

Erik J. Oerter

Curriculum Vitae

Department of Geology and Geophysics
University of Utah

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PROFILE

I am an earth scientist specializing in stable isotope geochemistry and its application to elemental and water cycling in the near-surface environment using novel instrumentation techniques. In my work I strive to closely couple laboratory measurements, experiments, and field studies to describe conditions during Earth's history and better predict the dynamic modern environment.

EDUCATION

Ph.D., University of California, Berkeley Environmental Science	2015
M.Sc., University of California, Berkeley Earth and Planetary Science	2005
B.A., University of Colorado, Boulder Geological Science	2003

EMPLOYMENT

Post Doctoral Fellow, University of Utah, UT Isotope-enabled soil hydrology research and technology development	2015 – present
Graduate Student Researcher <i>and</i> Instructor, U.C. Berkeley, CA Research on C, O, U isotopes in soils and their relation to climate	2010-2015
Environmental Geologist, Colorado Geological Survey, State of Colorado I developed and managed projects on: hydrogeochemistry of surface and ground water, geothermal resource evaluation, hydrocarbon- and mining-impacted lands, hydrogeological characterization of aquifer recharge and storage potential	2007-2010
Engineering Geologist, Colorado Department of Transportation, State of CO Rock fall and landslide hazard characterization and mitigation design, rock slope and vadose zone instrumentation design and installation	2005-2007

PEER-REVIEWED PUBLICATIONS

- (9) **Oerter, E**, R Amundson, 2016, Climate controls on spatial and temporal variations in pedogenic carbonate formation timing in the western Great Basin of North America. Geological Society of America Bulletin, online: 3 February 2016, doi: 10.1130/B31367.1
- (8) **Oerter, E**, W Sharp, J Oster, A Ebeling, J Valley, R Kozdon, I Orland, J Hellstrom, J Woodhead, J Hergt, O Chadwick, R Amundson, 2016, Pedothem carbonates reveal anomalous North American atmospheric circulation 70,000 to 55,000 years ago. Proceedings of the National Academy of Sciences of the United States of America, online: 11 January 2016, doi: 10.1073/pnas.1515478113
- (7) Ebeling, A, **E Oerter**, J Valley, R Amundson, 2016, Relict soil evidence for profound Quaternary aridification of the Atacama Desert, Chile. Geoderma, v. 267, p. 196-206, doi: 10.1016/j.geoderma.2015.12.010

- (6) **Oerter, E**, R Amundson, A Heimsath, M Jungers, G Chong, P Renne, 2016, Early to middle Miocene climate in the Atacama Desert of northern Chile. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 441, p. 890-900, doi: 10.1016/j.palaeo.2015.10.038
- (5) **Oerter, E**, K Finstad, J Schaeffer, G Goldsmith, T Dawson, R Amundson, 2014, Oxygen isotope fractionation effects in soil water via interaction with cations (Mg, Ca, Na, K) adsorbed to phyllosilicate clay minerals. *Journal of Hydrology*, v. 515, p. 1-9, doi: 10.1016/j.hydrol.2014.04.029
- (4) **Oerter, E**, 2011, Geothermometry of thermal springs in the Rico, Dunton, and West Fork Dolores River areas, Dolores County, Colorado. Colorado Geological Survey, *Resource Series*, 95 p.
- (3) **Oerter, E**, M Sares, 2010, Geothermometry of warm springs in the Rico Area, Colorado. Geothermal Resources Council, *Transactions*, v. 34, p. 703-707.
- (2) **Oerter, E**, G Brimhall, J Redmond, B Walker, 2007, A method for quantitative pyrite abundance in mine rock piles by powder X-ray diffraction and Rietveld refinement, *Applied Geochemistry*, v. 22, p. 2907-2925, doi: 10.1016/j.apgeochem.2007.08.002
- (1) Krosley, L, P Shaffner, **E Oerter**, T Ortiz, 2006, Digital ground-based photogrammetry for measuring discontinuity orientations in steep rock exposures, 41st U.S. Symposium on Rock Mechanics, Golden, CO, pp 13.

GRANTS AND AWARDS

NSF iUTAH EPSCoR Postdoctoral Fellowship, University of Utah; \$120,000	2015-present
Professor Earl Storie Memorial Fellowship, U.C. Berkeley; \$17,500	2015
Hans and Jean Jenny Graduate Fellowship, U.C. Berkeley	2015
Clay Minerals Society Research Grant; \$2500	2013
Clay Minerals Society, Robert C. Reynolds, Jr award, Best Proposal	2013
Geological Society of America Graduate Student Research Grant; \$2000	2012
Environmental Forum Fellow (ESPM 201C), UC-Berkeley; \$1000	2012
Community Earth System Model Fellowship, Natl. Center Atm. Research; \$1000	2011

TECHNICAL SKILLS

Analytical/Lab: Isotope Ratio Infrared Spectroscopy (H and O stable isotopes in H₂O), Inductively Coupled Plasma Mass Spectrometry (U, Th, Pb radiogenic isotopes in CaCO₃), Isotope Ratio Mass Spectrometry (C and O stable isotopes in CO₂), Secondary Ion Mass Spectrometry (C and O stable isotopes in CaCO₃), Scanning Electron Microscopy, Gas Chromatography, X-ray Diffractometry, X-ray Fluorescence Spectrometry, scientific glass blowing, high vacuum line operation.

Field: Geologic mapping and geomorphic analysis, field investigations of soils, field instrumentation installation and maintenance, water well drilling and logging, sampling of environmental solids, liquids and gases; sample handling protocols and chain of custody requirements, OSHA HAZWOPER training, Wilderness First Aid and CPR, technical rope access techniques for scientific instrumentation installation, swift water rescue training, mechanical and repair skills including electrical, metal machining and welding.

CONTINUING PROFESSIONAL EDUCATION

- Community Earth System Model, Tutorial (5 day), National Center for Atmospheric Research, Boulder, CO, 2011
- Design and Installation of Water Wells, Short Course, National Ground Water Association, Denver, CO, 2009
- Biotic Ligand Model, Short Course, Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry, Golden, CO, 2008
- Coupled Geochemical and Transport Modeling, Short Course, International Ground Water Modeling Center, Colorado School of Mines, Golden, CO, 2007
- Soil Nail Design and Application, Seminar, Deep Foundations Institute, Denver, CO, 2006

SERVICE

- Manuscript Reviews: *Geochimica et Cosmochimica Acta*, *Biogeosciences*, *Ecohydrology*, *Quaternary International*, *Plant and Soil*
- Advisory Board Member, Department of Geological Sciences, University of Colorado-Boulder, 2007-2010
- Alumni Career Forum Member, Department of Earth and Planetary Science, University of California, Berkeley, 2010
- Alumni Career Forum Member, Department of Geological Sciences, University of Colorado, Boulder, 2006-2010
- Database Manager, Colorado Scientific Society, 2008-2010

RECENT ABSTRACTS AND PRESENTATIONS

- Oerter, E**, W Sharp, J Oster, A Ebeling, J Valley, R Kozdon, I Orland, J Hellstrom, J Woodhead, J Hergt, O Chadwick, R Amundson. 2015. C, O, and U isotopes in pedothem carbonates reveal anomalous North American atmospheric circulation 70,000 to 55,000 years ago. American Geophysical Union Fall Meeting, Dec 14-18. San Francisco.
- Oerter, E**, A Ebeling, R Amundson, 2015. Pedothems reveal the aridification of the Atacama Desert. High Resolution Proxies of Paleoclimate Workshop, University of Wisconsin-Madison, May 31 – June 3.
- Oerter, E**, R Amundson, 2014. Soil water seasonal dynamics and their relation to the record of climate recorded by soil carbonate in the Great Basin of western North America. American Geophysical Union Fall Meeting, Dec 15-19. San Francisco.
- Oerter, E**, K Finstad, J Schaefer, G Goldsmith, T Dawson, R Amundson, 2012. Oxygen isotope fractionation effects in soil water via cations adsorbed to high-CEC clays. American Geophysical Union Fall Meeting, Dec 3-7. San Francisco.
- Oerter, E**, R Amundson, A Heimsath, M Jungers, G Chong, 2011. Paleosol-based evidence for humid to semi-arid pre-10 Ma climates in the Atacama Desert, Chile. American Geophysical Union Fall Meeting, Dec 5-9. San Francisco, California.
- Oerter, E**, M Sares, 2010. Geothermal resource assessment in the Rico Area, Colorado. Geothermal Resources Council Annual Meeting, Oct 25-27. Sacramento, California.
- Oerter, E**, 2010, Watershed-scale characterization of water quality in Warden Gulch, Colorado. Seventh National Monitoring Conference – Monitoring from the Summit to the Sea. Apr 25-29. Denver, Colorado.
- Watterson, N, **E Oerter**, 2010. A groundwater vulnerability analysis of a mountainous watershed, Crested Butte, Colorado, National Ground Water Association, National Ground Water Summit, Apr 11-15. Denver, Colorado.

COLORADO GEOLOGICAL SURVEY PUBLICATIONS (various levels of peer review)

- Barkmann, P, M Dechesne, M E Wickham, J Carlson, S Formolo, **E Oerter**, 2011. Cross-sections of the freshwater bearing strata of the Denver Basin between Greeley and Colorado Springs, Colorado. 2 plates, 1:250,000, 15 cross-sections, Colorado Geological Survey, Open-file Report 11-03.
- Watterson, N, **E Oerter**, 2010. Groundwater resource evaluation for the East River watershed, Grand Mesa-Uncompahgre-Gunnison National Forests, Colorado: An analysis of groundwater vulnerability to contamination using the DRASTIC method, report to the USDA Forest Service, Colorado Geological Survey.
- Oerter, E**, Berkman, F, Carroll, C, 2008, Colorado Geothermal Bibliography, Colorado Geological Survey, Information Series 76, 35 p.
- Wood, R, **E Oerter**, 2008. History, geology, and environmental setting of the Micawber Mine and Elk Load in the Ruby Mining District, Gunnison National Forest, Gunnison County, Colorado, Colorado Geological Survey, Open-file Report 08-10.
This is an example of a series of ~20 Open-file Reports pertaining to mined-land geochemistry and remediation in the Rocky Mountains; please contact me for more information.
- Oerter, E**, 2007. Geotechnical Rope Access Manual: Best practices for rock slope investigation, instrumentation and monitoring. Soils and Rockfall Program, Colorado Department of Transportation, Denver, CO.

TEACHING EXPERIENCE

Graduate Student Instructor at UC Berkeley

- Spring 2014, Introduction to the Methods of Environmental Science
Developed lesson plans, taught workshops and led small working groups in this course that introduces students to scientific research and writing.
- Fall 2013, Introduction to Environmental Studies
Developed discussion classes in this course that leverages art and literature to examine environmental issues. *Nominated for Outstanding Graduate Student Instructor*
- Spring 2012, Environmental Issues
Developed materials and taught discussion classes for this introductory course.
Nominated for Outstanding Graduate Student Instructor
- Fall 2004, The Planet Earth
Taught labs and discussion classes in this earth science gateway course.
- Fall 2003, Environmental Geology and Earth Resources
Developed materials and taught classes examining environmental geology.

Invited Guest Lectures

- Spring 2016, Natural Disasters, University of Utah
Fall 2015, Isotope Hydrology, University of Utah