M. Menon, S.W. Tyler, M. Young, and P. Nico
6 shifts at X-ray Microtomography Beamline, Advanced Light Source, LBNL

Invited Seminars

2014 Built-in water potential gradient in the rhizosphere, Gottingen University (June 2014)

2014 Pore-scale changes in porous media: effects on hydrologic and mechanical properties, Environmental Hydrogeology Group, Utrecht University (June 2014)

2013 Fate of high-elevation meadows under extreme inter-annual precipitation variability, Hydrologic Sciences Graduate Program Seminar Series (Sep 2013)

2013 Bridging across scales in critical zone physical processes, Crop & Soil Environmental Science Department Seminar, Virginia Tech (May 2013).

2011 Experimental Investigation on Role of Root Mucilage and Microbial Exudation Soil-Water Retention Dynamics, Earth Science Department Seminar, Boston University (Oct 2011).

2010 How do roots build a home in soil, Coalition for National Science Funding exhibit , US Capitol (Apr 2010).

2009 Soil Structure in Root Zone, Biology Department Seminar, Cal. State Univ. Stanislaus (Mar 2009).

2009 Rhizosphere Soil Structure and it Evolution, Hydrogeology Department Seminar, Desert Research Institute (Apr 2009).

2008 Multi-scale processes in porous media; Plant, Soils, and Entomological Sciences Dept, Univ. Idaho. (Apr 2008).

Teaching and Student Advising

Courses

1. **ESS 02**: Sustainability Science — Fall 2010, 2011, 2012, 2013
   A new general education course that I developed at UC Merced
2. **ESS 112/ES 212**: Subsurface Hydrology — Spring 2009, 2010, 2012, 2013
   A mixed undergraduate and graduate level course
3. **ES 228**: Ecological Modeling — Spring 2014
   Graduate course that I am preparing to teach

Guest Lectures and Short Courses

1. Guest lab sessions in characterization of soil physical properties (ESS 170: Fundamental of Soil Science) — Spring 2011, 2012
2. Short course in *Soil physical conditions affecting soil microbial activity*, Advanced Training in Tropical Microbiology for Early Career Scientists, (10 US and 10 African PhD students and postdocs) Dakar, Senegal — 2012
3. Guest lecture on Hydrologic Cycle (ESS 10: Earth Resources and Society) — Spring 2012
4. Guest lecture "The structure of soils surrounding plant roots" delivered at ES Graduate Seminar (ES291) — Spring 2009

Graduate Students Advised

1. **Vivian Lopez** (09/2012-present): Environmental Systems PhD student, currently developing dissertation research on biophysical effects of biochar addition to degraded soils.
2. **Nathaniel Bogie** (9.2011-present): Environmental Systems PhD student, working on dissertation research on *Beneficial Hydrologic Relations between Evergreen Woody Shrubs Food Crops in the Peanut Basin, Senegal*, advanced to candidacy Spring 2013.
3. **Chelsea Arnold** (09.2009-present): Environmental Systems PhD student, dissertation research on *Coupled hydrological and biogeochemical dynamics of high elevation meadows: resiliency, thresholds and extreme changes*, co-advised by A.A. Berhe, advanced to candidacy Spring 2011, expected to graduate Spring 2014.
4. **Ammar Albalasmeh, Ph.D.** (09.2009-08.2013) Graduated with PhD in Environmental Systems, conducted dissertation research on *Biophysical controls on rhizosphere dynamics*, as of 09/2013 tenure-track position in Soil Physics at Jordan University of Science and Technology.

Postdoctoral Fellow Advised

1. **Thomas Gebrenegus, Ph.D.** (04.2010-06.2012): Postdoctoral research topic: Emergence of phase discontinuities, hysteresis, and modeling of crack propagation in clayey soils.

Visiting Students Advised

1. **Carolina Peña Sancho** (09-12/2013): Ph.D. student visitor from University of Zaragoza (Spain), evolution of soil structure and hydraulic properties during wetting-drying cycles.

2. **Claudia Cherubini** (2006): Ph.D. student visitor from University of Bari (Italy), modeling drift-shadow effect in unsaturated fractured media

Graduate Study Committee Membership

1. **Diganta Adhikari** (09/2011-present): Environmental Systems PhD student

2. **Molly Small** (05/2013-present): Environmental Systems MS student

3. **Lynn Sullivan** (01/2011-05/2013): Environmental Systems MS student

4. **Patrick Barnes** (02-12/2010): Environmental Systems MS student

5. **Chris Butler** (01-06/2009): Environmental Systems MS student

Affiliations and Services

American Geophysical Union — Member since 1998
Soil Science Society of America — Member since 1998

Editorship and Reviews

Associate Editor, Vadose Zone Journal — 2009–2013
Managed the review of three manuscripts per year.
Associate Editor, Soil Science Society of America Journal — 2006–2008
Managed the review of four manuscripts per year.

Proposal reviews:

Proposal Review Panel of Environmental Remediation Science Program (US DOE) for FY2008, National Science Foundation (DEB, EAR-IF, Hydrologic Sciences), National Aeronautics and Space Administration (NASA), US-Israel Binational Science Foundation

Manuscript reviews:

Australian Journal of Soil Research, Environmental Science and Technology, Geoderma, Geothermics, Hydrological Processes, Journal of Contaminant Hydrology, Journal of Environmental Quality, Journal of Hydrology, Journal of Plant Nutrition and Soil Science, Soil Science Society of America Journal, Vadose Zone Journal, Water Resources Research

Professional Service

Convener and Chair, "Biophysical Functions of Soil: Exploring the hidden frontiers"
AGU Fall Meeting — 2013
Convener and Chair, "Environmental Vadose Zone Hydrology Posters"
AGU Fall Meeting — 2011 and 2012

External Review Panel of Environmental and Molecular Science Lab (Pacific Northwest National Lab) for Office of Science (DOE)	10-11.2011
Convener, "Non-Invasive Methods and Soil Structure", SSSA	2010
Convener, "Quantifying and Modeling Soil Structure Dynamics", SSSA	2009
Soil Science Science Curriculum External Review Panel, Texas A&M	10-12.2009
Membership and Identity Committee, Soil Science Society of America	2004

University Service

Senate-Administration Library Working Group	2013–
Undergraduate Education Council (UGC)	2011/12 , 12/13, 13/14
UGC Undergraduate Teaching Award Sub-committee	2011/12 , 12/13
UGC Undergraduate Admissions Sub-committee	2013/14
Faculty Adviser, African Student Union	2011/12, 2012/13
Graduate and Research Council Student Proposal Review	2011
School of Natural Science Executive Council	Spring 2011, Fall 2012
UCLEADS faculty judge	2010, 2011, 2012
Faculty Adviser, ASUCM Sustainability Stakeholder	2009, 2010

Academic Programs Service

Ecological Engineering Faculty Search, ES Grad PRogram	2013/14
Educational Policy Committee, Environmental Systems	2012/13
Faculty Assessment Organizer, ESS Minor	2011–
ESS Program Learning Outcome Assessment	2011, 2013
Admission and Recruitment Committee, ES Grad Program	2009/10 & (Chair) 2010/11
ESS Program Review Work Group	2009

Community Service

Soils Competition Judge, Central California counties FFA	2010, 2011
Invited by SSSA to meet congressional delegation of California at Coalition for National Science Funding's (CNSF) 16th Annual Exhibition and Reception held at US Capitol	2010
Frontiers of Science Speaker, Merced County Board of Education	2011
Participant, *Dinner with Scientist*, UC Merced & Merced Co. Off. Educ.	2009, 2010

Divisional and Laboratory Service at LBNL

Chair, Career Scientist Position Search Committee, Earth Sciences Div.	2008
Founding Chair, Distinguished Scientist Seminar Series Organizing Committee, Earth Sciences Division (Lawrence Berkeley National Lab)	2008
Division Representative, Energy-Water Nexus, US DOE	2006–2008
Laboratory-wide Postdoctoral Fellowship Review Committee	2004

Conference Abstracts

1. [2]Arnold, C.L., A. A. Berhe, and T.A. GHEZZEHEI, Linking loss of water storage capacity in high elevation meadow soils to changes in soil structure and organic matter stock after extreme drought, AGU-Chapman Conference on Soil-mediated Drivers of Coupled Biogeochemical and Hydrological Processes, 21-24 Oct, 2013

2. GHEZZEHEI, T.A. , [2]C.A. Arnold, A.A. Berhe, Extreme seasonality elicits rapid ecosystem response in high elevation meadows of central Sierra Nevada, Presented at "Soil Systems and Critical Zone Processes âĂŞ Integrating Life Support Functions across Disciplines", Monte Verita (Ascona- Switzerland) - 14-18, April 2013

3. [2]Albalasmeh, A.A. and T.A. GHEZZEHEI Soil aggregate formation: the role of wetting-drying cycles in the genesis of interparticle bonding Abstract EGU2013-5969 presented at 2013 EGU general assembly, Vienna, Austria, 7-12 April 2013

4. [2]Albalasmeh, A.A. and T.A. GHEZZEHEI Rhizosphere water dynamics: role of exudates in mediating water retention and flow characteristics Abstract EGU2013-5981 presented at 2013 EGU general assembly, Vienna, Austria, 7-12 April 2013.

5. [2]Albalasmeh, A.A., A.A. Berhe and T.A. GHEZZEHEI Association Mechanisms of Sand with Anionic Extracellular Polysaccharides (EPS) Abstract EGU2013-956 presented at 2013 EGU general assembly, Vienna, Austria, 7-12 April 2013.

6. Berhe,A.A., M. Kaiser, T.A. GHEZZEHEI, D. Myrold, and M. Kleber Influence of calcium carbonate and charcoal application on aggregation processes and organic matter retention at the silt-size scale, Abstract EGU2013-7685 presented at 2013 EGU general assembly, Vienna, Austria, 7-12 April 2013.

7. [2]Albalasmeh, A.A., J. Sweet, T. Gebrenegus, T.A. GHEZZEHEI Root exudate as major player on soil-water retention dynamics EOS Transactions of AGU. 2012.

8. [2]Arnold, C., A.A. Berhe, T.A. GHEZZEHEI Variation in winter snowpack depth and duration influences summer soil respiration in a subalpine meadow EOS Transactions of AGU. 2012.

9. [2]Bogie, N.A., R. Bayala, [1]T. McCants, I. Diedhiou, R. Dick, T.A. GHEZZEHEI Beneficial Hydrologic Relations Between Evergreen Woody Shrubs and Food Crops In the Peanut Basin, Senegal EOS Transactions of AGU. 2012.

10. GHEZZEHEI, T.A. Effect of sub-pore scale morphology of biological deposits on porous media flow properties EOS Transactions of AGU. 2012.

11. [1]Guerrero, J., [2]C. Arnold, T.A. GHEZZEHEI, A.A. Berhe Geomorphic Controls on High Elevation Meadow Soil Development and Biogeochemistry EOS Transactions of AGU. 2012.

12. Sullivan, L., M.H. Conklin, T.A. GHEZZEHEI Groundwater Surface Water Interactions in a Gold-Mined Dredged Floodplain of the Merced River EOS Transactions of AGU. 2012.

13. [2]Aravena, J.E., Berli, M. Menon, T.A. GHEZZEHEI, A.K. Mandava, E. E. Regentova, K. K. Potteti, N. S. Pillai, J. Steude, M. H. Young, S. Tyler and P. S. Nico Synchrotron X-Ray Microtomography (XMT):

New Means to Quantify Root Induced Changes of Rhizosphere Physical Properties Soil Science Society of America, Cincinnati, OH. Abstract No: 70451. 2012.

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