

# Asmeret Asefaw Berhe

University of California, Merced  
Life and Environmental Sciences Group  
4225 N. Hospital Rd #47, Castle  
Atwater, CA 95301

Phone: (209) 228-4712  
Fax: (209) 724-4459  
Email: [AABerhe@UCMerced.edu](mailto:AABerhe@UCMerced.edu)  
Homepage: <http://www.aaberhe.com>

## Education

- Ph.D. Biogeochemistry, **University of California, Berkeley** 2006  
Department of Environmental Science, Policy, and Management (ESPM); *Dissertation*: “Storage, Replacement, Stabilization, and Destabilization of Soil Organic Carbon in Eroding and Depositional Settings”; *Advisors*: John Harte, Margaret S. Torn, and Jennifer W. Harden.
- M.Sc. Political Ecology, **Michigan State University** 2000  
Department of Resource Development; “Landmines and Land Degradation: A Regional Political Ecology Perspective On The Impacts Of Landmines On Environment And Development In The Developing World”; *Advisor*: Eckhart Dersch.
- B.Sc. Soil and Water Conservation, **University of Asmara** 1996  
Graduated in the top 2% of class

## Professional Experience

- Associate Professor, Soil Biogeochemistry, **University of California, Merced** 2014 - Present  
Life and Environmental Sciences, School of Natural Sciences  
Environmental Systems Graduate Group  
Faculty affiliate, Sierra Nevada Research Institute (SNRI)
- Visiting Professor, **Eidgenössische Technische Hochschule (ETH), Zürich** 2016
- Assistant Professor, Soil Biogeochemistry, **University of California, Merced** 2009 - 2014
- President’s Postdoctoral Fellow 2006-2008  
Department of Plant Sciences, **University of California, Davis** *Mentor*: Johan Six.  
Dept. of Earth and Planetary Sciences, **Uni. of California, Berkeley** *Mentor*: Jillian Banfield.
- Graduate Student Researcher, Department ESPM, **University of California, Berkeley** 2000-2006
- Guest Researcher, Geological Division, **US Geological Survey, Menlo Park, CA** 2002-2006
- Graduate Student and Guest Researcher, **Lawrence Berkeley National Laboratory** 2001-2005
- Research Assistant, Department of Resource Development **Michigan State University** 2000

## Awards and honors

- Outstanding Women Faculty Leader, UC Merced 2016
- National Science Foundation **CAREER** award 2014
- Young Investigator Award, Sigma Xi Chapter 2014
- Hellman Fellow, Hellman Family Foundation Award 2011

Sigma Xi, The Scientific Research Society	2009
University of California President's Postdoctoral Fellowship	2006-2008
NASA Earth System Science Graduate Fellowship	2003-2006
Young Fellow, Millennium Ecosystem Assessment	2002-2005
Zayed International Prize for the Environment, Zayed International Foundation for the Environment United Arab Emirates (co-recipient of \$ 300,000 for Millennium Ecosystem Assessment)	2005
Fellow, University of California Institute for Preparing Future Faculty	2005
Regents Fellowship, University of California - Travel Grants	2001,02,03,05,06
Carolyn Meek Memorial Fellowship (Soil Science), UC Berkeley	2003-2004
Chancellor's Predoctoral Fellowship, UC Berkeley	2000-2003, 2005
College of Agriculture and Natural Resources Scholarship, Michigan State University	1999-2000

## Other professional training

Molecular Geomicrobiology: From Genomes to Ecosystems, UC Berkeley	2005
Use of Radiocarbon in Ecology and Earth System Science, UC Irvine	2005
Institute for Preparing Future Faculty, UC Berkeley	2005
Stable Isotope Ecology summer short course and Laboratory, University of Utah	2004

## Publications

(\* = student or postdoc author)

69. **Berhe, A.A.**, and T. A. Ghezzehei. Generalized Model for the Temporal Evolution of the Carbon Sequestration Potential of Eroding Watersheds . In *Multi-scale Biogeochemical Processes in Soil Ecosystems: Critical Reactions and Resilience to Climate Changes*. Y. Yang, M. Keiluweit, N. Senesi and B. Xing (Eds.). Biophysico-Chemical Processes in Environmental Systems, IUPAC - sponsored Wiley book. Volume 5. **INVITED** (due Spring 2018)
68. **Berhe, AA**. Global drivers of soil change. In *Global Change and Forest Soils: Demands and Adaptions of a Finite Natural Resource*. M Busse, D Dumroese, D Morris, C Giardina (Eds.). Elsevier. **INVITED** (due Spring 2018)
67. **Berhe, A.A.** CM Khoi, H van Asperen\*, J Gillabel, J Six. Differential effects of temperature and water content on deep and near-surface soil CO<sub>2</sub> concentration and fluxes during wetting and drying of soils. In revision.
66. Williams, E.\*; M. Fogel, **A.A. Berhe**, A. Plante. Distinct bioenergetic signatures in particulate versus mineral-associated soil organic matter. Submitted.
65. Abney, R. B.\*, T. J. Kuhn, A. Chow, W. Hockaday, M. L. Fogel, **A.A. Berhe**. Pyrogenic carbon erosion after the Rim Fire, Yosemite National Park: the role of fire severity and topography on determining the fate of PyC. Submitted.
64. Dungait, JAJ, **AA Berhe**, AS Gregory, DW Hopkins, Physical Protection and Mean Residence Time of Soil Carbon. In *Climate and Soil Organic Matter, Advances in Soil Science*, Eds. R Lal and BA Stewart. Submitted.

63. F Santos\*, K. Moreland\*, M. Barnes\*, R. Abney\*, L. Jin\*, N. Bogie\*, T.A. Ghezzehei, **AA Berhe**. Response of soil physical properties to warming and implications for biogeochemical cycling of essential elements. In *Ecosystem Consequences of Soil Warming: microbes, vegetation, fauna, and soil biogeochemistry*. J. Mohan (Ed). Elsevier. Submitted. **INVITED**
62. Doetterl, S\*; **AA Berhe**; J Harden; C Vogel; E Nadeu; S Trumbore; L Fuchslueger; C Arnold; J Schneckler; P Finke; S Bodé; M Griepentrog; P Fiener; P Boeckx. Mineral weathering diversifies response of soil carbon and microbial dynamics to warming. Submitted.
61. JC Blankinship; SE Crow; **AA Berhe**; JL Druhan; KA Heckman; M Keiluweit; CR Lawrence; E Marin-Spiotta; AF Plante; C Rasmussen; C Schädel; JP Schimel; CA Sierra; A Thompson; R Wagai; WR Wieder. Improving understanding of soil organic matter dynamics by triangulating theories, measurements, and models. Submitted
60. Abney, R\*, L. Jin\*, **A.A.Berhe**. Landform position and combustion temperature control decomposition rate of pyrogenic organic matter. Submitted
59. Abney, R\*, **A.A.Berhe**. Erosional redistribution of pyrogenic carbon: implications for persistence of PyC in the soil system. Submitted
58. **Berhe, A.A.**, R. Barnes, J. Six, E. Marin-Spiotta. Role of erosional mass movement on the biogeochemical cycling of essential elements: carbon, nitrogen, and phosphorus. *Annual Reviews of Earth and Planetary Sciences*. In Press. **INVITED**
57. Rasmussen, C, K Heckman, W Wieder, M Keiluweit, **AA Berhe**, J Blankinship, S Crow, J Druhan, CH Pries, E Marin-Spiotta, C Lawrence, A Plante, C Schadel, J Schimel, C Sierra, A Thompson, R Wagai. (2018) Beyond clay: towards an improved set of variables for predicting soil organic matter content. *Biogeochemistry*. In Press
56. PZ Klos, ML Goulden, CS Riebe, CL Tague, AT O'Geen, BA Flinchum, M Safeeq, MH Conklin, SC Hart, **AA Berhe**, PC Hartsough, WS Holbrook, RC Bales. (2018) Predicting plant-accessible water in the critical zone: mountain ecosystems in a Mediterranean climate. In Press
55. Ramirez, K. S., **A. A. Berhe**, J. Burt, G. Gil-Romera, R. F. Johnson, A. M. Koltz, I. Lacher, T. McGlynn, K. J. Nielsen, R. Schmidt, J. L. Simonis, C. P. terHorst and K. Tuff (2017). "The future of ecology is collaborative, inclusive and deconstructs biases." *Nature Ecology & Evolution*. doi:10.1038/s41559-017-0445-7
54. Abney, R.B.\*, J. Sanderman, D. Johnson, M. L. Fogel, **A. A. Berhe**. (2017) Post-wildfire erosion in mountainous terrain leads to rapid and major redistribution of soil organic carbon. *Frontiers in Earth Science*. 5:99. doi: 10.3389/feart.2017.00099
53. Marin-Spiotta, E., A. S. Adams, R. T. Barnes, **A.A. Berhe**, M. Burt, E. Fischer, M. H. Okoro, M. Hastings, T. Holloway, A. Morris, C. Wiedinmyer. (2017). Lessons from the Earth Science Women's Network. *EarthZine*. <https://earthzine.org/2017/05/23/lessons-from-the-earth-science-womens-network/>
52. Sanderman, J., and **Berhe, A. A.** (2017). Biogeochemistry: The soil carbon erosion paradox. *Nature Climate Change*, 7 (5), 317-319 doi:10.1038/nclimate3281
51. **Berhe, A.A.**, R. Amundson, E. Sztein. (2017) Soil: The Foundation of Life. *Eos*. 98, doi.org/10.1029/2017EO077201.

50. Lajtha, K., E. Bai, T. Baisden, **A. A. Berhe**, B. Bowden, J. Brookshire, E. Brzostek, S. Crow, C. Driscoll, C. Evans, J. Finlay, M. Fisk, S. Grandy, L. Hamdan, J. Harrison, C. Hawkes, K. Kalbitz, S. Kaushal, M. Kramer, E. Matzner, J. Melack, J. Mulder, S. Porder, J. Sanderman, E. Stanley, J. Tank, M. Vile, M. Voss, K. Wieder, S. Ziegler. (2017). Brave New World. *Biogeochemistry*. 133(1): 3–5. doi:10.1007/s10533-017-0316-y
49. Araya, S.N.\*, M. Fogel, **A.A. Berhe**. (2017). Thermal alteration of soil organic matter properties: a systematic study to infer response of Sierra Nevada climosequence soils to forest fires. *SOIL*. 3, 31-44. doi:10.5194/soil-3-31-2017
48. **Berhe, A. A.**, C. Arnold\*, L. Jin\*, M. Kaiser\*, R. Lever\*. (2017). Carbon Dynamics. In *Oxford Bibliographies in Environmental Science*. Ed. Ellen Wohl. 1–24. doi:10.1093/OBO/9780199363445-0065 **INVITED**
47. **Berhe, A. A.** and M. S. Torn. (2017). Soil nitrogen storage and stabilization in eroding landscapes. *Biogeochemistry* 132(1), 37-54. DOI: 10.1007/s10533-016-0286-5
46. Fissore, C, BJ Dalzell, **A.A. Berhe**, M Voegtle, M Evans, A. Wu. (2017). Influence of Topography on soil organic carbon dynamics in a Southern California Grassland. *Catena*. 149, 140-149
45. Santos, F\*, D. Russel, **A.A. Berhe**. (2016) Thermal alteration of water extractable organic matter in climosequence soils from the Sierra Nevada, California. *Journal of Geophysical Research – Biogeosciences*. 121 (11): 2877–2885. DOI: 10.1002/2016JG003597
44. Araya, S.N.\*, M. Medina, **A.A. Berhe**. (2016) Thermal alteration of soil physico-chemical properties: A systematic study to infer response of Sierra Nevada climosequence soils to forest fires. *SOIL* 2, 351–366. doi:10.5194/soil-2-351-2016.
43. McCorkle, E.P.\*, **A.A. Berhe**, C.T. Hunsaker, K.J. McFarlane, D. Johnson, M.L. Fogel, S.C. Hart. (2016) Tracing the source of soil organic matter eroded from temperate forest catchments using carbon and nitrogen isotopes. In Press. *Chemical Geology*. Available online 29 April, 2016
42. Hu, Y.\*, **A.A. Berhe**, M. Fogel, G.J. Heckrath, N.J. Kuhn. (2016) Transport-distance specific SOC distribution: does it skew erosion induced C fluxes? *Biogeochemistry* 128: 339. doi:10.1007/s10533-016-0211-y
41. Doetterl, S\*., **A.A. Berhe**, E Nadeu\*, Z. Wang, M. Sommer, P. Fiener. (2016) Erosion, deposition and soil carbon: A review on process-level controls, experimental tools and models to address C cycling in dynamic landscapes. *Earth Surface Reviews* 154:102-122 doi:10.1016/j.earscirev.2015.12.005
40. Stacy, E. M.\*, S.C. Hart, C.T. Hunsaker, D.W. Johnson, **A.A. Berhe**. (2015) Soil carbon and nitrogen erosion in forested catchments: implications for erosion-induced terrestrial carbon sequestration. *Biogeosciences* 12, 4861–4874 doi:10.5194/bg-12-4861-2015
39. Amundson, R, **A.A. Berhe**, J. Hopmans, C. Olson, E. Sztein, D. Sparks. (2015) Soil and Human Security in the 21st Century. *Science*. 2015. vol 348, no. 6235, DOI: 10.1126/science.1261071
38. Holden, S.R\*, **A.A. Berhe**, K.K. Treseder. (2015) Decrease in soil moisture and organic matter quality suppresses microbial decomposition following boreal forest fires. *Soil Biology and Biochemistry* 87: 1-9 doi:10.1016/j.soilbio.2015.04.005
37. Arnold, C\*, T.A. Ghezzehei, **A.A. Berhe**. (2015) Decomposition of distinct organic matter pools is regulated by moisture status in structured wetland soils. *Soil Biology and Biochemistry*. 81: 28-37

36. Kaiser, M\*, M Kleber, **A.A. Berhe**. (2015) How air-drying and rewetting modify soil organic matter characteristics: an assessment to improve data interpretations and inference. *Soil Biology and Biochemistry* 80: 324-340
35. Kaiser, M.\*, M. Kleber, TA Ghezzehei, D Myrold, **A.A. Berhe**. (2014) Calcium carbonate and charcoal applications promote organic matter storage in silt-sized aggregates. *Soil Science Society of America Journal* 78: 1624-1631
34. Arnold, C\*, T.A. Ghezzehei, **A.A. Berhe**. (2014) Extreme inter-annual change in precipitation elicits a rapid soil carbon loss in high elevation meadows. *PLOS ONE* 9(9):e106058. doi:10.1371/journal.pone.0106058.
33. Ghezzehei, TA, Sarkhot, D.V.\* **A.A. Berhe**. (2014) Biochar can be used to recapture essential nutrients from dairy wastewater and improve soil quality. *Solid Earth* 5: 953–62. doi:10.5194/se-5-953-2014.
32. Brok, E.\* , C. Frandsen, D.E. Madsen, H. Jacobsen, J. O. Birk, K. Lefmann, J. Bendix, K. S. Pedersen, C. Boothroyd, **A.A. Berhe**, G.Simeoni, and S. Mørup (2014) Magnetic properties of ultra-small goethite nanoparticles. *Journal of Physics D: Applied Physics*. 47(36):365003 doi:10.1088/0022-3727/47/36/365003
31. **Berhe, AA**, C Arnold\*, EM Stacy\*, R Lever\*, E McCorckle\*, SN Araya\*. (2014) Soil erosion controls on biogeochemical cycling of carbon and nitrogen. *Nature Education Knowledge* 5(8):2
30. Kaiser, M.\* and **A.A. Berhe**. (2014) How does sonication affect the mineral and organic constituents of soil aggregates? - A review. *Journal of Plant Nutrition and Soil Science*. 177: 479-495. DOI: 10.1002/jpln.201300339
29. Tas N\*, E. Prestat, S. Wang, J.W. Mcfarland, K. Wickland, R. Knight, **A.A. Berhe**, T. Jorgenson, M. Waldrop, J.K. Jansson (2014). Impact of fire on active layer and permafrost microbial communities and metagenomes in an upland Alaskan boreal forest. *The ISME Journal*. doi:10.1038/ismej.2014.36
28. Ryals, R\*, M. Kaiser\*, M.S. Torn, **A.A. Berhe**, W.L.Silver. (2014) Impacts of organic amendments on soil carbon and nitrogen stocks and dynamics in rangeland soils. *Soil Biology and Biochemistry*. 68: 52-61
27. Sarkhot, D.V.\* T. A. Ghezzehei, **A. A. Berhe**.(2013). Effectiveness of Biochar for sorption of Ammonium and Phosphate from Dairy Effluent. *Journal of Environmental Quality*. 42(5): 1545-1554
26. Albalasmesh, A.A.\* , **A.A. Berhe**, T.A. Ghezzehei (2013). New method for rapid determination of concentration and carbon content of carbohydrates using UV Absorbance. *Carbohydrate Polymers* 97(2):253-261
25. **Berhe, A. A.** and M. Kleber. (2013) Erosion, deposition and the persistence of soil organic matter: important considerations and problems with terminology. *Earth Surface Processes and Landforms*. 38: 908-912 DOI: 10.1002/esp.3408
24. **Berhe, A. A.** (2013) Effect of Litterbags on rate of substrate decomposition along depth and slope gradients. *Journal of Soils and Sediments*. 13:629-640 DOI:10.1007/s11368-012-0639-1
23. **Berhe, A. A.** (2012) Decomposition of organic substrates at eroding vs. depositional landform positions. *Plant and Soil*. 350:261-280. DOI:10.1007/s11104-011-0902-z

22. Sarkhot, D. V.\*, **A.A. Berhe**, T. A. Ghezzehei. (2012) Impact of Biochar Enriched with Dairy Manure Effluent on Carbon and Nitrogen Dynamics? *Journal of Environmental Quality*. DOI:10.2134/jeq2011.0123
21. Kaiser, M.\*, **A.A. Berhe**, M. Sommer, M. Kleber. Application of ultrasound to disperse aggregates of high mechanical stability. (2012). *Journal of Plant Nutrition and Soil Science*. 175(4): 521-526. DOI: 10.1002/jpln.201200077
20. **Berhe, A. A.**, Torn, M.S., Harden, J., Kleber, M., Burton, S.D., Harte, J. Persistence of Soil Organic Matter in Eroding vs. Depositional Landform Positions. (2012). *Journal of Geophysical Research – Biogeosciences*. 117, G02019 doi:10.1029/2011JG001790
19. Lopez-Carr, D., C. Hunsberger, J. Jabbor, C. Chizoba, L. Hislop, H. Masundire., M. T. Abdelhamid, F. Ayache, J. A. Montoro, A. Guhl, S. M. Borrás, **A.A. Berhe**, T. Evans, J. Melilo, S. Kant, N. G. Pricope, M. Leach, D. Martino, T. M. Aide, K. A. Crews, T. Devisscher, H. F. del Valle, R. Sanchez-Rodriguez, T. Timmins, A. F. Barbieri, C. S. Junior, P. Kameri-Mbote, A. Angelsen, L. Zulu, W. Kuang-Yao, J. Kozakova, C. Chizoba, C. Gibbes. 2012. *Chapter 3. Land. United Nations Environment Programme, Global Environmental Outlook series, GEO-5 Report*.
18. **Berhe, A.A.**, Suttle, K.B., Burton, S.D., and J.F.Banfield. (2012). Contingency in the Direction and Mechanics of Soil Organic Matter Responses to Increased Rainfall. *Plant and soil*. DOI 10.1007/s11104-012-1156-0. (Published online January 30, 2012)
17. Nadeu, E.\*, **A. A. Berhe**, J. de Vente, C. Boix-Fayos. (2012) Erosion, deposition and replacement of soil organic carbon in Mediterranean catchments: a geomorphic, isotopic and land use change approach *Biogeosciences* 9, 1099–1111, 2012.doi:10.5194/bg-9-1099-2012 (Published online March 27, 2012)
16. Waldrop, M. P., Wickland K., White, R III, **Berhe, A.A.**, Harden, J.W., V. Romanovskys. (2010). Molecular Investigation into a globally important carbon pool: permafrost-protected carbon in Alaskan soils. *Global Change Biology*. 16(9)2543-2554.
15. Shrestha, G.\*, **Berhe, A.A.**,Swanston, C, Traina, S. J. (2009) Surface soil black carbon in Yosemite, California: effect of Prescribed forest fires. Proceedings of the North American Biochar Conference. August 9-12, 2009. University of Colorado, Boulder.
14. **Berhe, A.A.**, Harden, J., Torn, M.S., Harte, J. (2008). Role of Landform Position in Erosion-Induced Terrestrial Carbon Sequestration. *Journal of Geophysical Research-Biogeosciences*, 13, G04039, doi:10.1029/2008JG000751
13. Harden, J.W.,**Berhe,A.A.**,Torn, M.S., Harte, J., Liu, S.,Stallard, R.F. 2008. Soil Erosion: Data Say C Sink. *Science* .320(5873): 178-179.
12. <sup>+</sup>**Berhe, A.A** and Ghezzehei, T.A. 2008.Biogeochemical Feedbacks. *Encyclopedia of Global Warming and Climate Change*. S. G. Philander (Ed). Sage Publishers.  
*+ Revised version published in the Second edition (2012)*
11. <sup>+</sup>**Berhe, A.A.** and Ghezzehei, T.A. 2008. Climate Data – Sediment Records. *Encyclopedia of Global Warming and Climate Change*. S. G. Philander (Ed). Sage Publishers. <sup>+</sup>  
*+ Revised version published in the Second edition (2012)*
10. **Berhe, A.A.** 2007. The Contribution of Landmines to Land Degradation. *Land Degradation and Development*. 18: 1–15.

9. **Berhe, A.A.**, Harte J., Harden, J. W., Torn, M.S. 2007. The Significance of the Erosion Induced Terrestrial Carbon Sink. *Bioscience*. 57(4):337-346. DOI: 10.1641/B570408
8. Nelson, G., Bennett, E., **Berhe A.A.**, Cassman, K., DeFries, R., Dietz, T., Dobermann, A., Dobson, A., Janetos, A., Levy, M., Marco, D., Nakicenovic, N., O'Neill, B., Norgaard, R., Petschel-Held, G., Ojima, D., Pingali, P., Watson, R., Zurek, M. 2006. Anthropogenic Drivers of Ecosystem Change: An Overview. *Ecology and Society* 11(2): 32. **INVITED.**
7. S Akbari, H., **Berhe A. A.**, Levinson, R., Graveline, S., Foley, K., Delgado, A. H., Paroli, R. M.. Aging and weathering of cool roofing membranes. 2006. *Proceedings of the First International Conference on Passive and Low Energy Cooling for the Built Environment*. May 17, 2005, Athens, Greece. Also published as Lawrence Berkeley National Lab. Report, LBNL-58055.
6. **Berhe, A.A.**, Harden, J. W., Harte, J., Torn, M.S. 2005. Soil Degradation and Global Change: The role of soil erosion and deposition in carbon sequestration. University of California International and Area Studies. Breslauer Symposium. <http://www.escholarship.org/uc/item/8xv4b77b>.
5. Levinson, R., Berdhal, P., **Berhe A.A.**, Akbari, H. 2005. Effect of Soiling and Cleaning on the Reflectance and Solar Heat Gain of a White Roofing Membrane. *Atmospheric Environment*. 39(40):7807-7824. DOI: 10.1016/j.atmosenv.2005.08.037
4. **Berhe, A.A.** 2005. Politicizing Indiscriminate Terror: Imagining an Inclusive Framework for the Anti-Landmines Movement. *Journal of Environment and Development* 14: 375-393. doi: 10.1177/1070496505280186
3. Lavelle, P., Dugdale, R., Scholes, R., **Berhe A.A.**, Carpenter, E., Codispoti, L., Izac, A.-M., Lemoalle, J., Luizao, F., Scholes, M., Tréguer, P., Ward, B.. 2005. Chapter 12. *Nutrient Cycling*. In R. Hassan, et al., eds. Ecosystems and Human Well-being: Current State and Trends, Volume 1. Findings of the Condition and Trends Working Group of the Millennium Ecosystem Assessment. Island Press.
2. Nelson, G.C., Bennett, E., **Berhe A.A.**, Cassman, K.G., DeFries, R., Dietz, T., Dobson, A., Dobermann, A., Janetos, A., Levy, M., Marco, D., Nakic 'enovic ´, N., O'Neill, B., Norgaard, R., Petschel-Held, G., Ojima, D., Pingali, P., Watson, R., Zurek, M. 2005. Chapter 7. *Drivers of Change in Ecosystem Condition and Services*. In S. R. Carpenter, et al., eds. Ecosystems and Human Well-being: Scenarios, Volume 2. Findings of the Scenarios Working Group of the Millennium Ecosystem Assessment. Island Press.
1. **Berhe, A.A.** 2004. Of Land and Identity: Territorialization of the Eritrean National Identity. *Eritrean Studies Review*, 4 (1): 55-82.

## Invited talks

50. What's soil erosion got to do with carbon sequestration? *University of Nebraska, Lincoln*, April 19, 2018 (Forthcoming)
49. Geochemical and mathematical constraints on the carbon sequestration potential of eroding watersheds. *American Chemical Society Spring meeting*. New Orleans, LA; Mar 18-22, 2018 (Forthcoming)
48. Post-fire transport and persistence of pyrogenic carbon in soil. A Bren Seminar, at the Bren of Environmental Science and Management; *University of California, Santa Barbara* . February 5, 2018 (Forthcoming)

47. Geomorphic controls on soil organic matter dynamics: role of soil erosion in soil carbon storage and stabilization *University of California, Davis*, Soils and Biogeochemistry Graduate Group Seminar Series. November 27, 2017
46. Post-fire soil carbon dynamics: transport of particulate and dissolved pyrogenic carbon in fire-affected soils. *Utah State University* Ecology Center's Ecology Seminar Series. October 12, 2017
45. What's soil erosion got to do with carbon sequestration? *Utah State University*, Ecology Center sponsored Public talk. October 11, 2017
44. Post-fire soil carbon dynamics: implications on movement of particulate and dissolved pyrogenic carbon. *California State University, Fresno*, Biology Department Seminar. October 6, 2017
43. DEI @ UCM: The STEM Perspective. A Panel and Discussion on The Critical Politics of Diversity in the Multiversity: Towards Africana Studies in the UC System. *University of California, Merced*. September 29, 2017
42. Drying-induced consolidation, organic matter decomposition, and restructuring of soil aggregates. *E. O. Lawrence Berkeley National Laboratory*, Earth and Environmental Sciences Climate Brownbag Seminar. February 13, 2017
41. Interactive effects of fire and soil erosion on soil organic matter dynamics. Co-sponsored by the *Yi-Fu Tuan Lecture*, Geography Department and Solving Earth System Problems: *UW, Madison Distinguished Speakers Lecture and Career Talks Series*. *University of Wisconsin, Madison*. February 10, 2017
40. Post-fire soil carbon dynamics: transport of particulate and dissolved pyrogenic carbon in fire-affected soils. Biogeochemistry and Environmental Sciences and Sustainability Seminar Series. *Cornell University*. January 27, 2017
39. Post-fire soil carbon dynamics: implications on movement of particulate and dissolved pyrogenic carbon. The Agricultural and Environmental Sciences Graduate Group Seminar. *University of California, Davis*. October 24, 2016.
38. Geomorphic and climatic controls on soil organic matter dynamics. The Department of Environmental Systems Science *Eidgenössische Technische Hochschule (ETH), Zürich*, Switzerland. July 7, 2016
37. Mechanisms governing response of soil organic matter to increase vs. decrease in precipitation. Institute of Earth Surface Dynamics Faculty of Geosciences and Environment at *The University of Lausanne*, Switzerland. June 23, 2016
36. Dynamics of soil organic matter in eroding landscapes. Inter-institute colloquium of Soil Ecology, Hydrology, and Geology; *University of Freiburg*, Germany. June 9, 2016
35. Role of erosional redistribution on persistence of bulk and pyrogenic carbon in the soil system. Biogeochemistry lunch seminar. Geologisches Institut. *Eidgenössische Technische Hochschule (ETH), Zürich*, Switzerland. May 17, 2016
34. Persistence of pyrogenic carbon in dynamic landscapes: interactive effects of fire and erosion. Department für Ökologie und Ökosystemmanagement, *Technische Universität München*, Germany. April 4, 2016
33. Interactive effects of fire and erosion on soil organic matter dynamics. Department of Environmental Systems Science Institute of Agricultural Sciences *Eidgenössische Technische Hochschule (ETH), Zürich*, Switzerland. February 25, 2016.



32. Lateral redistribution of pyrogenic carbon by soil erosion. Department of Geography, *University of Zurich*, Switzerland. February 10, 2016.
31. Interactive effects of Fire and Erosion on Dynamics of Soil Organic Matter in Fire-affected Upland Forest Ecosystems. Department of Soil, Water and Environmental Science Colloquium. *The University of Arizona*. November 16, 2015.
30. Landscape Biogeochemistry: how soil erosion controls storage, stabilization and destabilization of soil organic matter in dynamic landscapes. US-China Critical Zone Observatory (CZO) and Eco-partnership Conference *Purdue University*, West Lafayette, In. October 22 - 24, 2015.
29. Climate change: *what's soil got to do with it?*. Eritrean community center in Santa Clara, CA. September 11, 2015.
28. Dynamics of soil organic matter in eroding landscapes. Geology and Geophysics Seminar Series. College of Earth, Ocean, and Atmospheric Sciences *Oregon State University*, Corvallis, OR. April 9, 2015
27. Drought induced rapid carbon loss from high elevation meadows in the Sierra Nevada Mountains. Department of Biology Colloquium; *California State University, Fresno*, Fresno, CA. March, 20 2015
26. Drought leads to rapid carbon loss from high elevation meadows. UC Merced Sierra Nevada Research Institute Symposium. March 2014.
25. Stabilization mechanisms of soil organic matter eroded from low order catchments in the Southern Sierra Nevada Mountains. *American Geophysical Union Annual Fall meeting*. December 2013.
24. Persistence of soil organic matter in dynamic landscapes. Department of Earth Sciences. *University of Pennsylvania*. November 22, 2013.
23. Storage and Stabilization of soil carbon in eroding landscapes. *Memorial University*, St. John's Newfoundland, Canada. October 11, 2013
22. Stability and stabilization mechanisms of soil organic matter in eroding landscapes. Sustainable Soils and Grassland Systems Department; *Rothamsted Research*, North Wyke; Okehampton, United Kingdom. July 8, 2013
21. Experimental investigation of geochemical cycles: persistence of soil organic carbon in dynamic landscapes. *Annual Meeting of the Swiss Geomorphological Society*. Uni of Basel, Basel, Switzerland. June 26, 2013
20. Stabilization mechanisms of soil organic matter in eroding watersheds: Implications for erosion-induced terrestrial carbon sequestration. Department of Natural Resources and Environmental Science. *University of Nevada, Reno*. April 24, 2013.
19. Effect of Rainfall Amount and Timing on Soil Organic Matter Dynamics. The Center for Accelerator Mass Spectrometry and Chemical Sciences Division. *Lawrence Livermore National Laboratory*. March 22, 2013
18. Erosion of bulk and pyrogenic C from upland forested Sierra Nevada ecosystems. *American Geophysical Union Annual Fall meeting*. December 2012.
17. Lateral Transprot of Black vs. Bulk SOM with soil erosion. *European Geosciences Union Annual Meeting*. Vienna, Austria. April 2012 .

16. Mechanisms of Soil Organic Matter Stabilization Along An Eroding Toposequence. *ASA-CSSA-SSSA Annual Meeting*. October 2011.
15. Stabilization Mechanisms of Soil Organic Matter in Eroding Watersheds: Implications for Erosion-induced Terrestrial Carbon Sequestration. **KEYNOTE LECTURE**, *European Geosciences Union Annual Meeting*. Vienna, Austria. April 6, 2011.
14. Contingency in the Direction and Mechanics of Soil Organic Matter Responses to Increased Rainfall. Geography Department Seminar, *University of Basel; Basel Switzerland*. March 30, 2011.
13. Response of Soil organic Matter to Projected Changes in the Amount and Timing of Rainfall. Department of Plant Sciences. *University of California, Davis*. January 31, 2011.
12. My academic journey as a woman scientist. UC Merced Women in Science and Engineering (WISE) speaker series. September 2010.
11. Using <sup>13</sup>C-NMR and Radiocarbon to Determine Mechanisms of Soil Organic Matter Stabilization in Dynamic Landscapes. *Ecological Society of America Annual Meeting*, Albuquerque, NM. August 4, 2009.
10. Mechanisms of Soil Organic Matter Stabilization in Eroding Landscapes. *National Cooperative Soil Survey National Conference*. May 13, 2009 Las Cruces, NM.
9. Response of the Soil System to Climate Change: Effect of Anticipated Changes in Amount and Timing of Rainfall In California to Soil Organic Matter Dynamics. *California State University, Stanislaus*. April 10, 2009
8. Effect of anticipated changes in amount and timing of rainfall on soil organic matter dynamics. *National Center for Atmospheric Dynamics*. Boulder, CO. March 23, 2009
7. The Upside of Erosion: Global Change Implications of Soil Degradation. *School of Natural Sciences, University of California, Merced*. April 3, 2008.
6. Significance of Soil Erosion for Terrestrial Carbon Sequestration. *Energy and Resources Group, University of California, Berkeley*. February 20, 2008.
5. Contribution of Soil Erosion to Atmospheric Carbon dioxide Balance. *School of Natural Sciences, University of California, Merced*. October 31, 2007.
4. Global Climate Change. *Science and Math Seminar day, The French American International High School. San Francisco, California*. March 8, 2007.
3. Coupling Geomorphic and Ecosystem Processes: How Soil Erosion Regulates Carbon Sequestration. *Geography Department. University of California, Santa Barbara*. March 1, 2007.
2. Decomposition of Soil Organic Matter Along a Toposequence. *Department of Earth and Environmental Sciences. Lehigh University*. February 16, 2007.
1. Geomorphic Controls on Soil Organic Carbon Stability and Mechanisms of Stabilization. *Department of Earth Sciences, Rice University*. February 1, 2007.

## Research Grants

### *External Funding*

- 2017 - Present** . National Science Foundation. ADVANCE Partnership: *From the Classroom to the Field: Improving the Workplace in the Geosciences*. (**\$ 1,100,000**)  
PI. E Marin-Spiotta; co-PIs. AA Berhe, BM Williams, M Hastings, R Barnes, B Schneider, A Mattheis.
- 2017 - Present** Bavaria California Technology Center (BaCaTeC), Internationalization of the High-Tech-Initiative. *Role of nano-particles for the fixation and release of macronutrients in soils*. (**€8900**)  
PIs. S Doetterl and AA Berhe
- 2016 - Present** University of California President's Research Catalyst Awards. *UC Consortium for Drought and Carbon Management*. (**\$1,694,000**)  
P.I. S. Ying, co-PIs E Brodie, K Scow, AA Berhe, PS Nico, TA Ghezzehei, MS Torn, WJ Riley, S Parikh
- 2016 - Present** National Science Foundation. Collaborative Research: Vulnerability of carbon in buried soils to climate change and landscape disturbance (**\$776,819**)  
P.I. E. Marin-Spiotta, co-PIs AA Berhe, J Mason, M-A de Graaff
- 2016 - Present** Department of Energy. Experimental and modeling investigation of the impact of atmospherically deposited phosphorus on terrestrial soil nutrient and carbon cycling, and ecosystem productivity (**\$200,000**)  
P.I. P. O'Day, co-PIs S Hart, M Fogel, AA Berhe
- 2015 - Present** National Park Service-California Cooperative Ecosystem Studies Unit. Lateral transport of soil and associated soil organic matter due to the Rim Fire at Yosemite National Park (Phase III).(**\$3516**)  
P.I. AA Berhe, co-PI T Kuhn
- 2015 - Present** National Park Service-California Cooperative Ecosystem Studies Unit. Lateral transport of soil and associated soil organic matter due to the Rim Fire at Yosemite National Park (Phase II).(**\$4022**)  
P.I. AA Berhe, co-PI T Kuhn
- 2014 - Present** National Science Foundation. CAREER: Persistence of soil organic matter in dynamic landscapes: interactive effects of fire and erosion. (**\$478,789**)  
P.I. AA Berhe
- 2014 - Present** National Park Service-California Cooperative Ecosystem Studies Unit. Lateral transport of soil and associated soil organic matter due to the Rim Fire at Yosemite National Park (Phase I).(**\$5008**)  
P.I. AA Berhe, co-PI T Kuhn
- 2013-Present** National Science Foundation. Alterations of soil physical and geochemical properties induced by low-intensity fires. (**\$449,090**)  
P.I. TA Ghezzehei, co-PIs AA Berhe, M. Berli
- 2013 - Present** US Department of Agriculture. NIFA, AFRI. Phosphorus cycling in soils: Assessing the impact of agricultural practices on phosphorus availability and loss using oxygen isotopes of phosphate. (**\$488,344**)  
P.I. A Paytan, co-PIs AA Berhe, K Scow

- 2013 - Present** National Science Foundation. CZO: Critical Zone Observatory--Snowline Processes in the Southern Sierra Nevada. (**\$4,899,998**)  
P.I. R. Bales, co-PIs M Conklin, SC Hart, M Goulden, C Tague; AA Berhe collaborator, senior personnel
- 2013 - Present** Almond Board of California, Opportunities and Constraints for Large Scale Use of Dairy Manures in Almond Orchards (**\$60,370**)  
P.I. P Brown, co-PIs AA Berhe, D. Smart, T.A. Ghezzehei, S.C. Hart, D.L. Schellenberg
- 2012 - 2015** National Science Foundation. Sources of soil organic matter transported by soil erosion in fire-prone upland ecosystems of the Sierra Nevada. (**\$75,000**)  
P.I. AA Berhe, co-PIs Stephen C. Hart, Dale Johnson (with Carolyn Hunsaker, Caroline Masiello)
- 2012-2013** National Science Foundation. CZO: Critical Zone Observatory--Snowline Processes in the Southern Sierra Nevada. (**\$1,000,000**)  
P.I. R. Bales, co-PIs M Conklin, J Hopmans, M Goulden, C Tague; AA Berhe collaborator, senior personnel
- 2011 - 2012** Hellman Research Grant. Establishing of baseline pedological conditions for long-term study on effect of forest management practices on soil organic matter dynamics. (**\$20,000**)  
P.I. AA Berhe
- 2009 - 2011** Kearney Foundation of Soil Science, University of California. Spatial and temporal dynamics of deep soil gaseous and soluble element fluxes from new vs. old organic matter. (**\$ 89,950**).  
P.I. Johan Six, co-PI A.A. Berhe
- 2007 - 2010** US Department of Agriculture, CSREES, Soil Processes Program. Reactivity, Aggregation and Transport of Nanocrystalline Sesquioxides in the Soil System. (**\$ 123,000**)  
P.I. AA Berhe
- 2003 - 2006** US Department of Agriculture, NRI Soils and Soil Biology Program . Stability and Loss Potential of Buried Soil Organic Carbon. (**\$ 310,000**).  
P.I. John Harte; co-PIs Margaret S. Torn, Jennifer W. Harden, Lead Author A.A. Berhe
- 2003 - 2004** National Park Service, Coastal Research Grant. Stability and Loss of Buried Soil Organic Carbon in a Depositional Toposequence on a Coastal Watershed in Tennessee Valley, California. (**\$ 1,000**)  
P.I. A.A. Berhe
- 1999 - 2000** International Campaign to Ban Landmines (ICBL), Landmine Monitor Research Grant, (**\$ 4,200**)  
P.I. A.A. Berhe

*Internal UC Merced Funding*

- 2017 - Present** University of California Merced Faculty Research Award. Role of Fe Oxides in Soil Carbon Sequestration. (**\$14,997**)  
PI. AA Berhe, co-PIs. Samuel J. Traina, and Peggy O'Day
- 2016 - Present** University of California Merced Faculty Research Award. Climatic controls on the biogeochemical cycling of phosphorous in the critical zone (**\$10,000**)  
PI. SC Hart, co-PI. AA Berhe

- 2015 - Present** UC Merced, Environmental Analytical Laboratory. Role of fire and erosion on soil organic matter dynamics, **(\$2000)**  
P.I. AA Berhe
- 2013-2015** UC Merced Graduate Research Council. Fate of Pyrogenic Carbon in Eroding Upland Forest Ecosystems. **(\$4,710)**  
P.I. AA Berhe
- 2011-2015** UC Merced Sierra Nevada Research Institute (SNRI). Potential of biochar for recapturing nutrients from dairy waste and improving carbon sequestration potential of agricultural soils, **(\$2,000)**  
P.I. AA Berhe
- 2012-2013** UC Merced Graduate Research Council. Impact of Erosion on Carbon Cycling in the Western Sierra Nevada Mountains, California. , **(\$10,000)**  
PI AA Berhe, co-PI Stephen C. Hart
- 2011 - 2012** UC Merced Graduate Research Council. The effect of fire on soil aggregation and physical stability of soil organic matter. , **(\$10,000)**  
PI AA Berhe, co-PI Teamrat A Ghezzehei
- 2010** University of California, Merced Academic Senate's Chancellor's Award Towards a better understanding of the effects of summer convective precipitation pulses on soil moisture and carbon dynamics in a high elevation ecosystem, **(\$5,000)**  
PI. A.A. Berhe
- 2010** Graduate Research Council, UC Merced . Towards a better understanding of the effects of summer convective precipitation pulses on soil moisture and carbon dynamics in a high elevation ecosystem, **(\$4,956)**  
PI. A.A. Berhe

*Instrument Time at National User Facility (through competitive grants)*

- 2011-2012** User Grant. Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory. Interactive Effects of Fire and erosion on soil organic matter dynamics. (Use of 300Hz, NMR spectrometer for four weeks). P.I. AA Berhe, Deoyani Sarkhot co-PI
- 2007-2008** User Grant. EMSL, Pacific Northwest National Lab. Effect of Increasing rainfall and temperature on molecular architecture of soil organic matter. (Use of 300Hz NMR spectrometer for 5 weeks).  
P.I. A.A. Berhe, Co-PIs Mark Waldrop and Jillian F. Banfield
- 2004** User Grant. Environmental Molecular Sciences Lab, PNNL. Stabilization of soil organic matter: land use, erosion and burial (Use of 300Hz and 500Hz NMR spec. at EMSL for five weeks).  
P.I. Margaret S. Torn, Co-PIs A.A. Berhe and Erika Marín-Spiotta

## Fellowships and Scholarships

- 2006-2008** University of California President's Postdoctoral Fellowship (\$ 80,000)
- 2003-2006** NASA Earth System Science Graduate Fellowship (\$ 72,000)
- 2001,2,3,5,6** Regents Fellowship, University of California - Travel Grants (\$ 3,450)
- 2005** NSF Travel grant, Frontiers in Exploration of the Critical Zone meeting (\$ 500)

**2003-2004** Carolyn Meek Memorial Fellowship (Soil Science), UC Berkeley (\$ 14,000)

**2000-2003, 2005** Chancellor's Predoctoral Fellowship, UC Berkeley (\$ 84,000)

**1999-2000** College of Agriculture and Natural Resources Scholarship, Michigan State University (\$ 1,000)

**1999-2001** Graduate Opportunity Fellowship, Michigan State University (\$ 3,000)

## Teaching Experience

Fundamentals of Soil Science (ESS 170, ES 292), UC Merced	2011, 2013, 2015, 2017
Soil Science Laboratory (ESS 170L), UC Merced	2011, 2013, 2015, 2017
Earth Resources and Society (ESS 10), UC Merced	2012, 2013, 2014, 2015
Critical Zone Science (ESS 192), UC Merced	2016
Dynamics of Organic Matter in Soils and Sediments (ES 222), UC Merced	2011, 2013, 2015, 2017
Advanced Topics in Terrestrial Biogeochemistry (ES 292), UC Merced	2011, 2012
Soil Chemistry (ES 299) UC Merced	2010
Terrestrial Biogeochemistry (ES 299) UC Merced	2009
Soil Foundations of Terrestrial Ecosystems (ESS 70), UC, Merced	2009

## Guest lectures

The World at Home (Soil Science), CORE 1 UC Merced (Fall and Spring semesters)	2014 - Present
Environment in Crisis (Soil Science), ENVE 10 UC Merced	2013
History of Science and Technology (Clay Minerals), HIST 100 UC Merced	2012
Sustainability Science (War and Sustainability), ESS 2, UC Merced	2010, 2011, 2012
Physical Geography (Dynamics of soil organic matter), Department of Geography, University of Basel, Switzerland	2011
Terrestrial Ecosystem Ecology (Soil Science), ESS 124/ES 224 UC Merced	2010

## Graduate Student Instructor or Teaching Assistant

Biosphere, – with Profs. Jill Banfield and Andrew Gutierrez. UC Berkeley	Fall 2004
Quantitative Aspects of Global Env't – with Prof. John Harte, Dr. Jim Williams. UC Berkeley	Spring 2003
Environmental Biology – with Prof. Ignacio Chapella. UC Berkeley.	Fall 2003
Oceanography – with Profs. Lynn Ingrham and Thomas Powell. UC Berkeley.	Fall 2002

## Other teaching

Tirgigna Instructor (Eritrean language), Michigan State University	1998-1999
English, High School Teacher, Barka Comprehensive Secondary School, Asmara, Eritrea	1993-1994

## Graduate student or Postdoc Advising, committees

### Postdoctoral Scholars

**Fernanda Santos** (2015 - Present), *Dynamics of Pyrogenic carbon in the soil system AND Using NMR to infer effect of fires on composition of dissolved pyrogenic carbon*. Recipient of the UC Merced Chancellor's Postdoctoral Fellowship

**Nathaniel Bogie** (2017 - Present), *Effect of drought and variability of soil water input on soil carbon, aggregation, and water holding capacity*

**Michael Kaiser** (2009 – 2012), *Effects of common soil treatments (Ultrasonication, Air-drying and Rewetting, Pyrophosphate extractions on soil mineral and organic constituents AND Implications of combined application of biochar and CaCO<sub>3</sub> for carbon and nitrogen storage in silt-sized aggregates;* Now Senior lecturer and Research Associate at University of Kassel Germany. Starting as Assistant Professor of Soil Chemistry; University of Nebraska, Lincoln January 2018.

**Deoyani V. Sarkhot** (2009 – 2010), *Using biochar to recapture essential nutrients (primarily nitrogen and phosphorous) from dairy wastewater AND effectiveness of biochar in reducing gaseous and dissolved losses of carbon and nitrogen from soil and implications for carbon and nitrogen fluxes from soil;* Now Project Coordinator at EcoPro, India

## Graduate Students

### *Current Students*

**Lixia Jin** (Ph.D. student, Environmental Systems Graduate Group, 2013 – Present) *Role of Iron and Aluminum Oxy(hydr)oxides on soil aggregation and its implications for persistence of soil organic matter*

**Kimber Moreland** (Ph.D. student, Environmental Systems Graduate Group, 2014 - Present) *Climatic controls on deep soil organic matter storage and stabilization along the Western Sierra Nevada Climosequence*

**Morgan Barnes** (Ph.D. student, Environmental Systems Graduate Group, 2014 - Present) *Biogeochemical cycling of essential elements in low-order catchments: effect of thinning and prescribed burning.* Co-advised by Stephen C. Hart

**Manisha Dolui** (Ph.D. student, Environmental Systems Graduate Group, 2017 - Present) *Vulnerability of carbon buried in paleosols to changing environmental conditions*

### *Past Student*

**Rebecca Lever** (Ph.D. 2017 Environmental Systems Graduate Group, *Lateral distribution of pyrogenic matter by soil erosion: implications for determining mean residence time of pyrogenic carbon in soil* 2012-2017). Now Postdoctoral Scholar at Indiana University.

**Chelsea Arnold** (Ph. D. 2014 Environmental Systems, *Coupled biogeochemistry and hydrology of high elevation meadows in the Sierra Nevada Mountains and implications of large inter-annual fluctuations in weather;* co-advised with Teamrat A. Ghezzehei; Now Director of the CalTeach Program, Science and Math Initiative UC Merced)

**Emma McCorkle** (M.Sc. 2014. Environmental Systems Graduate Group, *Determining Source of Organic Matter Eroded from headwater catchments in the Southern Sierra Nevada, California;* 2012-Present, co-advised with Stephen C. Hart); Now Research Associate with the Reynolds Creek Critical Zone Observatory, Idaho State University

**Samuel Araya** (M.Sc. 2014 Environmental Systems Graduate Group, *Effect of Combustion Temperature on Soil and Soil Organic Matter Properties: A Study of Soils from the Western Elevation Transect in Central Sierra Nevada, California,* Now Ph.D student UC Merced)

**Erin Stacy** (M.Sc 2012. Environmental Systems, *Composition and stabilization mechanisms of organic matter in soils and sediments eroded from granitic, low-order catchments in the Sierra Nevada, California;* co-advised with Stephen C. Hart; Now Field Research Coordinator for the Southern Sierra Critical Zone Observatory, UC Merced)

## Visiting Scholars

**Benjamin Sulman** (2015 - Present, *Computer modeling soil carbon and nitrogen cycling within the Geophysical Fluid Dynamics Laboratory global land model. Specifically, building a new global model that includes the soil biogeochemical impacts of microbial activity and root-soil interactions*, Visiting Postdoctoral Scholar from Princeton University, Princeton, NJ; Major Supervisor Elena Shevliakova)

**Kenton Stutz** (2016, *Using <sup>1</sup>H-NMR to determine composition of dissolved organic matter in soil*, Visiting Graduate Student from the University of Freiburg, Germany; Major Supervisor, Friederike Lang)

**Sebastian Dotterel** (2015, *Pathways of carbon from plants and microorganisms into specific soil fractions*; Visiting Postdoctoral Scholar from University of Ghent, Belgium, Major Supervisor Pascal Boeckx)

**Yaxian Hu** (2014 - 2015, *Effect of aggregation on amount and composition of eroded soil organic matter*, Visiting Postdoctoral Scholar from the University of Basel, Switzerland, Major Supervisor, Nikolaus Khun)

**Elisabet Nadeu** (Ph.D. 2013, *Soil erosion and organic carbon mobilization at the catchment scale: factors, processes and impact on the carbon balance*; visiting graduate student from University of Murcia, Spain; Major Supervisor Carolina Boix-Fayos)

## Dissertation, Thesis or Qualifying exam committee

Sara Martin (UCM, Ph.D. Environmental Systems, 2013 – Present)

Nicholas Dove (UCM, Ph.D. Environmental Systems, 2015 – Present)

Susan Saltou (UCM, M.Sc. Environmental Systems, 2017 – Present)

Mathew Jian (UCM, Ph.D. Environmental Systems, 2015 – 2017)

Joy Baccei (UCM, M.Sc., Environmental Systems, 2012 – 2014)

Curtis Hayden (UCM, M.Sc. Environmental Systems, 2013 – 2014)

Ammar Albalasmeh (UCM, Ph D.Environmental Systems, 2011 – 2013)

Donell Williams (UCM, Ph D. World Cultures, 2009 – 2010)

## External Examiner

Doreen Franke (Ph.D. program in Earth Sciences, Memorial University of Newfoundland) 2013

Yaxian Hu (Ph.D. program in Geography, University of Basel, Switzerland) 2011

Ulrike Hoffmann (Ph.d. program in Geography, University of Basel, Switzerland) 2011

## Undergraduate Students (UC Merced only)

Yulissa Perez Rojas (2017 - Present, ESS Undergraduate student, UC LEADS scholar)

Matthew McClintock (2010-2012, Now Graduate Student at Oregon State University)

Steven Ho (Yosemite REU fellow 2010, Now working in Gallo Winery)

Justin Nunes (COINS fellow 2011)

Alexander Newman (COINS fellow, Southern Sierra CZO REU fellow, UCOP Carbon Neutrality Initiative Fellow 2012 – 2015)

Jennifer Guererro (USDA Scholar and COINS fellow, 2012 – 2013)

Abigail Dziegiel (Yosemite REU fellow 2013)



Laura Jelpa (USDA Scholar, 2013 – 2014)

Louis Meilke (Yosemite REU Fellow 2014)

Jim Mendez Lopez (UC LEADS fellow 2014)

## Professional Services

### Associate Editor

Biogeochemistry 2014 - Present

SOIL 2013 - Present

### Peer reviewer

*Reviewer for Journal Papers and Book chapters (~12/yr):*

*Journal articles:* Agriculture, Ecosystems, and Environment; Biogeochemistry; Biogeosciences; California Agriculture; Catena; Environmental Science and Technology; Earth Science Reviews; Earth Surface Processes and Landforms; Ecosystems, European Journal of Soil Science; Geoderma; Geochemica Cosmochemica Acta; Geology; Geophysical Research Letters; Global Change Biology; Hydrology and Earth System Sciences; Journal of Agriculture and Human Values; Journal of Environmental Quality; Journal of Geophysical Research – Biogeosciences; Journal of Soils and Sediments; Land Degradation and Development, Nature – Climate Change, Nature – Geosciences; Plant and Soil; PLOS ONE, Proceedings of the National Academy of Sciences; Quaternary Research; Soil Biology and Biochemistry; Soil Science Society of America Journal.

*Book publishers:* ACSESS Books

*Institutions:* US Geological Survey; US Department of Agriculture Forest Service

*Book Proposal Reviewer:*

Yale University Press

Academic Press

*Proposals (Review Panels):*

National Science Foundation – Ecosystem science cluster, DEB

National Science Foundation – Low temperature geochemistry & geobiology program, EAR

National Science Foundation Plant Pathology Program and the Bill & Melinda Gates Foundation - Basic Research to Enable Agricultural Development (BREAD) Program

US Department of Agriculture – Agriculture and Food Research Initiative (AFRI, NIFA)

US Department of Agriculture, ARS Intermural Panel – Office of Scientific Quality

National Academy of Science and US AID, Partnerships for Enhanced Engagement in Research (PEER) Science Program

Deutsche Forschungsgemeinschaft (DFG)

*Proposals (ad-hoc reviewer):*

National Science Foundation, Geobiology and Low Temperature Geochemistry

National Science Foundation – Ecosystem science cluster, DEB

National Science Foundation, Plant Pathology Program and the Bill & Melinda Gates Foundation - Basic Research to Enable Agricultural Development (BREAD) Program  
 Department of Energy, Early Career Research Program  
 Department of Energy, Graduate Fellowship Program  
 Natural Reserve System Mildred E. Mathias Graduate Student Research Program  
 Pacific Northwest National Laboratory  
 Stanford Linear Accelerator Center  
 University of California President's Postdoctoral Fellowship Program  
 American Chemical Society, Petroleum Research Fund  
 Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO).  
 ETH (Swiss Federal Institute of Technology) Zurich Research Commission  
 Clemson University Experiment Station  
 The Austrian Science Fund

## Professional (Society) Service

### The National Academies of Sciences, Engineering, and Medicine

Chair, The U.S. National Committee for Soil Sciences (USNC/SS)	2016 - Present
Member, The U.S. National Committee for Soil Sciences (USNC/SS)	2011 - 2016
Board Member, Board on International Scientific Organizations	2015 - Present
Planning committee member, U.S. National Academies workshop on <i>Soils: The foundation of Life</i> . Washington, DC; held December 5, 2016	2015 - 2016
Member, Membership Growth and Retention Task Force <i>Soil Science Society of America</i>	2017-Present

### (Co-)Organization of scientific meetings

Faculty coordinator of the Enviro-Lunch Seminar Series, UC Merced (previously known as the Castle Environmental Systems Seminar series)	2010 - Present
Scientific Committee Member <i>6th International Symposium on Soil Organic Matter</i> , jointly organized with the British Society of Soil Science. Rothamsted Research, Harpenden, UK from 3rd – 8th September 2017.	2016
Session co-organizer for Organic Matter Dynamics as Controlled by Erosion and Deposition, Goldschmidt Conference 2016. Yokohama, Japan	2015-2016
Session co-organizer for Organic Matter Dynamics as Controlled by Erosion and Deposition, during the Conference on Critical Zone Science, Sustainability, and Services in a Changing World. Oct 22-24, 2015. Purdue University	2015
Organizing committee member, Chapman Conference on <i>Soil-mediated drivers of coupled biogeochemical and hydrological processes across scales</i> , National Academy of Science and American Geophysical Union	2012 - 2013
Co-convener and session organizer: Soil erosion, transport and deposition and their control over biogeochemical cycling of essential elements. American Geophysical Unions Annual Fall Meeting December 2013, San Francisco CA	2013

Convener and Session Organizer, Soils: Mechanisms of Carbon Stabilization and Response to Climate Change. *American Geophysical Union Fall Meeting*, September 10-14, 2007. San Francisco, CA 2007  
 Session chair, Carbon Cycling and Soil Processes. *Ecological Society of America Annual Meeting*, August, 2007. San Jose, CA 2007

Activities aimed at supporting and/or evaluating student participation in Professional meetings

Co-coordinator, Outstanding Student Paper Award, Biogeosciences section of the American Geophysical Union 2012  
 Reviewer, Student Travel Grant, American Geophysical Union 2012  
 Judge, Student best poster presentation competition, AGU annual meeting 2009 - 2012  
 Judge for student presentation, Society for Ecological Restoration Neering Award, ESA 2007

### University Service

Academic Senate's Committee on Faculty Welfare, Diversity, and Academic Freedom (FWDAF), UC Merced 2012 - 2014

Sierra Nevada Research Institute (SNRI), UC Merced

Chair, Advisory Committee 2016 - Present  
 Member, Advisory Committee 2015 - 2016  
 Head, SNRI Environmental Analytical Lab users group 2010 - 2013

Faculty Advisory Committee Member, Environmental Analytical Laboratory, UC Merced 2017 - Present

Search committees and/or Appointment cases, UC Merced and UC Office of the President

Chair, Isotope (Bio)Geochemistry and Ecology Faculty position 2016 - Present  
 Chair, Stable Isotope Staff Research Associate position 2016 - Present  
 Chair, Adjunct Associate Professor 2016 - Present  
 Member, NMR Facility Director; School of Natural Sciences; UC, Merced 2015  
 Member, University of California Vice Chancellor for Agriculture and Natural Resources 2015  
 Member, Ecology faculty position – UC Merced School of Natural Sciences 2011 - 2012

Earth System Science Undergraduate Major, UC Merced

ESS program Faculty advisor 2017 - Present  
 ESS Program Review working group 2009 - 2011  
 Lead coordinator, Development of the Environmental Science and Sustainability Minor 2010

Environmental Systems Graduate Group, UC Merced

Member, Executive committee 2016 - Present  
 Chair, Admission and Recruitment committee 2013 -2015  
 co-Chair, Admission and Recruitment committee 2012-2013  
 Member, Admission and Recruitment committee 2010-2012

School of Natural Science

Executive Committee Chair, UC Merced	2014 - 2015
Executive Committee Member, UC Merced	2014 - 2015
SE1 Space Committee, UC Merced	2012
Liaison, UC Merced Castle campus Transportation and Parking Improvements	2010

#### UC Merced Graduate Division

Panelist, New graduate student orientation week (GROW) - International student Day	2016
Panelist, UC Merced Graduate Division on Developing Successful Strategies for Securing Graduate Research Fellowships	2014
Panelist, UC Merced Graduate Division on Writing Effective Reference Letters for Students Applying for Graduate Research Fellowships	2014

#### Seminar or Workshop organization - UC Merced and UC Berkeley

Faculty coordinator, Enviro-Lunch Seminar series	2014 - Present
Co-organizer Sustainability Panel, showcasing recent University of California, President's Postdoctoral Fellows (aimed at encouraging increased recruitment of President's Postdoctoral fellows for faculty positions in the UC system)	2015-2016
Coordinator, Castle Environmental Systems Seminar Series	2010 - 2015
Coordinator, Environmental Systems Seminar Series	2009
Coordinator, Berkeley NanoGeoChemistry meeting series, UC Berkeley	2006 - 2007

Student representative, Ecosystem Sciences Division, UC Berkeley	2003-2004
Graduate Assembly delegate for student in the Department of Environmental Science, Policy and Management, UC, Berkeley	2001-2002

### **Outreach, Education, Mentoring, and Diversity related service**

#### ***Earth Science Women's Network (ESWN)***

Leadership Board Member	2016 - Present
New member welcoming committee	2008 - 2013

#### Curriculum development and consulting *Lawrence Hall of Science*, Berkeley, CA.

Science Advisor, Matter and Energy in Ecosystems curriculum development, Learning Design Group	2014 - Present
Model Scientist for The Roots of Knowledge Project " <i>Walk in the Woods</i> " [K-12 teaching guide, see <a href="http://store.lawrencehallofscience.org/Item/walk-in-the-woods-seeds-of-science">http://store.lawrencehallofscience.org/Item/walk-in-the-woods-seeds-of-science</a> ]	2003 - 2006

#### Leadership and Advisory Positions related to Diversity and Outreach

Member, Faculty advisory committee of the <i>UC President's Postdoctoral Fellowship Program</i> ; University of California Office of the President	2017-Present
Advisory Board Member, <i>500 Women Scientists</i>	2017 - Present
Partner, The Sparks for Change Institute: Leading diversity in the geosciences	2017 - Present

- Advisory Board Member, *Promoting Geoscience Research, Education and Success, PROGRESS* - part of the National Science Foundation supported *Improving Undergraduate STEM Education, IUSE, project* 2016 - Present
- Advisory Board Member, *Understanding and Addressing STEM Inequalities* working group. University of California, Merced 2016-Present
- Co-Founder and Steering Committee member, Women in Science, Technology, Engineering and Math (Women in STEM) Group, University of California, Merced 2014 - Present
- Research member, California Governor's Office of Planning and Research, Biochar Research Advisory Group 2017 - Present
- Member, African and Diaspora Studies Working Group, UC Merced 2013 - 2015
- Guest teacher or workshops with local k-12 students and schools
- Guest Speaker: *On being a scientist*, Merced STEAM Center 2017
- Climate change: what's soil got to do with it?* Burbank Elementary School, Merced, CA. 2017
- Speaker, *Women in Earth Science Day - Introduction to soil science and STEM career*, Warm Springs Elementary School. Fremont, California. 2017
- Speaker, *Dinner with a Scientist*, a joint Merced County of Office of Education and University of California, Merced event. 2015
- Lab visit, demonstration and *introduction to soil science and biogeochemistry* with students from Mariposa High school (Mariposa, CA) 2015
- Soil Science*, Luther Burbank Elementary School (4th Grade GATE class), Merced, CA. 2015
- Physical Sciences, States of Matter*. 3rd grade Gifted and Talented Education class, Luther Burbank Elementary School, Merced, CA. 2015
- Decomposition and Soil Formation* (using the *Walk in the Woods* book), Google hangout with two second grade classes from Nueva School, Hillsborough, CA 2014
- Soil Science*. 2nd grade Gifted and Talented Education class, Margaret Sheehy Elementary School, Merced, CA. 2014
- Workshops and seminars aimed at career development and success of Early Career Scholars; and/or improve success, recruitment, and retention of Underrepresented Minority Scholars:
- Invited Faculty discussant: *Fiat Lux Faculty Receptions* at UC Merced. 2012 - Present
- Panelist, Advisor/advisee relationships and communications. UC Merced Graduate Students Professional Development Course. 2017
- Panelist, Forum on Academic Job Search, *President's Postdoctoral Fellowship Program Annual Meeting*. Oakland, CA 2017
- Panelist, Forum on Curriculum vitae, *President's Postdoctoral Fellowship Annual Meeting*. Oakland, CA 2017
- Panelist, *Northern California Diversity Forum*: Life Sciences, and Physical Sciences and Math at UC Merced 2017
- Panelist, *W-STEM Q&A*: advancement and empowerment of women in STEM at UC Merced 2017
- Career discussion - effective strategies for success in grad-school and pursuing an academic career path. Sponsored by the Solving Earth System Problems: *UW, Madison Distinguished Speakers Lecture and Career Talks Series*. University of Wisconsin, Madison. February 10, 2017 2017

- Speaker, How to Fund your Ph.D. *GEMS GRAD Lab*, University of California, Irvine. 2016
- Panelist, *1st workshop for the Summer Undergraduate Research programs at UC Merced* (AiMM REU, ARCHIMEDES REU, MARC, UC LEADS, and CAMP): “Getting the Most out of your Research Experience” 2015
- Panelist, Forum on Dissertation Funding and Predoctoral Fellowships, University of California, Merced Graduate Division Professional Development Forum 2015
- Panelist, Balancing Academic Life and Family, *President’s Postdoctoral Fellowship Program 30th Anniversary Celebration and Annual Meeting*. Oakland, CA 2014
- Panelist, Strategies for survival: race, gender and sexuality in Academia. *President’s Postdoctoral Fellowship Annual Meeting*. UC Office of the President, Oakland, CA 2013
- Speaker, *UC Merced Faculty diversity workshop - Overcoming Diversity Challenges in Graduate Education* 2013
- Speaker, *Women in Science, Technology, Engineering, and Math (STEM) workshop*, My academic journey. UCM 2013
- Speaker, *UC Merced International Women’s Day celebration*. Lessons from my academic journey. 2011
- Speaker, Women in Science and Engineering speakers series, UC Merced 2010
- Panelist, The Academic Job Search, *President’s Postdoctoral Fellowship Annual Meeting*. Oakland, CA 2010
- Exhibitor, *UC Merced Graduate Recruitment* at UC Davis Graduate fair 2008
- Panelist and Session chair, From Student to Scientist; Finding a Postdoc & Life as a Postdoctoral Scientist . 2<sup>nd</sup> and 3<sup>rd</sup> *Annual Retreat of Berkeley Edge* (a recruitment, retention and advancement program for traditionally underrepresented minority graduate students in science, mathematics and engineering, UC Berkeley) 2007, 2008

#### Workshops for Faculty development

- Panelist, Early Career Award Recipient Panel, UC Merced Research and Development Services Grant Writing Institute 2014, 2015, 2017
- Panelist, Surviving and Thriving as Faculty of Color and International Faculty, University of California, Merced Graduate Division Professional Development Forum 2015
- Panelist, Dual Careers in Academia – The Good, the Bad and the Ugly. Goldschmidt Conference, Sacramento, CA 2014

#### Student (undergraduate and graduate) mentorship and/or student activity support in meetings, or short training programs

- Mentor, Minorities Striving and Pursuing Higher Degrees of Success (MSPHD’s) in Earth System Science Initiative 2007 - Present
- Judge, Undergraduate Student Research Presentations, University of California’s Leadership Excellence through Advanced Degrees (UC LEADS) Annual symposium, University of California, Merced, CA March 21, 2015 2015
- Mentor, two graduate student researchers during the Goldschmidt Conference, Sacramento, CA 2014
- Mentor, undergraduate student researcher through the USDA Scholar Program 2012 -2013

Mentor, undergraduate student researcher through the Center of Integrated Nanomechanical Systems (COINS) program	2010, 2012 - 2013
Judge, Student poster competition at the California Alliance for Minority Participation (CAMP) Annual Symposium at UC Irvine	2013
Mentor, undergraduate student researcher through the NSF- Yosemite REU program	2010
Mentor (two students) and Freshman Welcome Program volunteer, UC Berkeley	2005
Co-founder and President of Eritrean Students Union, Michigan State University	1999-2000

## Media and Policy

- 2017** Featured Guest in *Voice of America* Tigrigna Program "Interview with Dr. Asmeret Asefaw Berhe, Professor at University of California, (Merced)" [Link to video at VOA site](#)
- 2017** Media coverage of our new National Science Foundation award, NSF-ADVANCE Partnership: *From the Classroom to the Field: Improving the Workplace in the Geosciences*.
- 2017** Featured #WCWinSTEM (Woman Crush Wednesday in STEM), #WCWinSTEM: Asmeret Asefaw Berhe, Ph.D.. Vanguard STEM, Vanguard: Conversations with Women of Color in STEM
- 2016** Featured Scientist, *How a girl who loved learning became a top soil scientist*. Sally Ride Science at University of California, San Diego
- 2016** Media coverage of our University of California President's Research Catalyst Award, *UC Consortium for Drought and Carbon Management*.  
UCR Today (University of California, Riverside); University of California, Merced; University of California, Berkeley; California Naturalist; Agriculture is America; UC ANR Green Blog; California Water News Daily
- 2015** Guest, Down on the Farm with Tom Willey on KFCF 88.1 FM in Fresno, CA (July 3, 2015 to discuss Soils and Human Security)
- 2015** Media coverage of Science paper on Soils and Human Security in the 21st Century  
News coverage of the paper published in Science (2015) in The Independent UK, Newsweek, Grist, The Weather Network, International Business Times, All Africa, Times of India, Nature World News, Science World Report, The Science Times, Phys.org, Innovation Toronto, Imperial Valley News, SciDev.Net, and others
- 2015** Spotlight at *Identify with a Scientist*. The PROGRESS (PROmoting Geoscience, Research, Education and Success) Program. A partnership among five universities in the CO,WY Front Range (Colorado State University, University of Colorado-Boulder, University of Wyoming, Colorado College, and Metro State University) and four universities in the Carolinas (University of North Carolina-Charlotte, University of South Carolina, North Carolina State University, and University of North Carolina A&T).
- 2014** Congressional visits to discuss federal funding for science with (Washington DC, May 7, 2014):
- Congressman James Manuel "Jim" Costa, U.S. Representative for California's 16th congressional district;
  - Congressman Gerald M. "Jerry" McNerney, U.S. Representative for California's 9th congressional district;

- Congressional staff from the offices of Congressman John Raymond Garamendi (CA 3rd congressional district), Congressman Tom McClintock (CA, 4th Congressional district), Denham (CA 10th congressional district), and David G. Valadao (CA 21st congressional district); and
- Senate staffers from the offices of Senator Diane Feinstein and Senator Barbara Boxer.

**2014** Media coverage of NSF Early Career Development award

News coverage of my NSF CAREER award in The Merced Sun Star, Sacramento Bee, and Valley Online News. And highlight by the University of California Office of the President's President's Postdoctoral Fellowship program

**2014** Highlight by the Hellman Family Foundation

Interview on successful project funded by Hellman Family Foundation's grant for early career scientists in 2011

**2014** Highlight by the Earth Science Women's Network (ESWN)

**2007** Media coverage of Bioscience paper on Role of Erosion on soil carbon sequestration

Highlights of the work published in Bioscience (2007) appeared in California Magazine, View from LBL, Science at Berkeley Lab, and Conservation Magazine (link)

**2007** US Department of Agriculture, National Research Initiative highlight of work on the role of soil erosion and terrestrial carbon sequestration

## Professional Affiliations

- Soil Science Society of America
- American Geophysical Union
- Geochemical Society
- Association of Women Soil Scientists
- Association of Women Geoscientists
- Earth Science Women's Network
- National Association for Black Geoscientists

## Languages:

- Fluent – English, Tigrigna (Eritrean), Amharic (Ethiopian)
- Basic spoken and written - French.
- Freelance translator - English to and from Tigrigna and Amharic, 1999 – 2005

## Conference Presentations

(\* = student or postdoc author)

Berhe, A.A., Arnold, C., & Ghezzehei, T. A. 2017. Drying-induced consolidation, organic matter decomposition, and restructuring of soil aggregates. In EGU General Assembly Conference Abstracts (Vol. 19, p. 11494).

Rasmussen C, Berhe AA, Blankinship JC, Crow SE, Druhan JL, Heckman KA, Keiluweit M, Lawrence CR, Marin-Spiotta E, Plante AF, Schaedel C. Beyond clay-using selective extractions to improve predictions of soil carbon content. In AGU Fall Meeting Abstracts 2016 Feb.



Santos F, Wymore A, Berhe AA. Thermal alteration of dissolved organic matter: observations from a lab heating experiment and fire-impacted watersheds of the Sierra Nevada, California. In AGU Fall Meeting Abstracts 2016 Feb.

Blankinship JC, Crow SE, Schimel J, Sierra CA, Schaedel C, Plante AF, Thompson A, Berhe AA, Druhan JL, Heckman KA, Keiluweit M. The Soil Carbon Paradigm Shift: Triangulating Theories, Measurements, and Models. In AGU Fall Meeting Abstracts 2016 Feb.

Thompson A, Druhan JL, Keiluweit M, Wagai R, Plante AF, Lawrence CR, Berhe AA, Sierra CA, Rasmussen C, Marin-Spiotta E, Blankinship JC. Representation of diffusion controlled carbon stabilization in reactive transport models. In AGU Fall Meeting Abstracts 2016 Feb.

Berhe AA, Arnold CL, Ghezzehei TA. Drying-induced decomposition and associated changes in aggregation and carbon distribution in subalpine meadow soils: implication of drought. In AGU Fall Meeting Abstracts 2016 Feb.

Kuhn TJ, Forrester H, Abney R, DeLong S, Roche JW, Berhe AA. Hillslope erosion and hydrologic response in two small watersheds in Yosemite National Park following the 2013 Rim Fire, CA. In AGU Fall Meeting Abstracts 2016 Feb.

Williams EK, Terwilliger VJ, Nakamoto BJ, Berhe AA, Fogel ML. Bulk Soil Organic Matter d2H as a Precipitation Proxy. In AGU Fall Meeting Abstracts 2016 Feb.

Abney R, Berhe AA. Landform Position and Combustion Temperature as Controls of Decomposition of Pyrogenic Organic Matter. In AGU Fall Meeting Abstracts 2016 Feb.

Berhe, A.A, Abney, R., Hockaday, W., Fogel, M., & Kuhn, T. (2016, April). Role of erosional redistribution following wildfires in determining fate of pyrogenic carbon in the soil system. In EGU General Assembly Conference Abstracts (Vol. 18, p. 13045).

Moreland K and **AA Berhe**. Climatic Controls on Deep Soil Organic Matter in the Critical Zone. Goldschmidt conference 2016. Yokohama, Japan.

**Berhe, AA**, McCorkle E, Stacy E, Hart SC, Hunsaker C, and Johnson D. Fate of Eroded Soil Organic Matter in Temperate, Forested Catchments: Implications for Erosion-Induced Carbon Sequestration. Goldschmidt conference 2016. Yokohama, Japan.

Hu, Y., Berhe, A.A., Fogel, M. L., Heckrath, G. J., & Kuhn, N. J. (2016, April). Settling-velocity specific SOC distribution on hillslopes. In EGU General Assembly Conference Abstracts (Vol. 18, p. 12473).

Abney R, Hockaday W, Kuhn T, Austin L, Sherrin A, and **AA Berhe**. Erosional Transport of Organic Matter after the Rim Fire, Yosemite National Park. Goldschmidt conference 2016. Yokohama, Japan.

Ghezzehei, T., Arnold, C., & Asefaw Berhe, A. 2016, . Hydrological controls on rate of organic matter mineralization in peats. In EGU General Assembly Conference Abstracts (Vol. 18, p. 14454).

Marin-Spiotta, E, **AA Berhe**, R. Barnes. Heterogeneity of soil organic matter composition and its fate across ecosystem boundaries, or does it all come out in the wash? American Geophysical Union Annual Fall Meeting 2015, San Francisco, CA.**INVITED**

**AA Berhe**, A. Newman, C. Hunsaker. Erosional distribution of metal oxides and its implication for soil carbon dynamics. American Geophysical Union Annual Fall Meeting 2015, San Francisco, CA.

Lever, R\*, **AA Berhe**, M. Fogel, W. Hockaday, L. Austin, T Kuhn. Alterations to Soil and Eroded Sediment Carbon after the Rim Fire, Yosemite National Park. American Geophysical Union Annual Fall Meeting 2015, San Francisco, CA.

Jin,L\*, **AA Berhe**. Stabilization of Organic Matter by Interactions with Iron Oxides: Relative

Importance of Sorption vs. Aggregation. American Geophysical Union Annual Fall Meeting 2015, San Francisco, CA.

M. Fogel, **AA Berhe**, Williams, E\*. Can  $\delta^2\text{H}$  of Organic Matter in Soils be Used for Understanding Organic Matter Sources and Cycling? American Geophysical Union Annual Fall Meeting 2015, San Francisco, CA.

Fissore, C, B. Dalzel, **AA Berhe**, M. Evans, M. Voegtle, A-M Wu. Soil organic carbon dynamics as affected by topography in southern California hillslopes systems. American Geophysical Union Annual Fall Meeting 2015, San Francisco, CA.

Ghezzehei, TA, CL Arnold\*, **AA Berhe**. Physically based model of organic carbon mineralization under varying soil environmental conditions. 2015 European Geosciences Union Annual Meeting, Vienna, Austria.

Arnold, CL\*, **AA Berhe**, and TA Ghezzehei. Summer Precipitation Patterns Alter Soil Moisture and Carbon Dynamics in a High Elevation Meadow. American Geophysical Union Annual Fall Meeting 2014, San Francisco, CA.

Ghezzehei, TA, CL Arnold\*, and **AA Berhe**. Climate induced changes to soil structure can alter biogeochemical cycling of carbon. American Geophysical Union Annual Fall Meeting 2014, San Francisco, CA.

**Berhe, AA**, E McCorkle\*, E Stacy\*, SC Hart, C Hunsaker, D Johnson. Composition and mean residence time of soil organic matter eroded from temperate, forested catchments: implications for erosion-induced carbon sequestration American Geophysical Union Annual Fall Meeting 2014, San Francisco, CA.

Lever, R\*, T Kuhn, **AA Berhe**. Mobilization of Carbon and Organic Matter after the Rim Fire, Yosemite National Park. American Geophysical Union Annual Fall Meeting 2014, San Francisco, CA.

Araya, SN\* and **AA Berhe**. Effect of Combustion Temperature on Soil and Soil Organic Matter Properties: A Study of Soils from the Western Elevation Transect in Central Sierra Nevada, California. American Geophysical Union Annual Fall Meeting 2014, San Francisco, CA.

Lever, R\*, J Sanderman, D Johnson, **AA Berhe**. Characterization of soil organic matter fractions in fire-affected hillslopes using mid-infrared spectroscopy. Ecological Society of America Annual Meeting 2014, Sacramento, CA

McCorkle, E.\*, **AA Berhe**, C Hunsaker, M Fogel, S C. Hart. Surface erosion and sediment accumulation in the Sierra Nevada: Using stable isotopes to source eroded material in captured sediments. Ecological Society of America Annual Meeting 2014, Sacramento, CA

**AA Berhe**, Arnold, CL\*, TA Ghezzehei. Decomposition of soil organic matter due to desiccation of high elevation meadow soils. Ecological Society of America Annual Meeting 2014, Sacramento, CA

Arnold, CL\*, TA Ghezzehei, **AA Berhe**. Early spring and severe frost events induce rapid carbon loss in high elevation meadows. Ecological Society of America Annual Meeting 2014, Sacramento, CA

**Berhe, A.A**, E. McCorkle, E.M. Stacy, S.C. Hart, M.L. Fogel, C. Hunsaker, D. Johnson Sources of soil organic matter transported by soil erosion in fire-prone upland ecosystems of the Sierra Nevada. Goldschmidt 2014, Sacramento, CA

Araya, S.N., R.A. Dahlgren, **A.A. Berhe**. The Effect of Fire Temperature on Soil and Organic Matter Properties. Goldschmidt 2014, Sacramento, CA

Six, J. **AA Berhe**, S. Yanni\*, J. Gillabel, K. Van Oost. Controls on deep versus near-surface soil  $\text{CO}_2$  production and SOM turnover. American Geophysical Union Annual Conference. December 2013, San Francisco, CA **INVITED**

McCorkle, E.\* , **AA Berhe**, C Hunsaker, D Johnson, M Fogel, S C. Hart. Using stable isotopes to determine sources of eroded carbon in low-order Sierra Nevada catchments. American Geophysical Union Annual Conference. December 2013, San Francisco, CA

Lever, R\* , J Sanderman, D Johnson, **AA Berhe**. Quantifying organic carbon fluxes in eroding hillslopes through MIR spectroscopy. American Geophysical Union Annual Conference. December 2013, San Francisco, CA

Arnold, CL\* , **AA Berhe**, TA 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 Across Scales. Tucson, Arizona 21 - 24 October 2013. (**Chelsea Arnold received \$1000 Travel award to present at the conference**)

Lever, R\* , **AA Berhe**. Quantifying pyrogenic carbon fluxes and mean residence time in eroding hillslopes. AGU Chapman Conference on Soil-mediated Drivers of Coupled Biogeochemical and Hydrological Processes Across Scales. Tucson, Arizona 21 - 24 October 2013. (**Rebecca Lever received \$1000 Travel award to present at the conference**)

**Berhe, A.A.** E Stacy\* , E McCorkle\* , S C. Hart, C Hunsaker, D Johnson. Erosion of soil carbon and nitrogen in headwater catchments in the Sierra Nevada. AGU Chapman Conference on Soil-mediated Drivers of Coupled Biogeochemical and Hydrological Processes Across Scales. Tucson, Arizona 21 - 24 October 2013.

Arnold, C.L.\* , **AA Berhe**, TA Ghezzehei. Changes in soil structure in response to extreme drought in the high elevation meadows of Yosemite National Park. CLIMMANI-INTERFACE meeting, Mikulov, Czech Republic (June 2-7, 2013) **INVITED (Chelsea Arnold\*)**

Stacy, E.M.\* **A. A. Berhe**, D.W. Johnson, C. T. Hunsaker, S. C. Hart. Decomposability of organic matter eroded from eight low-order catchments. Geological Society of America, Cordilleran Section Meeting, May 21, 2013.

Arnold, C.L.\* , **AA Berhe**, TA Ghezzehei. Extreme winter events influence summer soil respiration in the high elevation meadows of Yosemite National Park. Open Science conference - Climate Extremes and Biogeochemical Cycles, Seefeld, Austria (April 2-5, 2013)

**Berhe, A.A.**; Kaiser, M; Ghezzehei, TA; Myrold, D; Kleber, M. Influence of calcium carbonate and charcoal application on aggregation processes and organic matter retention at the silt-size scale. EGU General Assembly 2013, April, 2013 in Vienna, Austria

Albalasmeh, A; **Berhe, AA**; Ghezzehei, TA. Association Mechanisms of Sand with Anionic Extracellular Polysaccharides (EPS). EGU General Assembly 2013, April, 2013 in Vienna, Austria

Stacy, E.M., S.M. Meding, S.C. Hart, C. Hunsaker, D. Johnson, **A.A. Berhe**. Lateral redistribution of dissolved vs. complexed organic matter with soil. Fall meeting, American Geophysical Union, December 2012. Abstract B34C-07.

Guerrero, J., C. Arnold, T.A. Ghezzehei, **A.A. Berhe**. Geomorphic Controls on High Elevation Meadow Soil Development and Biogeochemistry. Abstract H53C-1534 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.

Arnold, CL\* , **AA Berhe**, TA Ghezzehei. Variation in snowpack depth and duration influence summer soil respiration in Yosemite National Park, California. American Geophysical Union Annual Conference (Dec 2012)

**Berhe, AA**, S Erin\* ; S C. Hart; C T. Hunsaker; D Johnson. Evolution of mineral-organic matter associations after lateral redistribution of topsoil by erosion. 5<sup>th</sup> International Workshop on Soil and

Sedimentary Organic Matter Stabilization and Destabilization. Switzerland, October 2012.

M Kaiser\*; TA Ghezzehei; D Myrold; M Kleber, **AA Berhe**. Effect of CaCO<sub>3</sub> and Charcoal additions on Organic Matter Retention in Silt-sized Aggregates. 5<sup>th</sup> International Workshop on Soil and Sedimentary Organic Matter Stabilization and Destabilization. Switzerland, October 2012.

Arnold, CL\*, **AA Berhe**, TA Ghezzehei. Extreme winter weather events influence summer soil respiration in the high elevation meadows of Yosemite National Park, California. Intl. School of Mountain Ecology and Global Change - meadow research (Sept 2012)

Arnold, CL\*, **AA Berhe**, TA Ghezzehei. Modeling hydroecological effects of tephra in high elevation meadows of the Sierra Nevada, Ca. Central California 2012 Research Symposium (April 13, 2012). (**Honorable Mention in Best Presentation Competition, Chelsea Arnold\***)

Arnold, CL\*, **AA Berhe**, TA Ghezzehei. Mathias Research Symposium 2012 in Bodega Bay, Ca Impact of lowered water table on meadow water holding capacity. (Mar 2-4. 2012)

Stacy, Erin\*; Stephen C. Hart; Carolyn T. Hunsaker; Dale Johnson; **AA Berhe**. Mechanisms of soil organic matter stabilization in sediments eroded from small Sierra Nevada catchments. AGU annual meeting. December 2011.

Arnold, CL\*, AA Berhe, TA Ghezzehei. Impact of a lowered water table on water holding capacity of high elevation meadow soils. AGU annual meeting. December 2011.

M Kaiser\*; TA Ghezzehei; D Myrold; M Kleber, **AA Berhe**. Effect of CaCO<sub>3</sub> and Charcoal additions on Organic Matter Retention in Silt-sized Aggregates. AGU annual meeting. December 2011.

**Berhe, AA**; Michael Kaiser\*; Teamrat Ghezzehei; David Myrold; Markus Kleber. Role of CaCO<sub>3</sub> and Charcoal Application on Organic Matter Retention in Silt-sized Aggregates. AGU annual meeting. December 2011.

Arnold, C\*, **A.A. Berhe**, T.A. Ghezzehei. Effect of Desiccation Induced Shrinkage On Meadow Water Holding Capacity. *ASA-CSSA-SSSA Annual Meeting*, San Antonio, TX October 2011

Gillabel, J., S. Yanni\*, **A.A. Berhe**, R. Merckx, J. Six. Controlling Factors On Temperature Sensitivity of Soil Respiration At the Soil Profile Scale. *ASA-CSSA-SSSA Annual Meeting*, San Antonio, TX October 2011

**Berhe, A. A.** and T. A. Ghezzehei. Decomposition of organic substrates at eroding vs. depositional landform positions. International symposium on Soil Organic Matter, Lueven, Belgium, July 2011

Kaiser, M\*, **A. A. Berhe**, M. Kleber. Effect of ultrasonic energy on dispersion of aggregates and released amounts of organic matter. International symposium on Soil Organic Matter, Lueven, Belgium, July 2011

Nadeu, E.\* **A. A. Berhe**, J. de Vente, C. Boix-Fayos. Soil organic carbon mobilization and replacement in two eroding small catchments: isotopic and geomorphological approach. International symposium on Soil Organic Matter, Lueven, Belgium, July 2011

Nadeu, E., **Berhe, A. A.**, de Vente, J., Boix-Fayos, C. Organic carbon accumulation and replacement in eroding slopes by using <sup>14</sup>C. Original title in Spanish, Acumulación y reemplazo de carbono orgánico en laderas erosioandas utilizando <sup>14</sup>C. V Simposio Nacional sobre Control de la Degradación y Uso Sostenible del Suelo. Murcia, Spain. June, 2011.

Nadeu, E., **Berhe, A. A.**, de Vente, J., Boix-Fayos, C. Organic carbon erosion in two subcatchments: interpretation of sedimentary profiles with isotopic techniques. Original title in Spanish, Erosión de carbono orgánico en dos subcuencas: interpretación de perfiles sedimentarios mediante técnicas isotópicas. V Simposio Nacional sobre Control de la Degradación y Uso Sostenible del Suelo, Murcia, Spain. June, 2011.

Nadue, E., **Berhe, A. A.**, de Vente, J., Boix-Fayos, C. Soil organic carbon replacement and deposition in a highly eroding Mediterranean catchment. *European Geosciences Union Annual Meeting*, Vienna Austrai April 2011.

**Berhe, A. A.**, Harden, J.W., Torn, M.S., Harte, J. Lateral distribution of soil nitrogen in a naturally eroding zero-order watershed. *European Geosciences Union Annual Meeting*, Vienna Austrai April 2011.

Nadeu, E.\* **A. A. Berhe**, J. de Vente, C. Boix-Fayos. Soil Organic Carbon Storage and Stability in a highly eroding La Rogativa, Watershed. AGU annual meeting. December 2010.

Kaiser, M\*, **A. A. Berhe**, M. Kleber. Influence of ultrasonic energy on dispersion of aggregates and released amounts of organic matter and polyvalent cations. AGU annual meeting. December 2010

**Berhe, A. A.**, Harden, J.W., Torn, M.S., Harte, J. Storage and lateral redistribution of soil nitrogen in a naturally eroding zero-order watershed. *ASA-CSSA-SSSA Annual Meeting* of the Soil Science Society of America,, Long Beach, CA October 2010.

Sarkhot, D.; Ghezzehei, T. A.; **Berhe, A. A.** Biochar for Nutrient Recapture From Dairy Wastewater: Phosphate Recovery. Soil Science Society of America Annual meeting, Long Beach, CA. November 2, 2010.

**Berhe, A. A.** Khoi, C.M., van Asperen, H., Gillabel, J, and Six, J.W. (2009). Effect of wetting and drying on deep soil CO<sub>2</sub> production and fluxes. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract B51F-0369.

Sarkhot, D.\*, Ghezzehei, T. A., **Berhe, A. A.** (2009). Recapturing nutrients from dairy waste using biochar. *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract B11A-0469.

Shrestha, G\*, **Berhe, A.A.**, Swanston, C, Traina, S. J. (2009) Surface soil black carbon in Yosemite, California: effect of Prescribed forest fires. The North American Biochar Conference. August 9-12, 2009. University of Colorado, Boulder.

**Berhe, A.A.** and J. Banfield. Evolution of Mineral-OM associations with changes in amount and temporal distribution of rainfall . International Symposium on Soil Organic Matter Dynamics: Land Use, Management and Global Change. Colorado Springs, Colorado, USA. July 6-9, 2009

Khoi, C.M., **Berhe, A.A.** and Six, J. Effect of wetting and drying on deep CO<sub>2</sub> production. International Symposium on Soil Organic Matter Dynamics: Land Use, Management and Global Change. Colorado Springs, Colorado, USA. July 6-9, 2009

**Berhe, A. A.** and Banfield, J.F. Labile organic carbon stocks and mineral-organic matter associations in soil: Role of anticipated changes in rainfall pattern. AGU Annual Meeting, San Francisco, CA, December 15-19, 2008

**Berhe, A. A.** and Banfield, J.F. Effect of changes in amount and seasonality of rainfall on soil carbon and cation nutrient composition.. ASA-CSSA-SSSA 72<sup>st</sup> Annual Meeting, Houston, TX, October 5-9, 2008.

Waldrop, M.P., Wickland, K., **Berhe, A. A.**, Harden, J.W., Striegl, R.G., and Aiken, G. Molecular investigations into a globally important carbon pool: permafrost-protected carbon in Alaskan soils. AGU Fall Meeting, December 10-14, 2007.

**Berhe, A. A.** and Banfield, J.F.. Effect of iron oxide concentration on the amount and quality of sorbed organic matter. ASA-CSSA-SSSA 71st Annual Meeting, New Orleans, LA. November 4-6, 2007.

**Berhe, A. A.** and Banfield, J.F. Concentration dependent effects of organic matter storage and stabilization by iron oxides. Third International Conference on Mechanisms of Organic Matter Stabilization

and Destablization in Soils. September 23-26, 2007. Adelaide, Australia.

K. Cruz, Suttle, K.B., **Berhe, A.A.**, Banfield, J. F. Rainfall variation impact above- and below-ground biota and soil biogeochemistry in the Eel River watershed. National Center for Earth Surface Dynamics Site Visit, June 12-13, 2007. Minneapolis, MN

**Berhe, A. A.**, Harden, J. W., Torn, M.S., Burton, S.D., Kleber, M., Harte J. Potentially Labile Soil Organic Carbon in Erosional and Depositional Settings of an Undisturbed Zero-order Watershed. AGU Fall Meeting, December 11-15, 2006 .

Harden, J.W. van Oost, K., Neff, J., **Berhe, A.A.**, Rosenbloom, N., Schimel, D. Soil Carbon Dynamics in Relation to Landscape Dynamics. AGU Fall Meeting, December 11-15, 2006 (**INVITED**).

**Berhe, A. A.**, Harden, J.W., Torn, M.S., Harte, J. In situ and ex situ decomposition of organic matter in eroding slopes vs. depositional settings. ASA-CSSA-SSSA 70th Annual Meeting, Indianapolis, IN November 12-16, 2006.

**Berhe, A. A.**, Harden, J. W., Torn, M.S., Burton, S.D., Kleber, M., Harte J. Geomorphic controls on the amount and quality of organic matter associated with mineral surfaces. AGU Fall Meeting, December 5-9, 2005

**Berhe, A. A.**, Harden, J. W. , Harte J., Torn, M.S. Physico-Chemical Controls on Soil Organic Carbon Stabilization in Eroding and Depositional Settings. NSF Sponsored Workshop "Frontiers in Exploration of the Critical Zone". Newark, Delaware, October 24-26, 2005.

**Berhe, A. A.**, Torn, M.S. , Harte J., Harden, J. W. Mechanisms of Soil Organic Matter Stabilization in Erosional and Depositional Systems. Second International Conference on Mechanisms of Organic Matter Stabilization and Destablization in Soils. October 9-13, 2005. Monterey, California.

**Berhe, A. A.**, Harden, J. W. , Harte J., Torn, M.S. Soil Degradation and Global Change: The role of soil erosion and deposition in carbon sequestration. Breslauer Graduate Student Symposium on Social and Scientific Aspects of Global Climate Change. February 25, 2005, University of California at Berkeley.

**Berhe, A. A.**, Harden, J. W. , Harte J., Torn, M.S. The Role of Erosion and Deposition in Soil Carbon Sequestration in an Undisturbed Watershed. Geophysical Research Abstracts, Vol. 7, 03871, 2005. European Geosciences Union. Vienna, Austria.

**Berhe, A. A.**, Harden, J. W., Torn, M.S. , Harte J. Erosion and Carbon Sequestration in two types of Depositional Basins. ASA-CSSA-SSSA Abstracts, Madison WI. (68th Annual Meeting Seattle, Washington). 2004.

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