

CURRICULUM VITAE

SUSAN ELLEN MELZER

Department of Soil and Crop Sciences
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EDUCATION

- 2009 **Ph.D. in Soil and Crop Sciences (Pedology and Biogeochemistry)**
Colorado State University, Fort Collins, CO
Advisor: Dr. Eugene Kelly
Dissertation title: *Quantifying the primary controls on silica storage and mobilization in grass-dominated ecosystems*
- 2004 **M.S. in Geology**
University of Colorado, Boulder, CO
Advisor: Dr. David Budd
Thesis title: *Retention of high matrix permeability in shallow-buried Paleocene limestones, West-Central Florida*
- 2002 **B.S. in Geology**
Colorado State University, Fort Collins, CO

SPECIAL CERTIFICATIONS

- 2016 **Creating Inclusive Excellence** for faculty and advisors
2012 **Quality Matters (QM)** faculty centered and peer reviewed certification of online learning using Blackboard, Desire to Learn, Moodle and Canvas
2002 **Geographical Information System (GIS) and Global Positioning Systems (GPS)** State of Colorado Certificate

AREAS OF SPECIALIZATION

Soil science and environmental geology; pedologic and geologic (soft rock) field characterization; soil laboratory physical, chemical and biogeochemical characterization and microscopic analysis; global change and sustainability science; silicon biogeochemistry and carbon sequestration; sustainable agriculture

MEMBERSHIPS IN SCIENTIFIC SOCIETIES

Geologic Society of America (GSA) Long Term Ecological Research (LTER)
Association of Women in Geoscience (AWG) Critical Zone Exploration Network (CZEN)
Ecological Society of America (ESA) Soil Science Society of America (SSSA)

PROFESSIONAL ACADEMIC EXPERIENCE

2011-present **Faculty Instructor**, Department of Soil and Crop Sciences, Colorado State University
 2016-present **Faculty Instructor; Coordinator**, Managing the Planet Panel Discussion, School of Global Environmental Sustainability
 2004-present **Adjunct Faculty Teaching**
 University of Northern Colorado; Soil Science (SP 2017)
 Colorado Community College Online; Physical Geology with Lab
 Front Range Community College- Longmont, CO; Environmental Geology
 Aims Community College- Greeley, CO; Physical Geology
 Colorado State University- Pueblo, CO; Teacher Education Program;
 Geomorphology and Geochemistry
 2009-2010 **Post Doctoral Fellow/Research Associate/Short Grass Steppe Long Term Ecological Research (LTER) Soil Scientist**, Department of Soil and Crop Sciences, Colorado State University, Fort Collins, CO
 2004-2009 **Graduate Research Assistant**, Department of Soil and Crop Sciences, Colorado State University, Fort Collins, CO
 2002-2004 **Lead Graduate Teaching Assistant**, Geosciences Department, University of Colorado, Boulder, CO

SELECTED PROFESSIONAL LEADERSHIP, SERVICE AND OUTREACH

2016-present **Owner** of DirtWerx, LLC; consulting in natural and disturbed land management
 2015-present **Consultant**; Symmetry Oil Field Solutions
 2015-present **Lead Coach and Faculty Sponsor**; Colorado State University's Soil Judging Team
 2011-present **Instructor**; Summer Soil Institute; national and international field/ lab institute
 2005-present **Volunteer Scientist**; Future Farmers of America (FFA); Land Judging Contest
 2014 **Keynote speaker**; Envirothon
 2013 **Course Developer**, Soil Science for University of Northern Colorado
 2013 **Guest Lecturer**, Florida Park Service, Palm Beach Gardens, FL
 2010-2013 **Instructor**, Logan School of Creative Learning; hands-on soils workshop
 2009 **Volunteer**, El Espejo Girls Summer Research Institute;
 2008 **Consultant** Poudre Learning Center; created soil pits/ exhibit
 2005-2007 **Instructor**, Earthworks (CIRES) Outreach; guided K-12 teachers through learner- centered research projects from design to analysis: earth systems

UNIVERSITY, COLLEGE AND DEPARTMENT COMMITTEES

2016-present **Curriculum Development** for School of Global Environmental Sustainability
 2016-present **Graduate Student Research Panel**, Soil and Crop Sciences Department
 2015-present **Non-Tenure Track Faculty**- Standing Committee on Faculty Council
 2015-present **Todos Santos Strategic Advisory**: Agriculture Group, TS-CSU Center
 2014-present **Communications and Marketing** for the College of Agricultural Sciences
 2014-2015 **Delegate** for Association of Women in Geosciences (AWG)
 2004-2005 **Representative for Membership Committee** for Geological Society of America (GSA)

COURSES TAUGHT

Forest and Range Soils (SOCR 442); SP. Annually
 Pedology / w lab (SOCR 440); FA. Annually
 Sustainable Agriculture (AGRI 510); FA. Annually
 Foundations of Global Environmental Sustainability (GES 101); SP. Annually

Applications of Global Environmental Sustainability (GES 470); FA, SP Annually
Physical Geology / w lab (GEOL 120); SP 2014
Seminar for Master of Agriculture Program (AGRI 692); SP, SU, FA Annually
Internship for Master of Agriculture Program (AGRI 587A); SP, SU, FA Annually
Environmental Geology; FA, SP 2009
Water and the Environment; 2010-2013

ADVISING OF GRADUATE STUDENTS (COMMITTEE MEMBER)

Degree

Ph.D. Judy Daniels (**2016**), Robert Bergstrom (**2015**), Greta Birch (**present, ABD**)
M.S. **Present:** Travis Banet, Ryan Schroeder, Fu Siqi, Dianne Wilburn, Dongqi Jia, Dean Ray **2017:**
Dawn Lee, Daniele Garner, Augusta Ahlm, Alexia Everhart, Haley Schultz, Shreemoyee Ghosh,
Chris Dickey, Marcus Matthews, Starin McKeen; **2016:** Jenna Oxenhandler, Alanna Snare,
Marie Shelli; **2015:** Amanda Gipson; **2014:** Katie Horton, Amy Kousch
B.S. Ho. Hayley Park (**2016**), Michael Straight (**2014**)

PROFESSIONAL DEVELOPMENT

2018 Managing Discussions Webinar, Colorado Community College Online System
2017 Exploring Adult Development Theory, Colorado Community College Online System
2017 FERPA Training, Colorado Community College Online System
2016 Teaching with Bright Spaces, Colorado Community College Online System
2016 Subject Matter Expert Orientation- Online Course Development
2015 Engaging Students with Iclickers in the Classroom, The Institute for Teaching and Learning, CSU

HONORS AND AWARDS (<\$2000 /each award)

- Board of Governors Excellence in Teaching Award Nominee 2018
- College of Agricultural Sciences Student Organization Travel Grant
- Selected participant in the Climate Literacy and Energy Awareness Network (CLEAN) Pathway Project Consultant Group
- Course Redesign Teaching Fellowship, The Institute for Learning and Teaching, CSU
- Hunter Follett Graduate Student Achievement Award, Colorado State University
- Francis Clark Soil Biology Scholarship, Colorado State University
- Research grant, Geological Society of America (GSA)
- Lab equipment grant, University of Colorado
- Association of Women in Geoscience Award
- Best Should Teach Award, University of Colorado
- Research grant, American Association of Petroleum Geologists (AAPG)
- Association of Women in Geoscience Award, Colorado State University
- David V. Harris Memorial Geology Scholarship, Colorado State University

CONTRACTS AND GRANTS

Colorado State University Soil Judging Team, S. Melzer (PI) Soil and Crop Sciences Student Org. Grant, \$3000.00 (2018)

USDA-FS, 17-CR-11015600-052, Soil Pedon Data Entry, August 2017, \$10,144, CoPI's S. Melzer, V. Archer.

Kelly E.F. (PI), Melzer, S.E. (CoPI), Funded, "MLRA Soil Survey Office Support 2017:", USDA-NRCS-Natural Resources Consctn Srv, \$18499.93 (sub: September 5, 2017), (start: October 1, 2017), (end: September 30, 2018)

CSU-Todos Santos Center, student travel and operating funds, August, 2016. \$35,000. CoPI's S. Melzer, A. Elliot.

DOI, Soil Resource Inventory of the National Parks, October 1, 2009- September 30, 2012. \$1,049,000. Co-PI's S. Melzer, E.F. Kelly.

Rapid Carbon Assessment, USDA-NRCS, March 30, 2011- February 28, 2012. \$43,000. Co-PI's S. Melzer, E.F. Kelly.

PEER-REVIEWED PUBLICATIONS

Kelly E.F., **S.E. Melzer**, and A.K. Knapp. Homeostasis of global Si pool sizes. *Nature (In preparation)*

Bergstrom, R.M., **S.E. Melzer**, T. Borch, C.C. Rhoades, and E.F. Kelly (In Review) The generation and redistribution of soil nutrients in high elevation catenary sequences in the Fraser Experimental Forest, CO, U.S. *Geoderma (In Review)*

Melzer S.E., E.F. Kelly E.F. and O.A. Chadwick. 2011. Lithologic controls on biogenic silica cycling in South African savanna ecosystems. *Biogeochemistry*, DOI: 10.1007/s10533-011-9602-2.

Melzer, S.E., A.K. Knapp, K.P. Kirkman, M.D. Smith, J.M. Blair, and E.F. Kelly. 2010. Fire and grazing impacts on silica production and storage in grass dominated ecosystems. *Biogeochemistry* 97:263-278.

Melzer, S.E., and D.A. Budd. 2007. Retention of high matrix permeability in carbonate grainstones during progressive burial through shallow (300 to 500 m) subsurface realm. *Journal of Sedimentary Research* 78: 548-561.

Language Editorship

Cheeke T., D.C. Coleman, and D.H. Wall. eds. 2013. Microbial Ecology in Sustainable Agroecosystems. Taylor & Francis Group. Wall, D.H., ed. Soil Ecology and Ecosystem Services. Oxford University Press.

SELECTED PRESENTATIONS

Invited presentations at scientific meetings

Pressler, Y., K. Osterloh, **S.E. Melzer**, and K. Vaughan. Increasing undergraduate exposure to novel soil types through a virtual regional soil judging contest. Soil Science Society of America, Phoenix, Arizona, Nov. 6-9, 2016.

Melzer, S.E. Sustainable agriculture: locally grown. Colorado State Competition, Colorado Envirothon, Apr. 26-27, 2014.

Melzer, S.E., A.K. Knapp, E.F. Kelly. Soil minerals in natural and agroecosystems, Soil Science Society of America Fall meeting, Long Beach, California. Oct. 1- Nov. 4, 2010.

Melzer, S.E., A.K. Knapp, E.F. Kelly. The impact of native grassland conversion to cultured systems on the terrestrial silica cycle. Soil Science Society of America Fall meeting, Long Beach, California. Oct. 1- Nov. 4, 2010.

Melzer, S.E., E.F. Kelly, C.M. Yonker, A.K. Knapp, M.D. Smith, R.W. Fynn and K.P. Kirkman. Lithologic and pedogenic controls on soil biogeochemistry. Soil Science Society of America Fall Meeting, New Orleans, LA. Nov. 4-8, 2007.

Melzer, S.E., E.F. Kelly, C.M. Yonker, A.K. Knapp, O.A. Chadwick, M.D. Smith, R.W. Fynn and K.P. Kirkman. Quantifying the primary controls on biogenic silica storage and mobility in grass-dominated ecosystems. Ecological Society of America Fall meeting, San Jose, CA. Aug. 5-10, 2007.

Melzer, S.E., E.F. Kelly, C.M. Yonker, A.K. Knapp, O.A. Chadwick, M.D. Smith, R.W. Fynn and K.P. Kirkman. Quantifying the primary controls on biogenic silica storage and mobility in grass-dominated ecosystems. American Geophysical Union Fall meeting, San Francisco, CA. Dec. 10-14, 2007.

Invited seminars

Melzer, S.E. An Overview of Pedology, Summer Soil Institute, Colorado State University, June 15, 2017.

Melzer, S.E., and A. Elliot. Sustainable agriculture in Todos Santos, Baja California, Sur. Department of Soil and Crop Sciences Seminar Series, Colorado State University, February 4, 2016.

Melzer, S.E. An Overview of Pedology, Summer Soil Institute, Colorado State University, June 2014.

Melzer, S.E. Pedological and ecological controls on biogenic silica cycling in grass dominated ecosystems. Earth and Atmospheric Sciences Department Seminar Series, University of Northern Colorado, Fall 2009.

Melzer, S.E., E.F. Kelly, C.M. Yonker, C. Rhoades. Biogenic silica dynamics at Fraser Experimental Forest. US Forest Service: Rocky Mountain Research Station. Fall 2008.

Melzer, S.E., E.F. Kelly, C.M. Yonker. Preliminary data exhibiting the patterns and controls of Si production, storage and export in grass-dominated ecosystems. Soil and Crop Sciences Seminar Series, Colorado State University. Spring 2007.

Melzer, S.E. Retention of high matrix permeability in shallow-buried Paleogene limestone, west-central, Florida, USA. Department of Geological Sciences Seminar Series, University of Colorado. 2004.

MEDIA

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| April 26, 2018 | Talkback Panel Discussion, Dirt by Laura Pritchett-directed by Jeffrey Bigger; "Life in Unexpected Places: Exploring the World Beneath Our Feet at the Bas Bleu Theatre, https://www.basbleu.org/dirt/ |
| January 13, 2017 | Colorado State University Source, "Student-built food dehydrator adds new dynamic for Todos Santos food producers by Jason Kosovski, https://source.colostate.edu/student-built-food-dehydrator-adds-new-dynamic-todos-santos-food-producers/ |
| January 23, 2017 | Colorado State University Source, "Students answer a call for food preservation strategies in Todos Santos by Jason Kosovski |

2017 The College of Agricultural Sciences Food for Thought, “Engaging with Producers and the Community in Todos Santos,
http://webdoc.agsci.colostate.edu/Marketing_Toolbox/Food%20for%20Thought/2017/FFT_2017_print.pdf

December 11, 2015 Colorado State University Source, “In Todos Santos, students learn new lessons about sustainable agriculture by Nik Olson <https://source.colostate.edu/in-todos-santos-csu-students-learn-new-lessons-about-sustainable-agriculture/>

November 1, 2015 Colorado State University Todos Santos Center Facebook Blog Post, “A Visit to San Jacinto Ranch” ,
<https://www.facebook.com/CSUTodosSantos/posts/1503266966644475>

**School of Global Environmental Sustainability (SoGES): Managing the Planet Panel Discussion Series
Coordinator of Events:**

February 7, 2018 Wolf: Friend or Foe How will their reintroduction into Colorado impact the environment, economy and culture

March 7, 2018 Women: Key to sustainability

November 2, 2017 Sustainability: How do we measure it?

October 5, 2017 Melting down glaciers from mountains to poles: What does it mean for us?

September 7, 2017 Greening beer: How local brewers are prioritizing sustainability

April 12, 2017 Urban nature: Why do we want it?

March 8, 2017 Dismantling the EPA: Are we making America unhealthy again?

February 8, 2017 Are we loving nature to death? The costs and benefits of outdoor recreation

November 16, 2016 Preserving food sources for a bountiful future

October 25, 2016 The upcoming election: Implications for sustainability and science

September 21, 2016 Zika beyond the tropics: Does climate change affect the spread of infectious disease?