

Timothy Michael Demko

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Education

Ph.D., Geosciences, University of Arizona (1995)

Advisor: Dr. Judy Parrish

Dissertation: Taphonomy of fossil plants Upper Triassic Chinle Formation

M.S., Geology, Auburn University (1990)

Advisor: Dr. Robert Gastaldo

Thesis: Paleogeography and depositional environments of the lower Mary Lee coal zone, Pottsville Formation, northwestern Alabama

B.S., Geosciences, Pennsylvania State University (1983)

Employment History

CURRENT

Geologist IV, Kentucky Geological Survey, Lexington, KY (2026-present)

PREVIOUS

- *Geologist*, Bureau of Land Management, Department of the Interior, Phoenix, AZ (2022-2026)
- *Geologist II*, State of Arizona, Arizona State Land Department, Phoenix, AZ (2021)
- *Senior Research Advisor*, ExxonMobil Upstream Research Company, Spring, TX (2013-2021)
- *Senior Research Associate*, ExxonMobil Upstream Research Company, Houston, TX (2009-2013)
- *Senior Exploration Geologist*, ExxonMobil Exploration Company, Houston, TX (2007-2009)
- *Assistant Professor*, Department of Geological Sciences, University of Minnesota Duluth (2002-2007)
- *Senior Exploration Geologist*, ExxonMobil Production Company, Houston, TX (2001-2002)
- *Senior Research Geologist*, ExxonMobil Upstream Research Company, Houston, TX (1999-2001)
- *Senior Research Geologist*, Exxon Production Research Company, Houston, TX (1996-1999)
- *Postdoctoral Fellow*, Dept. of Earth Resources, Colorado State University, Ft. Collins, CO (1994-1996)
- *Lecturer*, Department of Geological Sciences, University of Arizona, (Fall Semester, 1992)
- *Teaching and Research Assistant*, Department of Geological Sciences, University of Arizona (1990-1994)
- *Lecturer*, Department of Geology, Auburn University (Fall Semester, 1989)
- *Teaching and Research Assistant*, Department of Geology, Auburn University (1988-1990)
- *Geologist*, P&N Coal Company, Punxsutawney, PA (1984-1988)

PUBLICATIONS

Peer-reviewed articles, chapters, and guidebooks

- Bodenbender, B.E., and **Demko, T.M.**, 2005, Multidisciplinary field investigation: Using shared logistics to increase research productivity: Council on Undergraduate Research Quarterly, v. 25, p. 156-161.
- Bohacs, K.M., Hasiotis, S.T., and **Demko, T.M.**, 2007. Continental ichnofossils of the Green River and Wasatch Formations, Eocene, Wyoming: a preliminary survey, proposed relation to lake-basin type, and application to integrated paleo-environmental interpretation, Mountain Geologist, v. 44 (2), p. 79-108.
- Bohacs, K.M., Lamb-Wozniak, K., **Demko, T.M.**, Eleson, J., McLaughlin, O., Lash, C., Cleveland, D.M., and Kaczmarek, S., 2013, Vertical and lateral distribution of lacustrine carbonate lithofacies at the parasequence scale in the Miocene Hot Spring limestone, Idaho: An analog addressing reservoir presence and quality. AAPG Bulletin, v. 97 (11): 1967–1995.
- Bohacs, K.M., Lazar, O.R., and **Demko, T.M.**, 2014, Parasequence types in shelfal mudstone strata—Quantitative observations of lithofacies and stacking patterns, and conceptual link to modern depositional regimes. Geology, v.42, p. 131–134.
- Demko, T.M.**, 1990, Depositional environments of the lower Mary Lee coal zone, Pottsville Formation: in Gastaldo, R.A., **Demko, T.M.**, and Liu, Y., eds., Carboniferous coastal communities of the Mary Lee coal zone, Marion and Walker Counties, Alabama: Geological Society of America, Southeastern Section Field Trip Guidebook IV, p. 4-18.
- Demko, T.M.**, 1995, Taphonomy of fossil plants in Petrified Forest National Park, Arizona: Fossils of Arizona - Vol. III, Proceedings 1995 Southwest Paleontological Society and Mesa Southwest Museum, p. 37-52.
- Demko, T.M.**, and Gastaldo, R.A., 1992, Paludal environments of the Mary Lee coal zone, Pottsville Formation, Alabama: Stacked clastic swamps and peat mires: International Journal of Coal Geology, v. 20, p. 23-47.
- Demko, T.M.**, and Gastaldo, R.A., 1996, Eustatic and autocyclic influences on the deposition of the Mary Lee coal zone and associated marine strata, Warrior basin, Alabama: International Journal of Coal Geology, v. 31, p. 3-19.
- Demko, T.M.**, and Parrish, J.T., 1998, Paleoclimatic setting of the Morrison Formation: Modern Geology, V. 22, p. 283-296.
- Demko, T.M.**, Currie, B.S., and Nicoll, K.A., 2004, Regional paleoclimatic and stratigraphic implications of paleosols and fluvial/overbank architecture in the Morrison Formation (Upper Jurassic), Western Interior, USA. Sedimentary Geology, 167(3-4), pp.115-135.
- Demko, T.M.**, Dubiel, R.F., and Parrish, J.T., 1998, Plant taphonomy in incised valleys: Implications for interpreting paleoclimate from fossil plants: Geology, v. 26, p. 1119-1122.

- Demko, T.M.**, Nicoll, K., Beer, J.J., Hasiotis, S.T., and Park, L.E., 2005, Mesozoic lakes of the Colorado Plateau: in Interior Western United States: Geological Association of America Field Guide, 6, pp.329-356.
- Eble, C.F., Gastaldo, R.A., **Demko, T.M.**, and Liu, Y., 1994, Coal compositional changes along a mire interior to mire margin transect in the Mary Lee coal bed, Warrior basin, Alabama, USA: International Journal of Coal Geology, v. 26, p. 43-62.
- Feldman, H.R., and **Demko, T.M.**, 2015, Recognition and prediction of petroleum reservoirs in the fluvial/tidal transition, in Ashworth, P., James L. Best, J., and Parsons, D., eds., Developments in Sedimentology, Elsevier, Volume 68, Pages 483-528.
- Gastaldo R.A., and **Demko T.M.**, 2011, The relationship between continental landscape evolution and the plantfossil record: Long-term hydrologic controls on preservation, in Allison P.A., and Bottjer D.J., eds., Taphonomy. Aims & Scope Topics in Geobiology Book Series, vol. 32. Springer, Dordrecht, p. 249-285.
- Gastaldo, R. A., **Demko, T.M.**, and Liu, Y., eds., 1990, Carboniferous coastal communities of the Mary Lee coal zone, Marion and Walker Counties, Alabama: Geological Society of America, Southeastern Section Field Trip Guidebook IV.
- Gastaldo, R.A., **Demko, T.M.**, and Liu, Y., 1991, A mechanism to explain persistent alternation of clastic and peat-accumulating swamps in Carboniferous sequences: Bulletin de la Société Géologique de France, t. 162, no. 2, p. 299-305.
- Gastaldo, R.A., **Demko, T.M.**, and Liu, Y., 1993, Application of sequence and genetic stratigraphic concepts to Carboniferous coal-bearing strata - an example from the Black Warrior basin, USA: Geologische Rundschau, v. 82, p. 212-226.
- Gastaldo, R.A., **Demko, T. M.**, Liu, Y., Keefer, W. D., and Abston, S. L., 1989, Biostratigraphic processes for the development of mud-cast logs in Carboniferous and Holocene swamps: Palaios, v. 4, p. 356-365.
- Hasiotis, S.T., and **Demko, T.M.**, 1996, Terrestrial and freshwater trace fossils, Upper Jurassic Morrison Formation, Colorado Plateau: in The Continental Jurassic, Morales, M., ed., Museum of Northern Arizona Bulletin, v. 60, p. 355-370.
- Hasiotis, S.T., and **Demko, T.M.**, 1998, Ichnofossils from Garden Park Paleontological Area, Colorado: Implications for paleoecologic and paleoclimatic reconstructions of the Upper Jurassic: Modern Geology, v. 22, p. 461-479.
- Hasiotis, S.T., Kraus, M.J., and **Demko, T.M.**, 2007, Climatic controls on continental trace fossils, in Miller, W., ed., Trace Fossils, Elsevier, p. 172-195.
- Hasiotis, S.T., Wellner, R.W., Martin, A.J., and **Demko, T.M.**, 2004. Vertebrate burrows from Triassic and Jurassic continental deposits of North America and Antarctica: their paleoenvironmental and paleoecological significance: Ichnos, 11(1-2), p.103-124.
- Kowalweski, M., and **Demko, T.M.**, 1996, Trace fossils and population paleoecology: comparative analysis of size-frequency distributions derived from burrows: Lethaia, v. 29, p. 133-124.

- Kowalweski, M., **Demko, T.M.**, Hasiotis, S.T., and Newell, D., 1998, Quantitative ichnology of Triassic crayfish burrows (*Camborygma eumekenomos*): Ichnofossils as linkages to population paleoecology: *Ichnos*, v. 6, p. 5-21.
- Lazar, O.R., Bohacs, K.M., Schieber, J., Macquaker, J.H., and **Demko, T.M.**, 2015, Mudstone Primer: Lithofacies variations, diagnostic criteria, and sedimentologic-stratigraphic implications at lamina to bedset scales. SEPM (Society for Sedimentary Geology).
- Lazar, O., Bohacs, K., Macquaker, J., Schieber, J., and **Demko, T.M.**, 2015, Capturing key attributes of finegrained sedimentary rocks in outcrops, cores, and thin sections: nomenclature and description guidelines. *Journal of Sedimentary Research*; 85 (3), p. 230–246.
- Nicoll, K., and **Demko, T.M.**, 2005, Geomorphological survey, in Matney, T., and Rainville, L., eds., *Archaeological investigations at Ziyaret Tepe, 2003 and 2004*, *Anatolica*, v. 31, p. 20-68.
- Parrish, J.T., **Demko, T.M.**, and Tanck, G.S., 1993, Sedimentary paleoclimatic indicators: What they are and what they tell us: *Philosophical Transactions of the Royal Society, London*, V. 344, p. 21-25.
- Postma, G, Lang, J., Hoyal, D.C., Fedele, J.J., **Demko, T.M.**, Abreu, V., and Pederson, K.H., 2020, Reconstruction of bedform dynamics controlled by supercritical flow in the channel-lobe transition of a deep-water delta (Sant Llorenç del Munt, north-east Spain, Eocene): *Sedimentology*, v. 68, p. 1674-1697.
- Postma, G., Hoyal, D.C., Abreu, V., Cartigny, M., **Demko, T.M.**, Fedele, J., Kleverlaan, K., and Pederson, K., 2016, Morphodynamics of supercritical turbidity currents in the channel-lobe transition zone, in: Lamarche G. et al., eds., *Submarine Mass Movements and their Consequences. Advances in Natural and Technological Hazards Research*, vol. 41, p. 469-478.
- Savrda, C.E., Ozalas, K., **Demko, T.M.**, Huchison, R.A., and Scheiwe, T.D., 1993, Log-grounds and the ichnofossil *Teredolites* in transgressive deposits of the Clayton Formation (Lower Paleocene), western Alabama: *Palaios*, v. 8, p. 311-324.
- Sonett, C.P., Kvale, E.P., Zakharian, A., Chan, M.A., and **Demko, T.M.**, 1996, Late Proterozoic and Paleozoic tides, retreat of the Moon, and rotation of the Earth: *Science*, v. 273, p. 100-104.
- Strohmenger, C.J., Mitchell, J.C., Feldman, H.R., Lehmann, P.J., Broomhall, R.W., Patterson, P.E., Al-Sahlan, G., **Demko, T.M.**, Wellner, R.W., McCrimmon, G.G., and Al-Ajmi, N., 2006, Sequence stratigraphy and reservoir architecture of the Burgan and Mauddud formations (Lower Cretaceous), Kuwait, in P. M. Harris and L. J. Weber, eds., *Giant hydrocarbon reservoirs of the world: From rocks to reservoir characterization and modeling: AAPG Memoir 88/SEPM Special Publication*, p. 213- 245.

Recent professional meeting abstracts

- Demko, T.M.**, Fedele, J., Gaillot, G., Hoyal, D., Shringarpure, M., Sun, H., and Vishnampet, R., 2019, Improved forward numerical simulations of deepwater depositional systems: Distinct depositional styles associated with criticality of flows: *International Association of Sedimentologists, Rome*.

- Demko, T.M.**, Fedele, J., Hoyal, D., Pederson, K., Hamilton, P., Abreu, V., and Postma, G., 2014, Bedforms indicative of supercritical flow in steep, sandy submarine fans and fan deltas: Ainsa, Ebro and Tabernas Basins, Spain: Geological Society of America Annual Meeting, Vancouver, British Columbia.
- Demko, T.M.**, Hoyal, D., Fedele, J., Pederson, K., Abreu, V., Postma, G., and Lopez-Blanco, M., 2015, Evidence of supercritical flow during deposition in delta front clinothems of the Eocene Sant Llorenç del Munt fan delta, Ebro Basin, Spain: International Association of Sedimentologists.
- Demko, T.M.**, Perillo, M. Gaillot, G., Fedele, J., Hoyal, D., and Howell, A., 2018, Process-oriented deep-water lithofacies: Application and an example applied to the Cretaceous Point Loma Formation, California USA: International Sedimentological Congress, Quebec.
- Demko, T.M.**, Perillo, M.M., Gaillot, G.T., Porter, M.L., Fedele, J.J., Hoyal, D.M., Dyksterhuis, S., and Cleveland, D.M., 2017 Process stratigraphy of Upper Cretaceous deepwater systems, offshore Guyana: Lithofacies, stratal architecture, and morphodynamics: AAPG GTW 2017, Georgetown, Guyana.
- Fedele, J., Hoyal, D., and **Demko, T.M.**, 2017, Stability of fluvial and gravity-flow antidunes: AGU Fall Meeting.
- Howard, B.L., Finzel, E.S., **Demko, T.M.**, Tinterri, R., and Lang, J., 2019, A detrital zircon provenance study of the Marnoso-arenaceae Formation, northern Apennines, Italy: GSA Annual Meeting in Phoenix, Arizona, USA.
- Hoyal, D., **Demko, T.M.**, Postma, G., Wellner, R.W., Pederson, K., Abreu, V., Fedele, J., Box, D., Sprague, A., Ghayour, K., and Strom, K., 2014, Evolution, architecture, and stratigraphy of Froude supercritical submarine fans: American Association of Petroleum Geologists Annual Convention and Exhibition, April (p. 6-9).
- Lang, J., Postma, G., **Demko, T.M.**, Fedele, J., and Hoyal, D., 2019, Facies architecture of perched lobes deposited by expanding supercritical density flows—field examples from the Eocene Sant Llorenç del Munt fan delta complex (Ebro Foreland Basin, NE Spain): Geophysical Research Abstracts, v. 21, EGU2019-7758, p1-1. 1p.
- Sun, H., Hoyal, D., Vishnampet, R., Shringarpure, M., Bvrsn, P., Fedele, J., Gaillot, G., **Demko, T.M.**, Love, K., and Denomme, K., 2018, Insights into controls on submarine fan evolution from depth-averaged model of turbidity currents: AGU Fall Meeting.

Funded Grant Proposals

- 2006-2009: University of Minnesota Grant-In-Aid: Sequence stratigraphy and geochronology of an unusual dinosaur-bearing unit in the Cedar Mountain Formation, UT: \$45,000
- 2006: Department of Energy, University of Missouri Research Reactor Center: Reactor sharing grant for neutron activation analysis of rare earth elements in dinosaur bone, \$2400; Co-PI with Graham Peaslee and Brian Bodenbender, Hope College, and Alyson Cartwright, UMD undergraduate
- 2004-2007: NSF-REU Site Investigation: Paleoenvironmental characterization of a dinosaur site in the Morrison Formation of the Bighorn Basin, Wyoming: \$232,513; Co-PI with Brian Bodenbender, Hope College

Awards

Outstanding Geoscience Instructor, ExxonMobil, 2001, 2007-2019

Nominated for *ExxonMobil Peter R. Vail Award*, 2012, 2017

UMD College of Science and Engineering Young Teacher Award, 2006

SEPM Excellence of Oral Presentation Award, for: A.R. Sprague, P.E. Patterson, R.E. Hill, C.R. Jones, K.M. Campion, J.C. Van Wagoner, M.D. Sullivan, D.K. Larue, H.R. Feldman, **T.M. Demko**, R. W. Wellner, J.K. Geslin: *The Physical Stratigraphy of Fluvial Strata: A Hierarchical Approach to the Analysis of Genetically Related Stratigraphic Elements for Improved Reservoir Prediction*, 2003

Outstanding Geoscience Course Coordinator, *Clastic Facies and Sequence Stratigraphy*, ExxonMobil Upstream Research, 2001

Siliciclastic Reservoirs Section Award for Outstanding Achievement, ExxonMobil Upstream Research, 4th Quarter 2000

J. David Lowell Distinguished Visiting Field Geologist Fellow, University of Arizona, 1995, 1999

Outstanding Graduate Student, Auburn University, 1989-1990

Sigma Xi, Meritorious Research Award, Auburn University, 1990

Best Student Paper, Geology Section, Alabama Academy of Science, 1990

Honor Society Affiliations

Sigma Xi, Research Honor Society, elected Associate 1990, Active 2004-present Sigma Gamma

Epsilon, Earth Science Honor Society, elected 1988

Professional Society Affiliations

Society for Sedimentary Geology (SEPM), 2000-present

International Association of Sedimentologists, 2003-present

Geological Society of America, 1986-present

American Association for the Advancement of Science, 2003-present

American Association of Petroleum Geologists, 1984-present

American Geophysical Union, 1989-1991

Society of Mining and Exploration, 1984-1990

Professional Service

Auburn University Department of Geosciences Advisory Board, 2016-present (board chairman 2019-2021)

National Science Foundation Proposal Panel Reviewer, Sedimentary Geology and Paleontology Division, 2010-2015

University of Arizona Geosciences Department Advisory Board, 2008-2015

Associate Editor, *Geology*, 2004-2008

Associate Editor, *Paleontologica Electronica*, 1995-2005

UMD College of Science and Engineering Executive Committee, Department of Geological Sciences representative, 2002-2005

UMD Department of Geological Sciences union representative, 2002-2006

Session Co-Chair, 7th International Fluvial Sedimentology Conference; Sequence Stratigraphy of Alluvial Deposits, 2001

Poster Session Co-Chair, 2001 AAPG Annual Meeting; Case Studies of Shallow Marine Reservoirs

Recruiting Coordinator, ExxonMobil Upstream Research, Reservoir Characterization Division, Clastic Reservoirs Section

University of Arizona Department of Geosciences Graduate Admissions Committee, Spring 1994, graduate student representative

University of Arizona Department of Geosciences Faculty Search Committee, Spring 1992, graduate student representative

Invited Lectures, Short Courses, and Field Trips

National Association of Black Geoscientists Field Trip, co-leader, Spring and Panther Creek fluvial systems, 2018

Wasatch-Uinta Geology Field Camp, Guest Instructor, 2007-2018

Cal State Chico, Seminar December 2014

University of Texas San Antonio, Seminar September 2014

University of Houston, Seminar Fall 2011, Spring 2016

Geological Society of America Annual Meeting Field Trip, leader, October 2005: Mesozoic lakes of the Colorado Plateau

Geological Society of America Annual Meeting Field Trip, co-leader, October 2004: Morrison Formation in the Front Range, CO

Colby College, Seminar November 2004

University of Akron, Seminar March 2004

University of Wyoming, Seminar February 2004

Miami University of Ohio, Seminar December 2003, October 2019

University of Iowa, Seminar October 2003, October 2018

Gustavus Adolphus College, Geology Department Seminar Series, May 2003

Third International Limnogeology Congress Post-Meeting Field Trips, co-leader, April 2003: Grand Canyon, and An Introduction to the Mesozoic Lakes of the Colorado Plateau

BYU Sequence Stratigraphy Short Course and Field Trip, leader, March 2003

Mesabi Iron Range Geological Society, Guest Speaker, March 2003

University of Kansas, Department of Geology Seminar, November 2002

University of Utah, Guy F. Atkinson Distinguished Lecture Series, Department of Geology and Geophysics, Spring 2002

University of Pittsburgh Seminar Series, Spring 2001

New England Undergraduate Sequence Stratigraphy Short Course, Spring 2000, Colby and Bowdoin Colleges, Maine

Mesa Southwest Museum/Southwest Paleontological Society, Fossils of Arizona Symposium, Fall 1995

Exxon Production Research, Houston, TX, Fall 1995

Western Interior Paleontological Society, Fall 1995

USGS/Northern Arizona University Department of Geology Lecture Series, Fall 1994

Student Research Advising

Joseph John Beer – M.S. thesis: Sequence stratigraphy of fluvial and lacustrine deposits in the lower part of the Chinle Formation, south central Utah, United States: Paleoclimatic and tectonic implications. University of Minnesota Duluth, 2005.

Riyad Adulrahim Ali-Adeeb – M.S. thesis: Fluvial evolution between the Salt Wash and Brushy Basin Members of the Upper Jurassic Morrison Formation, south-central Utah. University of Minnesota Duluth, 2007.

Ryan Eric Erickson – M.S. thesis: The sequence stratigraphy of the Chinle Formation in the Dinosaur National Monument region, Utah and Colorado, USA. University of Minnesota Duluth, 2007.