

# ASMERET ASEFAW BERHE

## EDUCATION

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- 2000 – 2006 UNIVERSITY OF CALIFORNIA, BERKELEY  
Ph.D., Biogeochemistry (Expected summer 2006)
- Advisors: Prof. John Harte, Dr. Jennifer W. Harden and Dr. Margaret S. Torn
- 1999 – 2000 MICHIGAN STATE UNIVERSITY  
M.Sc., Resource Development (Political Ecology)
- Advisor: Prof. Eckhart Dersch
- 1991 – 1996 UNIVERSITY OF ASMARA  
B.Sc., Soil and Water Conservation
- Graduated with major GPA in top 2% of class

## RESEARCH EXPERIENCE

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- 09.2006 – 06.2008 UNIVERSITY OF CALIFORNIA, BERKELEY  
UC Presidential Postdoctoral Fellow, with Prof. Jillian F. Banfield
- Dynamics of nanoparticulate oxides in the presence of organic carbon
- 09.2000 – 08.2006 UNIVERSITY OF CALIFORNIA, BERKELEY  
Graduate Student Researcher, with Prof. John Harte
- Stabilization/destabilization of soil organic carbon in eroding slopes & depositional basins (dissertation research)
- Graduate Student Researcher, with Prof. Claudia Carr
- Agropastoralist practices of the *Ittu Oromo* tribe in Ethiopia
  - Geological prospects of oil exploration in the Horn of Africa
- 06.2002 – PRESENT UNITED STATES GEOLOGICAL SURVEY, MENLO PARK  
Guest Graduate Student Researcher, with Dr. Jennifer Harden
- Isotope based inference of organic carbon storage and turnover rates in lacustrine buried sediments
- 09.2001 – PRESENT LAWRENCE BERKELEY NATIONAL LABORATORY  
Graduate Student Researcher, with Dr. Margaret Torn
- Effect of changing landuse patterns on carbon and nitrogen stocks inferred from modern and archived soils under prairie, agriculture and forest in the Russian Black Soil Belt.
  - Stocks and isotopic signatures carbon and nitrogen in soils and plant tissue of the Southern Great Plains, United States of America.
- Graduate Student Researcher, with Drs. Hashem Akbari and Ronnen Levinson
- The impact of soiling on the reflectance of roofing membranes and the effectiveness of different cleaning treatments on restoring reflectance
- 05.2000 – 08.2000 MICHIGAN STATE UNIVERSITY  
Graduate Research Assistant
- Michigan agricultural history (building bibliography)

## TEACHING EXPERIENCE

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- 09.2002 – 12.2004 UNIVERSITY OF CALIFORNIA, BERKELEY  
Graduate Student Instructor
- The Biosphere: Fall '04 with Profs. J. Banfield and A. P. Gutierrez
  - Environmental Biology: Fall '03 with Prof. I. Chapela (grader)
  - Quantifying Global Environmental Problems: Spring '03 with Prof. J. Harte and Dr. J. Williams (grader)
  - Introductory Oceanography: Fall '02 with Profs. Lynn Ingram and Thomas Powell
- 09.1998 – 05.2000 MICHIGAN STATE UNIVERSITY  
Instructor
- Intermediate and Advanced Level Tigrigna (4 semesters)
- 09.1993 – 06.1994 BARKA COMPREHENSIVE SECONDARY SCHOOL  
High School Teacher
- Freshman English (2 semesters)

## AWARDS AND HONORS

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- 2006-2008 UC Presidential Postdoctoral Fellowship (USD 80,000)
- 2003-2006 NASA earth system science graduate fellowship (USD 72,000)
- 2005 Co-receipt of the Zayed Environmental Prize (USD 300,000 for experts of the Millennium Ecosystem Assessment)
- 2005 Fellow, University of California Institute for Preparing Future Faculty
- 2002-2005 Young Fellow, Millennium Ecosystem Assessment
- 2003-2004 Carolyn Meek Memorial Fellowship (Soil Science), UC (USD 7,000)
- 2000-2003,2005 Chancellor's Predoctoral Fellowship, UC Berkeley (USD 84,000)
- 1999 - 2000 College of Agri.& Nat. Resources Scholarship, Mich. State U. (USD 1,000)
- 1999 - 2001 Graduate Opportunity Fellowship, Mich. State U. (USD 3,000)

## RESEARCH AND TRAVEL GRANTS

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- 2007-2009 US Department of Agriculture, NRI Soil Processes Program Grant (Reactivity, Aggregation and Transport of Nanocrystalline Sesquioxides in the Soil System) P.I. A.A. BERHE (USD 123,000).
- 2001,02,03,05,06 Regents Fellowship, University of California - Travel Grants (USD 3,450)
- 2005 NSF Travel grant, Frontiers in Exploration of the Critical Zone meeting (USD500)
- 2004 High Field Magnetic Resonance Facility, Environmental Molecular Sciences Lab, Pacific Northwest National Laboratory. (Stabilization of soil organic matter: land use, erosion and burial). P.I. M.S. Torn
- 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 Vakkey, CA). P.I. A.A. Berhe (USD 1,000)
- 1999-2000 International Campaign to Ban Landmines, Landmine Monitor Research Grant (Socio-economic and Ecological Reproccussions of the Global Landmine Crisis, the Eritrean Case). P.I. A.A. Berhe (USD 4,200)

## OTHER PROFESSIONAL TRAINING

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- 12. 2005 Molecular Geomicrobiology: From Genomes to Ecosystems Short Course, UC, Berkeley
- 07. 2005 Use of Radiocarbon in Ecology and Earth System Science, UC Irvine
- 06 – 07. 2005 Institute for Preparing Future Faculty, UC Berkeley
- 06. 2004 Stable Isotope Ecology summer short course and Laboratory, Uni of Utah

## PROFESSIONAL SERVICES AND SKILLS

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- 2003 – Present Model Scientist for Lawrence Hall of Science's Roots of Knowledge Project "Walk in the Woods" A guide for teaching decomposition and soil formation to elementary schools
- 2005 Speaker, Diversity Day and Spring Visit, UC Berkeley
- 2005 Freshman Welcome Program volunteer, UC Berkeley
- 09/2003 – 05/2004 Student representative, Ecosystem Sciences Division, UC Berkeley
- 10/2001 – 06/2002 Graduate Assembly delegate for students in the Department of Environmental Science, Policy and Management, UC Berkeley
- 1999 - 2000 Co-founder and President of Eritrean Students Union, Mich. State U.
- Peer reviewer Journal of Environmental Quality and Journal of Agriculture and Human Values.
  - :: Application and some Programming in MathCAD®, Arc View, MADONA, JMP IN®, SPSS® and Macromedia.

## PROFESSIONAL AFFILIATIONS

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- American Geophysical Union
- Soil Science Society of America
- American Society of Agronomy
- Association of Women Soil Scientists
- Eritrean Studies Association

## JOURNAL PAPERS

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- In Prep Lapenis, A, M.S. Torn, A. Ratigliano and **A. A Berhe**  
Comparisons of Carbon and Nitrogen Dynamics in Modern and 100-year old archived soils of the Russian Black Soil Belt.  
*Soil Science Society of America.*
- In Review **Berhe, A. A.**, J. Harden, M.S. Torn and J. Harte  
Geomorphic controls on Soil Carbon Distribution, Storage and Stability.  
*JGR-Biogeosciences.*
- In Review **Berhe, A. A.**, M.S. Torn, J. Harden, M. Kleber, S.D. Burton and J. Harte  
Physical, Chemical and Biochemical Mechanisms of Eroded Soil Organic Matter Stabilization in two types of Depositional Basins.  
*Organic Geochemistry.*
- In Review Fries, T., **A. A Berhe**, C.C. Fuller, J.W. Harden, L.G. Miller, R. Young  
Terrestrial Sedimentation and Carbon Storage in Impoundments: The Case of Searsville Reservoir, California.  
*Global Biogeochemical Cycles.*

- Submitted **Berhe, A. A.**, J. Harte J. Harden and M.S. Torn.  
Significance of Soil Erosion for Terrestrial Carbon Sequestration.  
Bioscience.
- Submitted Green, E.G., A. E. Taunton, S. A. Welch, **A. A. Berhe**, and J. F. Banfield.  
Chemical Weathering Across a Retreating Escarpment  
GSA Bulletin.
- In Press **Berhe, A. A.**  
Landmines and Land Degradation: Environmental Reprucussions of a Conventional  
Weapon of Mass Destruction.  
Land Degradation and Development.
- In Press Nelson, G., E. Bennett, **A. A Berhe**, K. Cassman, R. DeFries, T. Dietz, A. Dobermann, A.  
Dobson, A. Janetos, M. Levy, D. Marco, N. Nakicenovic, B. O'Neill, R. Norgaard, G.  
Petschel-Held, D. Ojima, P. Pingali, R. Watson, M. Zurek.  
Drivers of Change in Ecosystem Condition and Services.  
Ecology and Society. **INVITED.**
- 2005 Levinson, R., P. Berdhal, **A. A Berhe**, and H. Akbari  
Effect of Soiling and Cleaning on the Reflectance and Solar Heat Gain of a White Roofing  
Membrane.  
Atmospheric Environment, 39(40):7807-7824.
- 2005 **Berhe, A. A.**  
Politicizing Indiscriminate Terror: Imagining an Inclusive Framework for the Anti-  
Landmines Movement.  
Journal of Environment and Development, 14: 375-393.
- 2004 **Berhe, A. A.**  
Of Land and Identity: Territorialization of the Eritrean National Identity.  
Eritrean Studies Review, 4 (1): 55-82.

#### PEER REVIEWED RESEARCH REPORTS

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- 2005 Lavelle, P., R. Dugdale, R. Scholes, **A.A. Berhe**, E. Carpenter, L. Codispoti, A.-M. Izac, J.  
Lemoalle, F. Luizao, M. Scholes, P. Tre'guer, and B. Ward.  
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.
- 2005 Nelson, G.C., E. Bennett, **A.A. Berhe**, K.G. Cassman, R. DeFries, T. Dietz, A. Dobson, A.  
Dobermann, A. Janetos, M. Levy, D. Marco, N. Naki' enovic', B. O'Neill, R. Norgaard, G.  
Petschel-Held, D. Ojima, P. Pingali, R. Watson, and M. Zurek.  
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.

#### CONFERENCE PROCEEDINGS, BOOK CHAPTERS AND THESES

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- In Press **Berhe, A. A.**  
The Impact of Erosion on the Terrestrial Carbon Reservoir: Ecological and Socioeconomic  
Implications of Soil Erosion in Eritrea  
*Proceedings of the International Conference Commemorating 10<sup>th</sup> Anniversary of the  
Independence of Eritrea: Lessons and Prospects. July 22-26, 2001, Asmara, Eritrea.*

- 2005 **Berhe, A. A.**, J. W. Harden, J. Harte and M.S. Torn  
Soil Degradation and Global Change: The role of soil erosion and deposition in carbon sequestration.  
University of California International and Area Studies. Breslauer Symposium. Paper 2.  
<http://repositories.cdlib.org/ucias/breslauer/2>.
- 2005 Akbari, H.; **A. A Berhe**; R. Levinson; S. Graveline; K. Foley; A. H. Delgado; R. M. Paroli.  
Aging and weathering of cool roofing membranes.  
*Proceedings of the First International Conference on Passive and Low Energy Cooling for the Built Environment*. May 17, 2005, Athens, Greece. (2005). Also published as Lawrence Berkeley National Laboratory Report, LBNL-58055.
- 2000 **Berhe, A. A.**  
Landmines and Land Degradation: A Regional Political Ecology Perspective on the Impacts of Landmines on Environment and Development in the Developing World (Unpublished Thesis).  
*Michigan State University* (Department of Resource Development), East Lansing, Michigan, 2000.
- 2000 --  
Eritrea.  
*Landmine Monitor Report 2000: Towards a Mine Free World.*, pp. 209-211. International Campaign to Ban Landmines.
- 1996 Mesfin, A., **A. A Berhe** and A. Weldezhghi  
The Effect of Vegetal Cover on Soil Erosion (Honors Thesis). *University of Asmara* (Department of Soil and Water Conservation), Asmara, Eritrea, 1996.2006

#### FIRST AUTHOR CONFERENCE PRESENTATIONS

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- 2005 **Berhe, A. A.**, J. W. Harden, M.S. Torn, S.D. Burton, M. Kleber and J. Harte  
Geomorphic controls on the amount and quality of organic matter associated with mineral surfaces.  
AGU Fall Meeting, December 5-9, 2005
- 2005 **Berhe, A. A.**, J. W. Harden, J. Harte and M.S. Torn  
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.
- 2005 **Berhe, A. A.**, M.S. Torn, J. Harte and J. W. Harden  
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.
- 2005 **Berhe, A. A.**, J. W. Harden, J. Harte and M.S. Torn  
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.
- 2005 **Berhe, A. A.**, J. W. Harden, J. Harte and M.S. Torn  
The Role of Erosion and Deposition in Soil Carbon Sequestration in an Undisturbed Watershed.  
European Geosciences Union, General Assembly. April 24-29, 2005. Vienna, Austria.
- 2004 **Berhe, A. A.**, J. W. Harden, M.S. Torn and J. Harte  
Erosion and Carbon Sequestration in two types of Depositional Basins  
*ASA-CSSA-SSSA Abstracts*, Madison WI. (68<sup>th</sup> Annual Meeting Seattle, Washington). 2004.
- 2004 **Berhe, A. A.**, J. W. Harden, M.S. Torn and J. Harte  
Stabilization of eroded soil organic carbon in two types of depositional basins  
*EOS Trans. AGU*, 85(47), Fall Meeting Supplements, B51C-0971.

- 2003 **Berhe, A. A.**, M. Fischer and M.S. Torn  
Soil Carbon and Nitrogen under different landuses in the Southern Great Plains  
*ASA-CSSA-SSSA Abstracts*, Madison WI. (67<sup>th</sup> Annual Meeting Denver, Colorado). 2003.
- 2001 **Berhe, A. A.**  
The Impact of Erosion on the Terrestrial Carbon Reservoir: Ecological and Socioeconomic Implications of Soil Erosion in Eritrea.  
*International Conference Commemorating the 10<sup>th</sup> Anniversary of the Independence of Eritrea: Lessons and Prospects. July 22-26, 2001*, Asmara, Eritrea..
- 2001 **Berhe, A. A.**  
Of Land and Identity: Territorialization of the Eritrean Identity in the Land of Pride, as Delineated with Colonial Maps of Episodic Pain.  
The 6<sup>th</sup> Graduate Conference in African Studies. Re-envisioning Africa: Multidisciplinary Perspectives in African Studies, March 30 - April 2, 2001. Northwestern University, Evanston, Illinois, 2001.
- 2001 **Berhe, A. A.**, T.A., T. Fries, C.C. Fuller, J.W. Harden, L.G. Miller, R. Haughey, and R. Young  
Isotope Based Inference of Organic Carbon Storage and Turnover Rates in Buried Sediments  
*EOS Trans. AGU*, 83(47), Fall Meeting Supplements, B52A-0751.
- 2000 **Berhe, A. A.**  
The Socio-economic and Environmental Repercussions of the Eritrean Landmine Crisis, Landmine Monitor Conference, The Hague, Netherlands.

## REFERENCES

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Available upon request.