

BEVERLY Z. SAYLOR

Curriculum Vitae

Department of Geological Sciences
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EDUCATION

1996 Ph.D - Massachusetts Institute of Technology (Geology)
1991 M.S. - Massachusetts Institute of Technology (Geology)
1990 B.S.- Massachusetts Institute of Technology (Earth Science)

EMPLOYMENT

2004- Associate Professor, Geological Sciences, CWRU
2003-04 George B. Mayer Assistant Professor of Urban & Environmental Studies, CWRU
1998-03 Assistant Professor, Geological Sciences, CWRU
1996-98 Weeks Postdoctoral Research Associate, U.W. Madison

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

WOMEN IN SCIENCE AND ENGINEERING ROUNDTABLE

Co-founder and co-director since 2001

Learning community for undergraduate women in science and engineering at Case.
Currently there are more than 100 participating students.

<http://burro.astr.cwru.edu/women/>

TEACHING AT CASE WESTERN RESERVE UNIVERSITY

Land and Life (Part of the new SAGES curriculum)
On Being a Scientist
Energy and Society
Sedimentation and Stratigraphy
Geological Field Methods, field courses in West Virginia and Death Valley
Environmental Field Methods, field course in Florida and the Bahamas
Professional Presentation
Various reading/seminar courses for graduate and undergraduate students.

DEPARTMENT AND UNIVERSITY SERVICE

College of Arts and Sciences Executive Committee
Co-Director, Women in Science & Engineering Roundtable
Vice Chair, University Undergraduate Faculty Executive Committee
University Farm Committee
Coordinator, Department Seminar Series

PROFESSIONAL ACADEMIC SERVICE

Editorial Board for Geology
Ad hoc manuscript review: Geology, GSA Bull., Journal of Sedimentary,
Sedimentary Geology, Research, Paleo³, G³, Energy Conv. Manage., Fuel
Technology, and others
Ad hoc proposal review: NSF
OCDO/OCRC Working Committee
NSF/JOIDES Workshop - Margins: From Source to Sink

CONFERENCES CHAIRED

2005 Coordinator and Co-Chair for AGU Chapman conference on the Science and
Technology of Carbon Sequestration

INVITED CONFERENCE LECTURES

2004 "Injection and Trapping of CO₂ in Deep Saline Aquifers", 11th International
Symposium on Supercritical Fluid Chromatography, Extraction, and Processing",
Pittsburgh, PA.

FIELD TRIP LEADERSHIP

1997 North Central Section field trip in Wisconsin
1995 IGCP field trip in Namibia

STUDENTS ADVISED

- Biniam Zerai, Ph.D, 2005
- Michael Oliver, MS, 2004, ASME, co-advisor
- Zachary Jencks, MS expected December 2006
- Thesis Committees: 4 additional Ph.D students, 5 additional M.S. students
- Undergraduate student theses: 4

GRANTS AWARDEDExternal

Ohio Coal Development Organization, “CO₂-Brine-Rock Reactions for Carbon Sequestration in Ohio’s Deep Sandstone Formations”, PI
9/1/04-8/30/07 \$240,984

Environmental Protection Agency, “Lake Erie Trophic Status”,
Co-PI with G. Matisoff and others
6/1/02-12/31/05 \$25,000

Ohio Coal Research Consortium, “Multiphase Flow Characterization in Geological Formations for CO₂ Sequestration”, co-PI with J. R. Kadambi
9/1/01-9/30/03 \$149,271

Ohio Coal Development Organization, “Carbon Dioxide Sequestration in the Rose Run Formation”, PI
9/1/00-9/30/04 \$314,000

National Science Foundation, “Geochemical Fingerprinting of Volcanic Ash Beds from the Terminal Proterozoic Nama Group, Namibia”, PI
7/1/00-6/31/02 \$38,387

Ohio Sea Grant, “AMS Radiocarbon Age Constraints on Lake Erie Record of Lake Level and Climate Change”, PI
3/1/00-2/28/02 \$7,497

Internal

Ohio Board of Regents Presidents Research Initiative, "Technology Development for Sequestration of Carbon Dioxide and Hazardous Waste", PI 1/1/01-12/31/02	\$49,942
Nord Grant, Interdisciplinary Course Development, PI 8/1/99-7/31/00	\$10,000
Hewlett Grant for Curricular Revisions, PI 11/1/99-10/31/00	\$6,500
Flora Stone Mather Alumni Association, Field Course Development, PI 10/1/00-9/31/00	\$1,500
President's Computer Fund, " Computer Visualization Lab", PI	DEL PC

REFEREED PUBLICATIONS

(BZS and her Case students are shown in bold face, undergraduate students are marked by *)

- In Review – **Zerai, B., Saylor, B.Z.**, and Allen, D., Evaluation of models for the solubility of CO₂ in brine, AGU Monograph on the Science and Technology of Carbon Sequestration.
- 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 16(1).
- 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.
- 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.
- 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.
- 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 in porous media using Particle Image Velocimetry, Transport in Porous Media, v. 60, p. 159-181.
- 2005 - Mazaheri, A.R., Ahmadi, G., Kadambi, J.R., **Saylor, B.Z., Zerai, B., Oliver, M.**, Bromhal, G.S., and Smith D.H. Computer simulation of flow

- through a lattice flow cell model, *Journal of Advances in Water Resources*, v. 28, p. 1267-1279.
- 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, v. 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.
- 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.
- 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., A. Saller and J.A. Simo, 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.
- 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.
- 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, Geol. Surv. Canada*, v. 92-1C, p. 259-268.

OTHER PUBLICATIONS

- 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, Geol. Soc. Am. North Central Sect.
- 1996 - **Saylor, B.Z.**, Sequence stratigraphy and chemostratigraphy of Neoproterozoic basins in southern Namibia, Doctoral thesis. 220 p.
- 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.
- 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.

ABSTRACTS & CONFERENCE PROCEEDINGS

- 2005 - **Saylor, B.Z.**, Hanson, C.B., Matisoff, G, 2005, Experimental constraints on gas-brine-rock reactions under conditions of elevated temperature, pressure, and salinity, AGU Chapman Conference on the Science and Technology of Carbon Sequestration
- 2005 - **Zerai, B.**, Allen, D., and **Saylor, B.Z.**, 2005, Geochemical modeling of carbon storage capacity in deep saline aquifers, AGU Chapman Conference on the Science and Technology of Carbon Sequestration
- 2004 - **Saylor, B.Z.** "Injection and Trapping of CO₂ in Deep Saline Aquifers", 11th International Symposium on Supercritical Fluid Chromatography, Extraction, and Processing", Pittsburgh, PA., Invited Lecture
- 2004 - **Zerai, B.**, **Saylor, B.Z.**, and Matisoff, G., Kinetic Modeling and Geochemical Reactions for Sequestration of CO₂ in Deep Saline Aquifer. Third Annual Conference on Carbon Sequestration, DOE-NETL, Alexandria, VA.
- 2004 - **Oliver, M.J.**, Kadambi, J.R., **Saylor, B.**, Ferer, M., Bromhal, G.S., and Smith, D.H., An experimental investigation of the motion of a gas-liquid displacement interface in an artificial porous medium, Proceedings of HTFED04, Heat Transfer/Fluids Engineering Summer Conference, Charlotte, NC.
- 2004 - Mazaheri, A.R., Ahmadi, G., **Zerai, B.**, Kadambi, J.R., **Saylor, B.Z.**, **Oliver, M.**, Bromhal, G.S., and Smith D.H. Numerical Simulations and Particle Imaging Velocimetry Measurements of Fluid Flow through a Lattice Model. The 15th International Conference on Computational Methods in Water Resources (CMWR), Chapel Hill, North Carolina.
- 2003 - **Oliver, M.**, **Zerai, B.**, **Saylor, B.Z.**, and Kadambi, J., Characterization of multiphase flow through porous media, Pittsburgh Coal Conference.

- 2003 - **Zerai, B., Saylor, B.Z.**, and Matisoff, G., Kinetic Modeling of CO₂ sequestration reactions in a deep saline aquifer, American Chemical society Meeting, New York, NY.
- 2002 - **Zerai, B., Saylor, B.Z.**, and Matisoff, G., Modeling of CO₂-Brine-Rock Reactions in a Mixed Carbonate-Siliciclastic Aquifer, Geological Society of America.
- 2002 - **Saylor, B.Z.**, Matisoff, G., Morrison, P., **Janda, N., and Zerai, B.**, Geochemical reactions during geologic sequestration of CO₂ in the Rose Run Formation, Ohio USA, V.M. Goldschmidt Conference, Davos, Switzerland.
- 2002 - **Zerai, B., Saylor, B.Z.**, Kadambi, J.R., Characterization of microscale flow through porous media for geologic sequestration of CO₂, V.M. Goldschmidt Conference, Davos, Switzerland.
- 2002 - **Zerai, B., Saylor, B.Z.**, and Matisoff, G., Modeling of CO₂ – Brine – Rock Reaction in a Mixed Carbonate – Siliciclastic Aquifer. Geological Society of America North Central – Southeast Joint Regional Meeting, Lexington, KY.
- 2002 - Matisoff, G., **Saylor, B.Z.**, Morrison, P., **Janda, N., and Zerai, B.**, Geochemical Reactions during Geologic Sequestration of CO₂ in the Rose Run Formation. Second Ohio Carbon Dioxide Reduction, Sequestration and Capture Forum. Lancaster, OH.
- 2002 - **Zerai, B., Janda, N.B.**, Saylor, B. Z., Matisoff, G., Morrison, P.W., Geochemical Reactions for Sequestration of CO₂ in Ohio's Deep Saline Aquifers. Pittsburgh Coal Conference, Pittsburgh, PA.
- 2001- McPherson, B.J.O.L., and **Saylor, B.Z.**, Driving regional scale groundwater flow in the deep Michigan basin: glacial loading vs. variable density flow, EOS Trans. AGU
- 2001- **Poling, JM, Saylor, B.Z.**, Huff, W., Feasibility of Geochemical Fingerprinting for Correlation of Late Proterozoic Ash Beds, Geological Association of Canada, Annual Meeting.
- 2001- **Saylor, B.Z.**, Matisoff, G., Morrison, P.W., Geologic and Geochemical evaluation of the Potential for CO₂ Disposal in Deep Saline Aquifers Beneath Ohio, First National Conference on Carbon Sequestration.
- 2001- **Janda, N.B.**, Morrison, P.W., **Saylor, B.Z.**, Matisoff, A Methodology for Measuring the Rate of Reaction of CO₂ with Brine-Rock Mixtures, First National Conference on Carbon Sequestration.
- 1999-**Saylor, B.Z.**, Evolution of mixed siliciclastic-carbonate platforms in the terminal Proterozoic Nama foreland basin, Bathurst Meeting.
- 1999-**Saylor, B.Z.**, Simo, J.A., Choi, Y.S., Byers, C.W., Facies control on omission surface position and diagenesis, AAPG/SEPM Abstr. Prog.
- 1997- **Saylor, B.Z.**, Simo, J.A., Byers, C.B., Implications of hardground-prone settings, CSPG-SEPM Program. Abstr., p 249.

- 1996– **Saylor, B.Z.**, Chemostratigraphic and sequence stratigraphic constraints on the evolution of the terminal Proterozoic to Cambrian Nama basin, Namibia, GSA Abstracts, v. 28, p. 144.
- 1995- Grotzinger, J.P., Bowring, S.A., **Saylor, B.Z.**, 1995, New Constraints on Early Animal Evolution , GSA Abstracts, v. 27, p. A268.
- 1995- Narbonne, G.M., **Saylor, B.Z.**, Grotzinger, J.P., 1995, The Youngest Ediacaran- Type Fossils in Southern Africa, GSA Abstracts, v. 27, p. A268.
- 1995 - **Saylor, B.Z.**, Grotzinger, J.P., Kaufman, A.J., Chronostratigraphy of the Vendian to Cambrian Nama Group, Namibia, GSA Abstracts, v. 27 p. A268.
- 1994 - **Saylor, B.Z.**, Hodges, K.V., $^{40}\text{Ar}/^{39}\text{Ar}$ age constraints on the depositional history of the Oligocene Titus-Canyon Formation, Death Valley, CA, GSA Cordilleran Section Abstracts, v. 26, p. 88.
- 1993- **Saylor, B.Z.**, Grotzinger, J.P., Sequence stratigraphy of the Vendian to Cambrian Kuibis and Schwarzrand subgroups (Nama Group) Namibia, GSA Abstracts v. 25, p. A49.
- 1991 - **Saylor, B.Z.**, Hodges, K.V., The Titus Canyon Formation: Evidence for early Oligocene extension in the Death Valley area, CA, GSA Abstracts, v. 23, p. A82.