

CURRICULUM VITAE
Beverly Z. Saylor, Ph.D.

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CONTACT INFORMATION

Address: Department of Earth, Environmental and Planetary Sciences
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EDUCATION

Doctor of Philosophy Earth, Atmospheric and Planetary Sciences (1996)
Massachusetts Institute of Technology, Cambridge, MA

Master of Science Earth, Atmospheric and Planetary Sciences (1991)
Massachusetts Institute of Technology, Cambridge, MA

Bachelor of Science Earth, Atmospheric and Planetary Sciences (1990)
Massachusetts Institute of Technology, Cambridge, MA

ACADEMIC APPOINTMENTS

2005 - Present Associate Professor, Earth, Environmental and Planetary Sciences,
Case Western Reserve University, Cleveland, OH

2003-05 George B. Mayer Assistant Professor of Urban & Environmental Studies
Case Western Reserve University, Cleveland, OH

1998-03 Assistant Professor, Geological Sciences,
Case Western Reserve University, Cleveland, OH

1996-98 Weeks Postdoctoral Research Associate, Geology and Geophysics
University of Wisconsin, Madison, WI

HONORS AND AWARDS

2006 Jackson Award for Excellence in Undergraduate Mentoring
2001 Nominee, Wittke Award for Excellence in Undergraduate Teaching
1999 Nominee, USG Undergraduate Teaching Excellence Award
1997 Honorable Mention, Best Paper in Journal of Paleontology
1996 Albert and Alice Weeks post-doctoral fellowship
1991 Clare Boothe Luce graduate fellowship for women

PROFESSIONAL SERVICE

Manuscript review	Geology, GSA Bulletin, JSR, Sedimentary Geology, Palaeogeography, Palaeoclimatology, Palaeoecology, Energy Conversion and Management, Fuel Technology, e-life and others, editorial board for Geology
Proposal review	National Science Foundation, Department of Energy, National Energy Technology Laboratory, Petroleum Research Fund
Regional committees	NORTECH Water Review
Public lectures	Topics include shale gas, climate change and Earth history for the Institute for the Science of Origins, Science Café, Siegel Lifelong Learning Program, municipalities, and other not-for-profit organizations
Workshop member	African Rift Valley Research Consortium Workshop, Cleveland Museum of Natural History, 2015; The Paleobiology, Taxonomy and Paleoecology of Early <i>Australopithecus</i> : A Collaborative Approach to Synthesizing the Evidence, Cleveland Museum of Natural History, 2013, GeoPRISMS, Planning Workshop for the East African Rift System 2012; NSF JOIDES Workshop Margins: From Source to Sink, 2000
Fulbright host	Faculty Associate for Fulbright Visiting Scholar, Dr. Mulugeta Alene, 2011

INSTITUTIONAL SERVICE

1998 – Present	Various department service
2017 – Present	University Faculty Senate
2017	Committee on Undergraduate Education, GER Thinking Group
2016	Chair, Ad Hoc Committee on the General Education Breadth Requirement
2015	Squire and Trehaft Scholarships Interview Committee
2012 – 2015	College of Arts and Sciences Executive Committee
2013 – 2014	Chair, Colleges of Arts and Sciences Executive Committee
2010 – 2012	Search Committee, Engineering Faculty Hiring Initiative
2011	Dean's Review Committee, College of Arts and Sciences
2010	University Faculty Senate
2010 – 2011	Chair, College of Arts and Sciences Strategic Planning Committee
2009 – 2011	College of Arts and Sciences Budget Sub-committee
2008 – 2011	College of Arts and Sciences Strategic Planning Committee
2009 – 2010	University Energy Alliance Working Group
2000 – 2010	University Farm Committee
2005 – 2008	College of Arts and Sciences Executive Committee
2001 – 2006	Co-Founder, Co-Director, Women in Science & Engineering Roundtable
2000 – 2002	University Undergraduate Faculty Executive Committee

TEACHING

(Courses since 2005, number of students in parentheses.)

SAGES	FSNA 113 Environmental Decision Making – Yr: 2007 (17), 2009 (17), 2010 (17), 2011 (16), 2013 (16), 2015 (17) USNA 206 Land and Life – Yr: 2005 (17), 2006 (17), 2007 (18), 2008 (19)
Lecture + Lab	GEOL/EEPS 301/401 Stratigraphy and Sedimentology - Yr: 2009 (12), 2013 (7), 2014 (12), 2016 (10)
Field Methods	GEOL/EEPS 317/417 Introduction to Geological Field Methods, 2005 (5), 2007 (11), 2010 (9), 2012 (9), 2013 (12), 2015 (6)
Thesis Sequence	EEPS 390 Introduction to Geological Research – Yr: 2015 (2), 2017 (7) EEPS 391 Senior Project – Yr: 2005 (1), 2006 (1), 2008 (1), 2011 (2), 2012 (1), 2014 (2), 2016 (1) EEPS 392 Professional Presentation – Yr: 2005 (2)
Graduate Seminar	EEPS 471 Shale Energy – Yr: 2012 (4)

Guest lectures for other courses and reading courses for graduate students.

ADVISING

Doctor of Philosophy Angeline Catena, secondary advisor, Ph.D in Biological Sciences, expected 2018

Julie Bloxson, Ph. D, expected 2017

Mineralogical and facies variations within the Utica Shale and adjacent formations, Ohio using visible derivative spectroscopy, principal component analysis, and multivariate clustering of well logs

Ruth Jacob, Ph.D, 2015

Processes related to hydrodynamic and mineral trapping for the purpose of carbon storage in deep saline aquifers

Biniam Zerai, Ph.D, 2006

CO₂ sequestration in saline aquifer: geochemical modeling, reactive transport simulation and single-phase flow experiment

Master of Science Evan Scott, secondary advisor, M.S., 2015,
The first monodominant hadrosaur bonebed from the Oldman Formation (Campanian) of Alberta

Joshua Angelini, M.S., 2009

Tephrostratigraphy in the Woranso-Mille study area in the Afar region of Ethiopia

Michael Oliver, secondary advisor, M.S. in Mechanical Engineering, 2004

Thesis Committee	11 additional Ph.D students and 8 additional M.S. students
Senior Project	Katherine Allen ('06), Madeline Atkins ('15), Dylan Davis ('12), Colleen Laird ('18), Evan Lanese ('15), Emily LaPietra ('12), Neil Mathes ('18), Christopher Mudry ('15), Andrew Opsitnik ('09), Kristen Poinar ('07, physics), Janice Poling ('01), Lauren Skaggs ('07), Jonathan Stebbins ('18).
First Year Advisor	17 students per year during 2007, 2009, 2010, 2011, 2013, 2015

RESEARCH AWARDS

External

2013 - 2017	National Science Foundation; Can habitat and elevation explain mid-Miocene Neotropical mammal provinciality, with Darin Croft as PI; \$233,934.
2012 - 2016	National Science Foundation; Collaborative Research: Pliocene Geology, Geochronology, and Paleoanthropology of Woranso-Mille Ethiopia, PI \$66,969.
2010 - 2012	Ohio Air Quality Development Authority; Baseline calibration of Geophysical Properties of Reservoir and Cap Rock, PI; \$139,031.
2010 - 2012	Ohio Coal Research Consortium; Modeling and Experimental Study of Gas, Brine, Rock Reactions during Injection and Storage of CO ₂ and CO-injectants, PI; \$159,785.
2004 - 2010	Ohio Coal Research Consortium; CO ₂ -Brine-Rock Reactions for Carbon Sequestration in Ohio's Deep Sandstone Formations, PI; \$480,000.
2002 - 2005	Environmental Protection Agency, Lake Erie Trophic Status, collaborator with G. Matisoff as PI; \$25,000 for my part of multi-investigator project.
2001 - 2003	Ohio Coal Research Consortium; Multiphase Flow Characterization in Geological Formations for CO ₂ Sequestration, co-PI with J. R. Kadambi; \$149,271.
2000 - 2004	Ohio Coal Development Organization; Carbon Dioxide Sequestration in the Rose Run Formation, PI; \$314,000.
2000 - 2002	National Science Foundation; Geochemical Fingerprinting of Volcanic Ash Beds from the Terminal Proterozoic Nama Group, Namibia, PI; \$38,387.
2000 - 2002	Ohio Sea Grant, AMS Radiocarbon Age Constraints on Lake Erie Record of Lake Level and Climate Change, PI; \$7,497.

Internal

2007	Academic Careers in Engineering and Science Department Initiative Grant; \$10,000.
2001 - 2002	Ohio Board of Regents President's Research Initiative; Technology Development for Sequestration of Carbon Dioxide and Hazardous Waste, PI; \$49,942.
1999 - 2000	Nord Grant; Interdisciplinary Course Development, PI; \$10,000.
1999 - 2000	Hewlett Grant for Curricular Revisions; PI; \$6,500.
1999 - 2000	Flora Stone Mather Alumni Association; Field Course Development, PI; \$1,500.

REFEREED PUBLICATIONS

(BZS and students are shown in bold; first authors contributed the greatest effort; relationship of order to contribution for later authors varies. * indicates selected papers.)

- In review **Jacob, R.** and **Saylor, B.Z.**, Experimental measurements of SO₂ and CO₂ co-dissolved in DI and NaCl brine at pressures up to 10 MPa, *Journal of Greenhouse Gas Control*
- 2017 Alene, M., Hart, W.K., **Saylor, B.Z.**, Deino, A., Mertzman, S., Haile-Selassie, Y., and Gibert, L., Geochemistry of Woranso-Mille Pliocene basalts from west-central Afar, Ethiopia: Implications for mantle source characteristics and rift evolution, *Lithos*, v. 282-283, p. 187-200. doi:10.1016/j.lithos.2017.03.005.
- 2016 **Catena, A.M.**, Hembree, D.I., **Saylor, B.Z.**, Anaya, F., Croft, D.A., Paleoenvironmental analysis of the neotropical fossil mammal site of Cerdas, Bolivia (middle Miocene) based on ichnofossils and paleopedology, *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 459, p. 423-439, doi:10.1016/j.palaeo.2016.07.028.
- 2016 Haile-Selassie, Y., Melillo, S.M., Ryan, T.M., Levin, N.E., **Saylor, B.Z.**, Deino, A., Mundil, R., Scott, G., Alene, M., Gibert, L., Dentognathic remains of *Australopithecus afarensis* from Nefuraytu (Woranso-Mille, Ethiopia): Comparative description, geology, and paleoecological context, *Journal of Human Evolution*, v. 100, p. 35-53, doi:10.1016/j.jhevol.2016.08.003.
- 2016 **Jacob, R.** and **Saylor, B.Z.**, CO₂ solubility in multi-component brines containing NaCl, KCl, CaCl₂ and MgCl₂ at 297 K and 1 - 14 MPa. *Chemical Geology*, v. 424, p. 86-95, doi:10.1016/j.chemgeo.2016.01.013.
- 2016 ***Saylor, B.Z.**, **Angelini, J.**, Deino, J., Alene, M., Fournelle, J., Haile-Selassie, Y., Tephrostratigraphy of the Waki-Mille area of the Woranso-Mille Paleanthropological Research Project Area, Afar, Ethiopia, *Journal of Human Evolution*, v. 93, p. 25-45, doi:10.1016/j.jhevol.2015.12.007.
- 2016 **Saylor, B.Z.**, Alene, M., Deino, A., Gibert, L., Haile-Selassie, Y., Melillo, S., Scott, G., The geologic context of Korsi Dora and the KSD-VP1/1, in Haile-Selassie, Y. and Su, D., eds. *The Postcranial Anatomy of Australopithecus afarensis*, Springer Netherlands, p. 13-23, doi:10.1007/978-94-017-7429-1_2.
- 2015 Haile-Selassie, Y., Gibert, L., Melillo, S.M., Ryan, T.M., Alene, M., Deino, A., Levin, N.E., Scott, G., and **Saylor, B.Z.** New species from Ethiopia further expands Middle Pliocene hominin diversity, *Nature*, v. 521, p. 483-488, doi:10.1038/nature14448.
- 2015 Levin, N.E., Haile-Selassie, Y., Frost, S.R., and **Saylor, B.Z.**, Dietary change among hominins and cercopithecids in Ethiopia during the early Pliocene, *Proceedings of the National Academy of Sciences*, v. 112, p. 12304-12309, doi:10.1073/pnas.1424982112
- 2014 Angus, J.C., Percy, S.W., **Saylor, B.Z.**, eds, Summer Issue of the Bridge on Shale Gas: Promises and Challenges, *National Academy of Engineering*, v. 22, n. 2.
- 2014 Angus, J.C., Percy, S.W., **Saylor, B.Z.**, NAE Topical Meeting: Shale Gas: Promises and Challenges, Editor's Note, in Angus, J.C., Percy, S.W., **Saylor, B.Z.**, eds.,

- Summer issue of the Bridge on Shale Gas: Promises and Challenges, National Academy of Engineering, v. 22, n. 2, p 22-25.
- 2012 Haile-Selassie, Y., **Saylor, B.Z.**, Deino, A., Levin, N.E., Alene, M., A new hominid foot from Ethiopia shows multiple Pliocene bipedal adaptations, *Nature*, v. 483, p. 565, doi:10.1038/nature10922.
- 2010 Deino, A., Scott, G., **Saylor, B.Z.**, Alene, M., Haille-Selassie, Y., **Angelini, J.**, $^{40}\text{Ar}/^{39}\text{Ar}$ dating, paleomagnetism, and tephrochemistry of Pliocene strata of the hominid-bearing Woranso-Mille area, west central Afar Rift, Ethiopia, *Journal of Human Evolution*, v. 58, p. 111-126, doi:10.1016/j.jhevol.2009.11.001.
- 2010 Haile-Selassie, Y., Latimer, B.M., Alene, M., Deino, A.L., Gibert, L., Melillo, S.M., **Saylor, B.Z.**, Scott, G.R., and Lovejoy, C.O., An early *Australopithecus afarensis* postcranium from Woranso-Mille, Ethiopia, *Proceedings of the National Academy of Sciences*, v. 107, p. 12121-12126, doi:10.1073/pnas.1004527107.
- 2010 Haile-Selassie, Y., **Saylor, B.Z.**, Deino, A., Alene, M., Latimer, B.M., 2010, New Hominid Fossils from Woranso-Mille (Central Afar, Ethiopia) and Taxonomy of Early *Australopithecus*, *American Journal of Physical Anthropology*, v. 141, p. 406-417, doi:10.1002/ajpa.21159.
- 2009 ***Zerai, B., Saylor, B.Z.**, and Allen, D., Quantification of CO₂ trapping and storage capacity in the subsurface; uncertainty due to solubility models, in McPherson B. and Sundquist E.T., eds., *Carbon Sequestration and Its Role in the Global Carbon Cycle: Geophysical Monograph*, v. 183, p. 249-260, doi:10.1029/2005GM000323.
- 2007 Haile-Selassie, Y., Deino, A., **Saylor, B.**, Umer, M., and Latimer, B., Preliminary geology and paleontology of new hominid-bearing Pliocene localities in the central Afar region of Ethiopia, *Anthropological Science*, v. 115, p. 215-222, doi:10.1537/ase.070426.
- 2006 **Oliver, M.J.**, Kadambi, J.R., and **Saylor, B.Z.**, Pore-scale Interfacial Velocity Measurement: An Experimental Investigation of Immiscible Displacement in Porous Media, *Journal of Environmental Engineering and Management*, v. 16, p. 283-287.
- 2006 **Zerai, B., Saylor, B.Z.**, and Matisoff, G., Computer Simulation of CO₂ trapped through mineral precipitation in the Rose Run Sandstone, Ohio, *Applied Geochemistry*, v. 21, p. 223-240. doi:10.1016/j.apgeochem.2005.11.002.
- 2005 **Clotts, R.A., McCambridge, C.E.**, Barrera, E., **Saylor, B.Z.**, Palmer, D.F., and Coakley, J.P., Mid-Holocene hydrologic change and hypolimnion formation in Lake Erie, *Journal of Great Lakes Research*, v. 31, p. 296-308, doi:10.1016/S0380-1330(05)70322-1.
- 2005 ***Saylor, B.Z., Poling, J.M.**, Huff, W., Stratigraphic and geochemical correlation of ash beds in the terminal Proterozoic Nama Group, Namibia, *Geological Magazine*, v. 142, p. 519-538, doi:10.1017/S0016756805000932.
- 2005 **Zerai, B., Saylor, B.Z.**, Kadambi, J.R., **Oliver, M.**, Mazaheri, A.R., Ahmadi, G., Bromhal, G.S., and Smith, D.H., Flow characterization through a network cell using particle image velocimetry, *Transport in Porous Media*, v. 60, p. 159-181, doi:10.1007/s11242-004-4796-6.
- 2005 Mazaheri, A.R., **Zerai, B.** Ahmadi, G., Kadambi, J.R., **Saylor, B.Z., Oliver, M.**, Bromhal, G.S., and Smith D.H. Computer simulation of flow through a lattice flow-cell model, *Advances in Water Resources*, v. 28, p. 1267-1279, doi:10.1016/j.advwatres.2004.10.016.

- 2004 **Saylor, B. and Zerai, B.**, Injection and trapping of CO₂ in deep saline aquifers, *in* Gieré R. and Stille P., eds., *Energy, Waste, and the Environment: A Geochemical Approach*: Geological Society, London, Special Publication 236, p. 285-296.
- 2003 **Saylor, B.Z.**, Sequence stratigraphy and carbonate-siliciclastic mixing in a terminal Proterozoic foreland basin, Urusis Formation, Nama Group, Namibia, *Journal of Sedimentary Research*, v. 73, p. 262-277, doi:10.1306/082602730264.
- 2000 Jensen, S., **Saylor, B.Z.**, Gehling, J., Germs, G.J.B., Behavioral evolution and the Cambrian “explosion”: new evidence from the terminal Proterozoic of Namibia, *Geology*, v. 28, p. 143-146, doi:10.1130/0091-7613(2000).
- 1999 **Choi, Y.S.**, Simo, J.A., **Saylor, B.Z.**, Sedimentologic and sequence stratigraphic interpretation of a mixed carbonate-siliciclastic ramp, mid-continent epeiric sea, Late Ordovician Decorah and Galena formations, Wisconsin, in Harris P.M., Saller, A., and Simo, J.A., eds., *Advances in Carbonate Sequence Stratigraphy: SEPM Special Publication 62.*, p. 275-289.
- 1998 **Saylor, B.Z.**, Grotzinger, J.P., Kaufman, A.J., **Urban, F.**, A composite reference section for terminal Proterozoic Strata of southern Namibia, *Journal of Sedimentary Research*, v. 68, p. 1223-1235.
- 1997 Narbonne, G.M., **Saylor, B.Z.**, Grotzinger, J.P., The youngest fossils from southern Africa, *Journal of Paleontology*, v. 71, p. 953-967, doi:10.1017/S0022336000035940.
- 1996 **Saylor, B.Z.** and Grotzinger, J.P., Reconstruction of important Proterozoic-Cambrian boundary exposures through the recognition of thrust deformation in the Nama Group of southern Namibia, *Communications of the Geological Society of Namibia*, v. 11, p. 1-12.
- 1995 **Saylor, B.Z.**, Grotzinger, J.P., and Germs, G.J.B., Sequence stratigraphy and sedimentology of Vendian to Cambrian Kuibis and Schwarzrand Subgroups of Namibia, *Precambrian Research*, v. 73, p. 153-171.
- 1995 Grotzinger, J.P., Bowring, S.A., **Saylor, B.Z.**, Kaufman, A.J., New constraints on animal evolution, *Science*, v. 270, p. 598-604, doi:10.1126/science.270.5236.598.
- 1993 **Saylor, B.Z.**, Progress report on the sedimentology and stratigraphy of the Kuibis and Schwarzrand Subgroups, Witputs area, southwestern Namibia, *Communications of the Geological Society of Namibia*, v. 8, p. 127-135.
- 1992 **Saylor, B.Z.**, 1992, Reconnaissance of the stratigraphy and structure of the Basler Lake area, southern Wopmay Orogen, Northwest Territories, *Current Research, Part C*, Geological Survey of Canada, v. 92-1C, p. 259-268.

CONFERENCES ORGANIZED AND INVITED LECTURES

- 2013 National Academy of Engineering Topical Conference on the Promises and Challenges of Shale Gas, Cleveland, Ohio, conference co-organizer.
- 2005 AGU Chapman Conference on Carbon Sequestration and Its Role in the Global Carbon Cycle, San Diego, California, conference coordinator and co-chair.
- 2004 "Injection and Trapping of CO₂ in Deep Saline Aquifers" 11'th International Symposium on Supercritical Fluid Chromatography, Extraction and Processing, Pittsburgh, Pennsylvania, invited lecture.

FIELD GUIDES

- 1997 **Saylor, B.Z.**, Byers, C.W., and Simo, J.A., Middle and Upper Ordovician paleoceanography and paleoclimate, in Mudrey, M.G. Jr. ed. Guide to field trips in Wisconsin and adjacent areas of Minnesota, Geological Society of America North Central Section.
- 1995 **Saylor, B.Z.**, Field guide to the Nama, Witvlei and related basins, southern Namibia, Part B, IGCP Project 320.
- 1995 Hoffmann, K.H., **Saylor, B.Z.**, Grotzinger, J.P., Hegenberger, W., Field guide to the Nama, Witvlei, and related basins in southern Namibia , Part A., IGCP Project 320.

THESES

- 1996 **Saylor, B.Z.**, Sequence stratigraphy and chemostratigraphy of Neoproterozoic basins in southern Namibia, Doctoral thesis. 220 p.
- 1991 **Saylor, B.Z.**, The Titus Canyon Formation: Evidence for early Oligocene strike slip deformation in the Death Valley area, CA, Masters thesis, 54 p.

RECENT CONFERENCE ABSTRACTS

- 2016 Catena, A.M., Saylor, B.Z., Croft, D.A., Using ichnofossils and paleosols to reconstruct the Middle Miocene paleoenvironment of Quebrada Honda, Bolivia, Geological Society of America Abstracts with Programs, v. 48, no. 7.
- 2016 Bloxson, J.M. and Saylor, B.Z. Core reflectance spectroscopy and well logging of the Point Pleasant/Utica sub-basin, Ohio, AAPG Eastern Section Meeting, Lexington Kentucky Sept. 25-27.
- 2015 Catena, A.M., Hembree, D.I., Saylor, B.Z., and Croft, D.A., Reconstructing Miocene neotropical paleoenvironments: a case study from the paleosols and ichnofossils of Cerdas, Bolivia, Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p.717.
- 2015 Catena, A.M., Saylor, B.Z., and Croft, D.A., Reconstructing the Middle Miocene paleoenvironment of Quebrada Honda, Bolivia, using ichnology and paleopedology, Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p.595.
- 2015 Bloxson, J.M., Saylor, B.Z., Ortiz, J., and Cowen, J.E., Mineralogy of the Point Pleasant Formation within the Sebree Trough, SW Ohio, using VNIR spectroscopy and XRD, Geological Society of America Abstracts with Programs. Vol. 47, No. 7, p.759.
- 2015 Alene Araya, M., Saylor B.Z., Deino A., Hart W.K., Mertzman S.A., Gibert L.B. & Haile-Selassie Y., Geochemistry and mantle source characteristics of the Woranso-Mille Pliocene basalts, West-Central Afar Rift, Ethiopia, Goldschmidt Abstracts, 105.
- 2013 Alene, M., Deino, A., Saylor, B.Z., Mertzman, S., Hart, W.K., Haile-Selassie, Y., Levin, N.E., and Gibert, L.B., Geochemical and Sr-Nd-Pb isotope characteristics of Woranso-Mille Pliocene basalts, west-central Afar, Ethiopia, 24th Colloquium of African Geology, Addis Ababa, Ethiopia.
- 2012 Jacob, R. and Saylor, B, Characterization of CO₂ Solubility in Brines for the Purpose of Carbon Sequestration: Focus on the Rose Run Formation in Eastern Ohio, AAPG, Eastern Section, Cleveland, OH.

