

Robert M. Reed

Professional Summary

November 13, 2018

Business address: The University of Texas at Austin
Bureau of Economic Geology
University Station, Box X
Austin, TX 78713-8924
Telephone: (512) 471-0356
E-mail address: rob.reed@beg.utexas.edu

Professional Preparation

Academic Background

Ph.D. Geology, The University of Texas at Austin, August 1999

M.S. Geology, University of Massachusetts at Amherst, February 1993

B.S. Geology, The University of Texas at Austin, December 1985

Professional Appointments

Present Position: Research Scientist Associate IV, Bureau of Economic Geology (September 2007 - Present). Working with a variety of projects involving diagenesis, fractures, porosity, and other rock features, primarily at the microscopic level. Techniques used include cathodoluminescence, electron backscatter diffraction, energy dispersive spectroscopy, and various other electron microscope analytical methods.

Research Scientist Associate III, Bureau of Economic Geology, The University of Texas at Austin (April 2003 - September 2007). Management of cathodoluminescence image acquisition and processing for ongoing studies by the Fracture Research and Application Consortium (FRAC IA). Study goals include using microfractures to predict the behavior of macrofractures, understanding the interaction between microfracturing and diagenesis, and developing new methodology for microfracture analysis studies.

Postdoctoral Fellow, Bureau of Economic Geology, The University of Texas at Austin (April 2000 - March 2003). A number of studies on fractured sedimentary rocks that include using microfractures to predict the behavior of macrofractures, the interaction between microfracturing and diagenesis, and the evolution of macrofracture morphology.

Research Scientist Associate I, Bureau of Economic Geology, The University of Texas at Austin (March 2000 - March 2000). Assisted with studies in using microfractures to predict properties of fractured reservoirs.

Research Scientist Associate I, Center for Petroleum and Geosystems Engineering, The University of Texas at Austin (October 1999 - February 2000). Assist with studies in using microfractures to predict properties of fractured reservoirs.

Research Scientist Associate I, Geology Foundation, The University of Texas at Austin (October 1999 - November 1999). Development of illustrations for regional geologic study.

Research Scientist Associate I, Center for Petroleum and Geosystems Engineering, The University of Texas at Austin (May 1999 - September 1999). Assisted with studies in using microfractures to predict properties of fractured reservoirs.

Research Scientist Associate I, Bureau of Economic Geology, The University of Texas at Austin (February 1999 - April 1999). Assisted with studies in using microfractures to predict properties of fractured reservoirs.

Research Scientist Associate I, Bureau of Economic Geology, The University of Texas at Austin (September 1998 - January 1999). Assisted with studies in using microfractures to predict properties of fractured reservoirs.

Graduate Research Assistant, Bureau of Economic Geology, The University of Texas at Austin (September 1997 - August 1998). Assisted with projects involving the use of cathodoluminescence in the microfracture analysis of sandstones.

Graduate Research Assistant, Department of Geological Sciences, The University of Texas at Austin (January 1997 - August 1997). Assisted with projects involving the use of cathodoluminescence in the microfracture analysis of sandstones.

Teaching Assistant, Department of Geological Sciences, The University of Texas at Austin (September 1990 - July 1997). Teaching responsibilities included assisting with a number of classes including upper division and graduate courses.

Graduate Research Assistant, Bureau of Economic Geology, The University of Texas at Austin (September 1995 - December 1996). Assisted with projects involving the use of cathodoluminescence in the microfracture analysis of sandstones.

Technical Assistant, Howard Laboratories, Amherst, MA (August 1989 - July 1990). Responsibilities included a wide range of technical and administrative functions for a company providing environmental services.

Teaching Assistant, Department of Geology and Geography, University of Massachusetts at Amherst (August 1988 - May 1989). Teaching responsibilities included assisting with courses in Introductory Geology and Oceanography.

Theses

Microfabric analysis of the northern part of the Pelham Dome, central Massachusetts: Amherst, MA, University of Massachusetts, M.S. thesis, 190 pages, 1993

Dissertations

Emplacement and deformation of late syn-orogenic, Grenville-age granites in the Llano Uplift, Central Texas: Austin, TX, University of Texas, Ph.D. dissertation, 272 pages, 1999

Areas of Expertise

Areas of Expertise

Microstructural analysis of sedimentary rocks

Pores and pore networks in mudrocks

Scanning electron microscopy studies

Publications

Peer Reviewed Journal Articles

Reed, R. M., 2017, Organic-matter pores: new findings from lower-thermal-maturity mudrocks: GCAGS Journal, v. 6, p. 99-110.

Loucks, R. G., and Reed, R. M., 2016, Natural microfractures in unconventional shale-oil and shale-gas systems: real, hypothetical, or wrongly defined?: GCAGS Journal, v. 5, p. 64-72.

Loucks, R. G., Reed, R. M., and Ambrose, W. A., 2015, Analysis of pore networks and reservoir quality of the Upper Cretaceous Woodbine sandstone in the high-recovery-efficiency, giant East Texas Field: GCAGS Journal, v. 4, p. 88-108.

Reed, R. M., and Loucks, R. G., 2015, Low-thermal-maturity (<0.7% VR) mudrock pore systems: Mississippian Barnett Shale, southern Fort Worth Basin: GCAGS Journal, v. 4, p. 15-28.

Loucks, R. G., and Reed, R. M., 2014, Scanning-electron-microscope petrographic evidence for distinguishing organic-matter pores associated with depositional organic matter versus migrated organic matter in mudrocks: *GCAGS Journal*, v. 3, p. 51-60.

Reed, R. M., Loucks, R. G., and Ruppel, S. C., 2014, Comment on "Formation of nanoporous pyrobitumen residues during maturation of the Barnett Shale (Fort Worth Basin)" by Bernard et al. (2012): *International Journal of Coal Geology*, v. 127, p. 111-113, <http://doi.org/10.1016/j.coal.2013.11.012>

Loucks, R. G., Reed, R. M., Ruppel, S. C., and Hammes, U., 2012, Spectrum of pore types and networks in mudrocks and a descriptive classification for matrix-related mudrock pores: *AAPG Bulletin*, v. 96, no. 6, p. 1071-1098.

Milliken, K. L., Esch, W. L., Reed, R. M., and Zhang, T., 2012, Grain assemblages and strong diagenetic overprinting in siliceous mudrocks, Barnett Shale (Mississippian), Fort Worth Basin, Texas: *AAPG Bulletin*, v. 96, no. 8, p. 1553-1578.

Lu, Jiemin, Milliken, K., Reed, R. M., and Hovorka, S. D., 2011, Diagenesis and sealing capacity of the middle Tuscaloosa mudstone at the Cranfield carbon dioxide injection site, Mississippi: *Environmental Geosciences*, v. 18, no. 1, p. 35-53.

Barker, D. S., and Reed, R. M., 2010, Proterozoic granites of the Llano Uplift, Texas: a collision-related suite containing rapakivi and topaz granites: *Geological Society of America Bulletin*, v. 122, no. 1/2, p. 253-264.

Becker, S. P., Eichhubl, P., Laubach, S. E., Reed, R. M., Lander, R. H., and Bodnar, R. J., 2010, A 48 m.y. history of fracture opening, temperature, and fluid pressure: Cretaceous Travis Peak Formation, East Texas Basin: *Geological Society of America Bulletin*, v. 122, no. 7/8, p. 1081-1093.

Gale, Julia F. W., Lander, R., Reed, R. M., and Laubach, S. E., 2010, Modeling fracture porosity evolution in dolostone: *Journal of Structural Geology*, v. 32, p. 1201-1211. doi:10.1016/j.jsg.2009.04.018.

Milliken, K. L., and Reed, R. M., 2010, Multiple causes of diagenetic fabric anisotropy in weakly consolidated mud, Nankai accretionary prism, IODP Expedition 316: *Journal of Structural Geology*, v. 32, p. 1887-1898.

Hooker, J. N., Gale, J. F. W., Gomez, L. A., Laubach, S. E., Marrett, R. A., and Reed, R. M., 2009, Aperture-size scaling variations in a low-strain opening-mode fracture set, Cozzette Sandstone, Colorado: *Journal of Structural Geology*, v. 31, p. 707-718.

Loucks, R. G., Reed, R. M., Ruppel, S. C., and Jarvie, D. M., 2009, Morphology, genesis, and distribution of nanometer-scale pores in siliceous mudstones of the Mississippian Barnett Shale: *Journal of Sedimentary Research*, v. 79, p. 848-861.

Gale, J. F. W., Reed, R. M., and Holder, Jon, 2007, Natural fractures in the Barnett Shale and their importance for hydraulic fracture treatments: *AAPG Bulletin*, v. 91, no. 4, p. 603-622.

Gale, J. F. W., Laubach, S. E., Marrett, R. A., Olson, J. E., Holder, Jon, and Reed, R. M., 2004, Predicting and characterizing fractures in dolostone reservoirs: using the link between diagenesis and fracturing, in Braithwaite, C. J. R., Rizzi, G., and Darke, G., eds., *The geometry and petrogenesis of dolomite hydrocarbon reservoirs*: London, Geological Society, Special Publications, 235, p. 177-192.

Laubach, S. E., Lander, R. H., Bonnell, L. M., Olson, J. E., and Reed, R. M., 2004, Opening histories of fractures in sandstones, in Cosgrove, J. W., and Engelder, T., eds., *The initiation, propagation, and arrest of joints and other fractures*: Geological Society, London, Special Publications, 231, p. 1-9.

Laubach, S. E., Reed, R. M., Olson, J. E., Lander, R. H., and Bonnell, L. M., 2004, Coevolution of crack-seal texture and fracture porosity in sedimentary rocks: cathodoluminescence

observations of regional fractures: *Journal of Structural Geology*, v. 26, no. 5, p. 967-982.

Reed, R. M., and Milliken, K. L., 2003, How to overcome imaging problems associated with carbonate minerals on SEM-based cathodoluminescence systems: *Journal of Sedimentary Research*, v. 73, no. 2, p. 328-332.

Peer Reviewed Book Chapters

Wang, F. P., Hammes, U., Reed, R. M., Zhang, T., and Tang, X., 2013, Chapter 10: Petrophysical and mechanical properties of organic-rich shales and their influences on fluid flow, in *Critical Assessment of Shale Resource Plays*, Chatellier, J.-Y. and D. Jarvie, eds.: AAPG Memoir 103, p. 167-186.

Milliken, K., Reed, R. M., and Laubach, S. E., 2005, Chapter 14. Quantifying compaction and cementation in deformation bands in porous sandstones, in Sorkhabi, R., and Tsuji, Y., eds., *Faults, fluid flow, and petroleum traps*: AAPG Memoir 85, p. 237-249.

Non Peer Reviewed Journal Articles

Loucks, R. G., Reed, R. M., Ruppel, S. C., and Hammes, Ursula, 2010, Preliminary classification of matrix pores in mudrocks: *Gulf Coast Association of Geological Societies Transactions*, v. 60, p. 435-441.

Hammes, Ursula, Eastwood, Ray, Rowe, H. D., and Reed, R. M., 2009, Addressing conventional parameters in unconventional shale-gas systems: depositional environment, petrography, geochemistry, and petrophysics of the Haynesville Shale, in Carr, T., D'agostino, T., Ambrose, W., Pashin, J., and Rosen, N. C., eds. *Unconventional energy resources: making the unconventional conventional*: 29th Annual GCSSEPM Foundation Bob F. Perkins Research Conference, December 6-8, Houston, p. 181-202.

Reed, R. M., 2009, Cathodoluminescence, in Laubach, S. E., and Tinker, S. W., eds., 2009, *Earth's art: celebrating the Centennial of the Bureau of Economic Geology, 1909-2009*: The University of Texas at Austin, Bureau of Economic Geology, p. 118-119.

Reed, R. M., 2009, Enchanted Rock, Central Texas, in Laubach, S. E., and Tinker, S. W., eds., 2009, *Earth's art: celebrating the Centennial of the Bureau of Economic Geology, 1909-2009*: The University of Texas at Austin, Bureau of Economic Geology, p. 126-127.

Wang, F. P., and Reed, R. M., 2009, Pore networks and fluid flow in gas shales, *Society of Petroleum Engineers*, Paper No. 1234253-PP, 8 p.

Zahm, C., and Reed, R. M., 2009, Folds and fractures, Dinosaur Monument, Utah, in Laubach, S. E., and Tinker, S. W., eds., 2009, *Earth's art: celebrating the Centennial of the Bureau of Economic Geology, 1909-2009*: The University of Texas at Austin, Bureau of Economic Geology, p. 26-27.

Neumann, V. H., Gale, Julia F. W., Reed, R. M., Barbosa, J. A., 2008, Padrão de fraturamento nos calcários laminados Aptianos da região de Nova Olinda-Santana do Cariri, Bacia do Araripe: Uma aplicação da técnica de escalas: *Estudos Geológicos*, v. 18, no. 2, 15 p., p. 101-115.

de Oliveira, D. P. S., Reed, R. M., Milliken, K. L., Robb, L. J., Inverno, C. M. C., and d'Orey, F. L. C., 2003, (Meta)cherts, (meta)lydites, (meta)phthanites and quartzites of the Série Negra (Crato-S. Martinho), E. Portugal: towards a correct nomenclature based on mineralogy and cathodoluminescence studies, in *Actas do VI Congresso Nacional de Geologia, Ciências da Terra*, Universidade Nova de Lisboa, Lisboa, Special No. 5, CD-ROM, B68-B71.

de Oliveira, D. P. S., Reed, R. M., Milliken, K. L., Robb, L. J., Inverno, C. M. C., and d'Orey, F. L. C., 2003, Série Negra black quartzites--Tomar Cordoba Shear Zone, E. Portugal: mineralogy and cathodoluminescence studies: *Cadernos Lab. Xeolóxico de Laxe Coruña*, v. 28, p. 193-211

Gale, Julia F. W., Laubach, S. E., Reed, R. M., Moros Otero, J. G., and Gomez, L. A., 2002,

Fracture analysis of Clear Fork outcrops in Apache Canyon and cores from South Wasson Clear Fork field, in Integrated outcrop and subsurface studies of the interwell environment of carbonate reservoirs: Clear Fork (Leonardian-age) reservoirs, West Texas and New Mexico: The University of Texas at Austin, Bureau of Economic Geology, final technical report prepared for U.S. Department of Energy under contract no. DE-AC26-98BC15105, p. 191-226.

Laubach, S. E., Reed, R. M., Gale, J. F. W., Ortega, Orlando, and Doherty, Eloise, 2002, Fracture characterization based on microfracture surrogates, Pottsville Sandstone, Black Warrior Basin, Alabama: Gulf Coast Association of Geological Societies Transactions, v. 52, p. 585-596.

Milliken, K. L., and Reed, R. M., 2002, Internal structure of deformation bands as revealed by cathodoluminescence imaging, Hickory Sandstone (Cambrian), Central Texas: Gulf Coast Association of Geological Societies Transactions, v. 52, p. 725-736.

Laubach, S. E., Reed, R. M., Olson, J., Ortega, Orlando, and Gale, J. F. W., 2001, Fracture-surrogate analysis methods applied to Spraberry, Bone Spring, and "Canyon" cores: preliminary results, in The Permian Basin: microns to satellites, looking for oil and gas at all scales: West Texas Geological Society Fall Symposium, West Texas Geological Society Publication 01-110, p. 75-79.

Barker, D. S., Muehlberger, W. R., and Reed, R. M., 1996, Stop 12; Coarse-grained granite at Wirtz dam, in Guide to the Precambrian Geology of the eastern Llano uplift: The University of Texas at Austin, Department of Geological Sciences: Geological Society of America, 30th Annual South-Central Section Meeting Guidebook, p. 33-40.

Reed, R. M., 1996, Optional Stop; the Midway granite sill, in Guide to the Precambrian Geology of the eastern Llano uplift: The University of Texas at Austin, Department of Geological Sciences: Geological Society of America, 30th Annual South-Central Section Meeting Guidebook, p. 31-33.

Reed, R. M., 1996, Stop 10; Wolf Mountain Intrusion, in Guide to the Precambrian Geology of the eastern Llano uplift: The University of Texas at Austin, Department of Geological Sciences: Geological Society of America, 30th Annual South-Central Section Meeting Guidebook, p. 25-30.

Robinson, P., Tucker, R. D., Gromet, L. P., Ashenden, D. D., Williams, M. L., Reed, R. M., and Peterson, V. L., 1992, The Pelham dome, central Massachusetts: stratigraphy, geochronology, and Acadian and Pennsylvanian structure and metamorphism, in Robinson, Peter, and Brady, J. B., eds., Guidebook for field trips in the Connecticut Valley Region of Massachusetts and adjacent states: Annual Meeting of the New England Intercollegiate Geological Conference, Amherst, Massachusetts, p. 132-169.

Guidebooks

Woodruff, C. M., Jr., Reed, R. M., Potter, E. C., and Collins, E. W., 2012, Enchanted Rock and the LBJ National Historical Park: Guidebook for the Association of American State Geologists 104th Annual Meeting, Lakeway, Texas, June 9, 2012: The University of Texas at Austin, Bureau of Economic Geology 19 p..

Conference Proceedings

Landry, C. J., Prodanovi, M., Reed, R. M., Eichhubl, P., and Mohanty, K., 2017, Estimating mudrock oil-water relative permeability curves using digital rock physics, Unconventional Resources Technology Conference, No. 2691701, Austin, Tex., 21 p.

Reed, R. M., and Roush, R. S., 2016, Pore Systems of the Cline Shale, Midland Basin, West Texas, Unconventional Resources Technology Conference, DOI 10.15530-urtec-2016-2423781, no. 2423781, San Antonio, Texas, 10 p.

Contract Reports

Ambrose, W. A., Smith, D. C., Cutright, B. L., Scanlon, B. R., Reedy, R. C., Elliott, B. A., Paine, J. G., Foss, M. M., Tremblay, T. A., Wolaver, B. D., Loucks, R. G., Frébourg, G., Hentz, T. F., Ogiesoba, O. C., Olariu, M. I., Fu, Q., Zeng, H., E. L. Frost, III, Hamlin, H. S., Nance, H. S., Duncan, I. J., Hammes, U., Rogers, H., Clift, S. J., Sivil, J. E., Zhang, T., Reed, R. M., Baumgardner, R. W., Jr., Eastwood, R., Breton, C., Rowe, H. D., Carr, D. L., Dunlap, D. B., Gale, J. F. W., and Peng, S., 2014, State of Texas Advanced Resource Recovery (STARR) progress report: Bureau of Economic Geology, Biennium prepared for Texas State Comptroller of Public Accounts, 90 p.

Hooker, J. N., Eichhubl, Peter, Reed, R. M., and Laubach, S. E., 2006, Wind River Basin study: initial analysis of Tensleep Formation: The University of Texas at Austin, Bureau of Economic Geology, topical report prepared for FRAC Industrial Associates, 13 p.

Gale, J. F. W., Hooker, J. N., Laubach, S. E., and Reed, R. M., 2005, Fracture analysis of Frontier Fm. Samples: The University of Texas at Austin, Bureau of Economic Geology, Fracture Research and Application Consortium, case study reports prepared for Shell, 13 p.

Gale, J. F. W., Reed, R. M., Gomez, L. A., Hooker, J. N., Holder, Jon, and Rijken, M., 2004, Fracture analysis of Cretaceous carbonates from Gaviota field, N. Spain: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for RepsolYpf Gaviota Field Project, 13 p. + apps.

Gale, J. F. W., Reed, R. M., Gomez, L. A., Rijken, P., and Hooker, J. N., 2004, Deep valley fracture analysis project, pilot study: The University of Texas at Austin, Bureau of Economic Geology, report of findings prepared for Fracture Research and Application Consortium in collaboration with Tom Brown, Inc. (Midland), 15 p. + apps.

Gale, J. F. W., Reed, R. M., Hooker, J. N., and Holder, J., 2004, Fracture analysis of metamorphic rocks from Dorozsma field, Hungary: The University of Texas at Austin, Bureau of Economic Geology, final case study report prepared for Schlumberger, 17 p. + apps.

Laubach, S. E., Stowell, J. F. W., and Reed, R. M., 2001, Southeast Green River Basin sidewall core study: preliminary results: The University of Texas at Austin, Bureau of Economic Geology, report prepared for Tom Brown, Inc., 26 p. and CD.

Laubach, S. E., Marrett, Randall, Rossen, C., Olson, J., Lake, L. W., Ortega, Orlando, Gu, Yaguang, and Reed, R. M., 1999, Using microstructure observations to quantify fracture properties and improve reservoir simulations: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for U.S. Department of Energy, Assistant Secretary for Fossil Energy, under subcontract no. G4S51732, contract DE-AC22-94-PC91008, 493 p.

Laubach, S. E., Marrett, Randall, Rossen, William, Olson, J., Lake, L. W., Ortega, Orlando, Gu, Yaguang, and Reed, R. M., 1998, Using microstructure observations to quantify fracture properties and improve reservoir simulations: The University of Texas at Austin, Bureau of Economic Geology, Department of Geological Sciences, and Department of Petroleum and Geosystems Engineering, final report submitted to BDM-Oklahoma, Inc., under subcontract no. G4S51732, 493 p.

Course Notes

Ruppel, S. C., Baumgardner, R. W., Jr., Eastwood, R., Frébourg, G., Javadpour, F., Loucks, R. G., Ko, L., Milliken, K., Nance, H. S., Reed, R. M., Rowe, H., and Zhang, T., 2013, Extended Abstracts: Mudrock System Research Laboratory Annual Meeting: The University of Texas at Austin, Bureau of Economic Geology, 281 p.

Loucks, Robert, Ruppel, Stephen, Gale, Julia, Jarvie, Dan, Kane, Jeff, McDonnell, Angela, Potter, Eric, Reed, Robert, Wang, Fred, Wright, Wayne, and Zeng, Hongliu, 2007, Barnett Shale-Gas Play of the Fort Worth Basin: The University of Texas at Austin, Bureau of Economic Geology, 151p.

Published Reports

Ambrose, W. A., Smith, D. C., Young, M. H., Scanlon, B. R., Reedy, R. C., Collins, E. W., Elliott, B. A., Wolaver, B. D., Paine, J. G., Hentz, T. F., Frébourg, G., Loucks, R. G., Reed, R. M., Ogiesoba, O. C., Olariu, M. I., Fu, Q., Zeng, H., Duncan, I. J., Rogers, H., Clift, S. J., Foss, M. M., Sivil, J. E., Zhang, T., Baumgardner, R. W., Jr., Eastwood, R., Breton, C., Brooks, D. L., Rowe, H. D., Carr, D. L., Dunlap, D. B., Gale, J. F. W., He, Y., Ko, L., Phelps, R., and Peng, S., 2016, State of Texas Advanced Resource Recovery (STARR) progress report: Bureau of Economic Geology, Biennium prepared for Texas State Comptroller of Public Accounts: 82 p.

Ambrose, W. A., Smith, D. C., Cutright, B. L., Scanlon, B. R., Reedy, R. C., Elliott, B. A., Paine, J. G., Foss, M. M., Tremblay, T. A., Wolaver, B. D., Loucks, R. G., Frébourg, G., Hentz, T. F., Ogiesoba, O. C., Olariu, M. I., Fu, Q., Zeng, H., Frost, E. L., III, Hamlin, H. S., Nance, H. S., Duncan, I. J., Hammes, U., Rogers, H., III, Clift, S. J., Sivil, J. E., Zhang, X., Reed, R. M., Baumgardner, R. W., Jr., Eastwood, R., Breton, C., Brooks, D. L., Rowe, H. D., Carr, D. L., Dunlap, D. B., Gale, J. F. W., and Peng, S., 2014, State of Texas Advanced Resource Recovery progress report and CD-ROM: Bureau of Economic Geology, The University of Texas at Austin, 90 p.

Workshop Workbooks

Loucks, R. G., Ruppel, S. C., Gale, Julia, Jarvie, Dan, Kane, Jeff, McDonnell, Angela, Potter, Eric, Reed, Robert, Wang, Fred, Wright, Wayne, and Zeng, Hongliu, 2006, Barnett Shale-Gas Play of the Fort Worth Basin: The University of Texas at Austin, Bureau of Economic Geology, Publication SW0016, 177 p.

Published Abstracts

Reed, R. M., Ruppel, S. C., Sun, X., Sivil, J. E., and Rowe, H. D., 2018, Lateral heterogeneity of microscale lithology and pore development in an Upper Cretaceous Eagle Ford Group horizontal core (abs.): AAPG Datapages/Search and Discovery Article, no. 90323, 1 p.

Loucks, R. G., Hull, D., Rowe, H. D., and Reed, R. M., 2017, Characterization and integration of the Ellenburger, Viola, and Barnett sections in the northern Fort Worth Basin: thoughts on flow of water from the Ellenburger into Barnett (abs.): AAPG Annual Convention, Houston, Texas, April, 1 p.

Loucks, R. G., Hull, D., Rowe, H. D., and Reed, R. M., 2017, Characterization and integration of the Ellenburger, Viola, and Barnett sections in the northern Fort Worth Basin: thoughts on flow of water from the Ellenburger into Barnett (abs.): AAPG Datapages/Search and Discovery Article, no. 90291, 1 p.

Reed, R. M., 2017, Organic-matter pores: new findings from lower-thermal-maturity mudrocks (abs.): Gulf Coast Association of Geological Societies Transactions, v. 67, p. 635-636.

Reed, R. M., and Loucks, R. G., 2017, Altered mafic tuff mounds from the Upper Cretaceous of Central Texas: the first economical unconventional reservoir? (abs.): AAPG Datapages/Search and Discovery Article, no. 90291, 1 p.

Reed, R. M., Loucks, R. G., and Ko, L. T., 2017, Pores observed in organic matter in mudrocks: a ten-year retrospective (abs.): AAPG Datapages/Search and Discovery Article, no. 90291, 1 p.

Reed, R. M., Milliken, K., Lipinski, C. J., and Bishop, J. W., 2017, Pore systems in a volcanogenic-grain-bearing mudrock: the Jurassic-Cretaceous Vaca Muerta Shale of Argentina (abs.): AAPG Datapages/Search and Discovery Article, no. 90291, 1 p.

Reed, R. M., Ruppel, S. C., Sivil, J. E., and Rowe, H. D., 2017, Heterogeneity of microlithology in a Cretaceous Eagle Ford Group horizontal core (abs.): Geological Society of America Abstracts with Programs, v. 49, no. 6, 1 p., <http://doi.org/doi:10.1130/abs/2017AM-298869>.

Loucks, R. G., and Reed, R. M., 2016, Distinguishing organic matter pores associated with depositional organic matter versus migrated organic matter in mudrocks (abs.): AAPG Annual Convention and Exhibition, Calgary, Alberta, Canada, 19-22 June, 1 p.

Loucks, R. G., and Reed, R. M., 2016, Natural microfractures in unconventional shale-oil and shale-gas systems: real, hypothetical, or wrongly defined? (abs.): Gulf Coast Association of Geological Societies Transactions, v. 66, p. 1007.

Loucks, R. G., and Reed, R. M., 2016, Some thoughts on the existence and importance of natural microfractures in unconventional shale-oil and gas systems (abs.): AAPG Annual Convention and Exhibition, Calgary, Alberta, Canada, 19-22 June, 1 p.

Loucks, R. G., and Reed, R. M., 2016, Some thoughts on the existence and importance of natural microfractures in unconventional shale-oil and shale-gas systems: Real, imaginary, wrongly defined, or hypothetical? (abs.): GCAGS Annual Convention, Corpus Christi, Texas, 1 p.

Reed, R. M., 2016, Organic-matter pores - new findings from mudrocks at lower thermal maturity ($R_o < 0.7\%$) (abs.): Geological Society of America Abstracts with Programs, v. 48, no. 7, 1 p., <http://doi.org/10.1130/abs/2016AM-277879>.

Reed, R. M., and Loucks, R. G., 2016, Altered mafic lapilli tuffs from the Cretaceous Balcones igneous province, Central Texas (abs.): Geological Society of America Abstracts with Programs, v. 48, no. 7, 1 p., <http://doi.org/10.1130/abs/2016AM-278911>.

Loucks, R. G., Reed, R. M., and Ambrose, W. A., 2015, Analysis of pore networks and reservoir quality of the Upper Cretaceous Woodbine Sandstone in the high-recovery-efficiency, giant East Texas Field (abs.): Gulf Coast Association of Geological Societies Transactions, v. 65, p. 671.

Reed, R. M., Loucks, R. G., and Milliken, K., 2015, Cementation and grain replacement in an organic-matter-rich mudrock: examples from the Mississippian Barnett Shale, Fort Worth Basin, Texas (abs.): Geological Society of America Abstracts with Programs., v. 47, no. 7, p. 671.

Reed, R. M., Loucks, R. G., and Ruppel, S. C., 2015, Occurrence of organic-matter pores in sub-1.0% vitrinite reflectance mudrocks: Examples from the Devonian New Albany Shale, the Mississippian Barnett Shale and the Cretaceous Eagle Ford Formation (abs.): American Association of Petroleum Geologists Annual Convention and Exhibition, no. 2097883, 1 p.

Loucks, R. G., and Reed, R. M., 2014, Scanning-electron-microscope petrographic evidence for distinguishing organic matter pores associated with depositional organic matter versus migrated organic matter in mudrocks (abs.): GCAGS, Search and Discovery Article #90196.

Loucks, R. G., and Reed, R. M., 2014, Scanning-electron-microscope petrographic evidence for distinguishing organic matter pores associated with depositional organic matter versus migrated organic matter in mudrocks (abs.): Gulf Coast Association of Geological Societies Transactions, v. 64, p. 713.

Reed, R. M., Ruppel, S. C., 2014, Variability in organic-matter pore development over depth: a case study from the Devonian-Mississippian Woodford Formation, Delaware Basin, West Texas (abs.): American Association of Petroleum Geologists, Annual Convention, Abstract 1842072, 1 p.

Ruppel, S. C., Rowe, H. D., Loucks, R. G., and Reed, R. M., 2014, A new look at the Mississippian system in the Permian basin: facies, depositional environments, and comparisons to adjacent basins (ext. abs.): 2014 WTGS Annual Fall Symposium.

Loucks, R. G., Reed, R. M., and Ruppel, S. C., 2013, Origin and classification of matrix ores in mudrocks: Tatier Conference; International Symposium on Theoretical Advancement and Technology Innovation for Emerging Energy Resource, Beijing, China, page 78-79.

Reed, R. M., 2013, How common are naturally occurring microfractures in organic-rich mudrocks? Observations from samples prepared with Ar-ion cross-section polishing (abs.): in American Association of Petroleum Geologists Annual Convention and Exhibition, Pittsburgh,

Pennsylvania, May 19-22, abstracts, CD-ROM.

Reed, R. M., and Loucks, R. G., 2013, Scanning electron microscope observations of the nature of pore-containing organic matter in thermally mature mudrocks: Geological Society of America Abstracts with Programs, v. 45, no. 7, p. 242.

Milliken, K., Esch, W. L., and Reed, R. M., 2012, Petrology of high-maturity samples of the Barnett Shale (abs.): American Association of Petroleum Geologists, Annual Convention, Abstract 1227176, 1 p.

Milliken, K., Esch, W. L., Reed, R. M., and Zhang, Tongwei, 2012, The weak textural and compositional control on rock properties in the Barnett Shale (Mississippian), Fort Worth Basin, Texas, USA (abs.): American Association of Petroleum Geologists, Annual Convention, Abstract 1227135, 1 p.

Reed, R. M., and Ruppel, S. C., 2012, Pore morphology and distribution in the Cretaceous Eagle Ford Shale, South Texas, USA (ext. abs.): Gulf Coast Association of Geological Societies Transactions, v. 62, p. 599-604.

Reed, R. M., Loucks, R. G., and Milliken, K., 2012, Heterogeneity of shape and microscale spatial distribution in organic-matter-hosted pores of gas shales (abs.): American Association of Petroleum Geologists, Annual Convention, Abstract 1236631, 1 p.

Loucks, R. G., Reed, R. M., Ruppel, S. C., and Hammes, Ursula, 2011, Pore types and pore networks in mudstones in shale-gas systems (abs.), in 5th British Columbia Unconventional Gas Technical Forum: British Columbia Ministry of Energy, Mines and Petroleum Resources, April 5-6.

Loucks, R. G., Ruppel, S. C., Reed, R. M., and Hammes, Ursula, 2011, Spectrum of pore types in siliceous mudstones in shale-gas systems (abs.): American Association of Petroleum Geologists Annual Convention & Exhibition Abstracts Volume, v. 20, p. 114.

Reed, R. M., and Ruppel, S. C., 2011, Nano- and micro-pores in the Cretaceous Eagle Ford Shale, South Texas, USA (abs.): Geological Society of America Abstracts with Programs, v. 42, no. 5, p. 636.

Reed, R. M., and Ruppel, S. C., 2011, Observations of pores in the Cretaceous Eagle Ford Shale, South Texas, USA (abs.): American Association of Petroleum Geologists Annual Convention & Exhibition Abstracts Volume, v. 20, p. 150.

Reed, R. M., Loucks, R. G., and Ruppel, S. C., 2011, Pore system multiscale heterogeneity in organic-bearing mudrocks (abs.): Geological Society of America Abstracts with Programs, v. 43, no. 3, p. 47.

Hooker, J. N., Gale, J. F. W., Gomez, L. A., Laubach, S. E., and Reed, R. M., 2010, The relationship between fracture cement patterns and fracture-set size distributions in carbonate rocks (ext. abs.), in Advances in Carbonate Exploration and Reservoir Analysis, The Geological Society of London Conference, November 4-5, p. 87-89.

Loucks, R. G., Reed, R. M., Ruppel, S. C., and Hammes, Ursula, 2010, Spectrum of pore types in siliceous mudstones in shale-gas systems (abs.), in AAPG/SEG/SPE/SPWLA Hedberg Conference, Critical assessment of shale resource plays, December 5-10, Austin, Texas.

Lu, J., Milliken, K., Reed, R. M., and Hovorka, S. D., 2010, Seal heterogeneity and sealing capacity for CO₂ injection at Cranfield field, Mississippi, USA (abs.) In Ninth Annual Conference on Carbon Capture & Sequestration, Pittsburgh, May 10-13, CD-ROM.

Lu, J., Reed, R. M., Milliken, K., Meckel, T., and Hovorka, S. D., 2010, Seal characterization for Cranfield CO₂ injection site, Mississippi, USA (abs.) in Global Climate and Energy Project and U.S. Geological Survey, Caprocks and Seals for Geologic Carbon Sequestration, January, Monterey, CA.

Lu, Jiemin, Milliken, K., Reed, R. M., and Hovorka, S. D., 2010, Seal heterogeneity and sealing capacity for CO₂ injection at Cranfield field, Mississippi, USA (abs.), in Ninth Annual Carbon Capture and Sequestration Conference, May 12, Pittsburgh.

Becker, S. P., Hooker, John N., Eichhubl, Peter, Laubach, S. E., Lander, R. H., Bonnell, L., Reed, R. M., and Fall, Andras, 2009, History of fracture development and diagenesis in Piceance Basin tight gas reservoirs: insights from fluid inclusion and fracture scaling analyses (abs.): American Association of Petroleum Geologists Annual Convention, v. 18, p. 18.

Gale, J. F. W., Reed, R. M., Becker, S. P., and Walaa, Ali, 2009, Natural fractures in the Barnett Shale in the Delaware Basin, Pecos Co., West Texas: comparison with the Barnett Shale in the Fort Worth Basin (abs.): American Association of Petroleum Geologists Annual Convention, v. 18, p. 52.

Hammes, Ursula, Eastwood, Ray, Rowe, H. D., and Reed, R. M., 2009, Addressing conventional parameters in unconventional shale-gas systems: depositional environment, petrography, geochemistry, and petrophysics of the Haynesville Shale (abs.), in Unconventional energy resources: making the unconventional conventional: 29th Annual GCSSEPM Foundation Bob F. Perkins Research Conference, December 6-8, Houston, p. 9.

Loucks, R. G., Reed, R. M., and Ambrose, W. A., 2009, Mineralogy and diagenetic history of the Upper Cretaceous Woodbine Sandstone in the giant East Texas field (abs.): Gulf Coast Association of Geological Societies Transactions, v. 59, p. 485.

Loucks, R. G., Reed, R. M., and Ambrose, W. A., 2009, Preservation of high reservoir quality by early quartz cementation in the historically significant East Texas field, Upper Cretaceous Woodbine Sandstone (abs.): American Association of Petroleum Geologists Annual Convention, v. 18, p. 130.

Milliken, K., and Reed, R. M., 2009, Particle sources and mudrock properties: contrasting examples from the Cenozoic mudrocks of the Gulf of Mexico and Paleozoic siliceous mudrocks of the North American Mid-Continent (abs.), in Houston Geological Society and AAPG Energy Minerals Division Applied Geoscience Mudstone Conference (AGC), U.S. Gulf Region Mudstones as Unconventional Shale Gas/Oil Reservoirs, Houston, Texas.

Reed, R. M., Loucks, R. G., and Milliken, K., 2009, SEM-based observation of micro- and nanopores in mudrocks using argon-ion-beam milled samples (abs.): American Association of Petroleum Geologists Annual Convention, v. 18, p. 174-175.

Reed, R. M., Loucks, R. G., and Ruppel, S. C., 2009, Nanometer-scale observations of porosity in the Barnett Shale (abs.), in Elusive hydrocarbons are still to be found in the Permian Basin: West Texas Geological Society Fall Symposium, October 28-30, p. 50-51.

Reed, R. M., Loucks, R. G., Jarvie, Dan, and Ruppel, S. C., 2009, Differences in nanopore development related to thermal maturity in the Mississippian Barnett Shale: preliminary results: Geological Society of America Abstracts with Programs, v. 40, no. 6, p. 268.

Becker, S. P., Eichhubl, P., Laubach, S. E., Reed, R. M., and Lander, R. H., 2008, Fluid inclusion evidence for an extended opening history of fractures in quartz cemented sandstone reservoirs (abs.), in Belkin, H. E. ed., Ninth Pan-American Conference on Research on Fluid Inclusions Programs and Abstracts, p. 5.

Becker, S. P., Eichhubl, Peter, Laubach, S. E., Reed, R. M., and Lander, R. H., 2008, Fluid inclusion evidence for an extended opening history of fractures in quartz cemented sandstone reservoirs, in Belkin, H. E., ed., PACROFIIX: Ninth Pan-American Conference on Research on Fluid Inclusions, Reston, Virginia, June 2-5, p. 5.

Becker, S. P., Laubach, S. E., Eichhubl, Peter, Reed, R. M., and Lander, R. H., 2008, Fluid inclusion constraints from the opening history of fractures in tight gas sandstone reservoirs (abs.): AAPG 2008 Annual Convention and Exhibition Abstracts Volume, v. 17, p. 15.

Gale, J. F., Cameron, M. S., and Reed, R. M., 2008, Fracture enhanced permeability within a crystalline porous dolostone matrix: a reservoir model in the Knox Formation, Maben gas field, Mississippi (abs.): AAPG 2008 Annual Convention and Exhibition Abstracts Volume, v. 17, p. 62.

Reed, R. M., Loucks, R. G., Jarvie, Dan, and Ruppel, S. C., 2008, Morphology, distribution, and genesis of nanometer-scale pores in the Mississippian Barnett Shale (abs.): AAPG 2008 Annual Convention and Exhibition Abstracts Volume, v. 17, p. 168.

Solano Acosta, Wilfredo, Thomas, A. R., Lander, R. H., Reed, R. M., and Kacwicz, Marek, 2008, Quartz cementation along cataclastic fault zones: quantitative modeling and exploration implications for hydrocarbon recovery (abs.): AAPG 2008 Annual Convention and Exhibition Abstracts Volume, v. 17, p. 193.

Gale, J. F. W., Holder, Jon, and Reed, R. M., 2007, Natural fractures in the Barnett Shale: why they are important (abs.): American Association of Petroleum Geologists Annual Convention Abstracts Volume, v. 16, p. 51.

Gale, J. F. W., Lander, R. H., and Reed, R. M., 2007, Predicting fracture and porosity evolution in dolostone (abs.), in Proceedings, Tectonic Studies Group Annual General Meeting, University of Glasgow, January 3-6, p. 15.

Gale, Julia F. W., Reed, R. M., and Lander, R. H., 2007, Constraining the control of crystallographic orientation of host-rock grains on growth of sealing cements in opening-mode fractures (abs.), in Programme with abstracts: Continental Tectonics and Mountain Building Ullapool 12-19 May: The Peach and Horne Meeting, unpaginated.

Hooker, J. N., Gale, J. F. W., Laubach, S. E., Gomez, L. A., Marrett, R. A., and Reed, R. M., 2007, Power-law scaling of fracture aperture sizes in otherwise undeformed foreland basin sandstone: an example from the Cozzette Sandstone, Piceance Basin, Colorado (abs.): EOS, v. 88, no. 52, Fall Meeting Supplement, Abstract T42C-01.

Loucks, Robert, Ruppel, Stephen, and Reed, Robert, 2007, Depositional setting, lithofacies, and pore network of the Mississippian Barnett Shale in the northern Fort Worth Basin (abs.), in Fall SIPES Meeting, Fort Worth, Texas.

Reed, R. M., and Gale, J. F. W., 2007, Integrating electron backscatter diffraction and SEM-based cathodoluminescence into studies of crack-seal texture and crystal growth in quartz-lined sandstone macrofractures (abs.): Geological Society of America Abstracts with Programs, v. 39, no. 6, p. 223.

Reed, R. M., Loucks, R. G., Jarvie, D. M., and Ruppel, S. C., 2007, Nanopores in the Mississippian Barnett Shale: distribution, morphology, and possible genesis (abs.): Geological Society of America Abstracts with Programs, v. 39, no. 6, p. 358.

Reed, Robert, and Loucks, Robert, 2007, Imaging nanoscale pores in the Mississippian Barnett Shale of the northern Fort Worth Basin (abs.): American Association of Petroleum Geologists Annual Convention Abstracts Volume, v. 16, p. 115.

Eichhubl, P., Aydin, A., Lander, R. H., Laubach, S. E., Reed, R. M., Boles, J. R., and Du Bernard, X., 2006, Deformation band formation as coupled mechanical and chemical processes (abs.): EOS, v. 87, no. 52, Fall Meeting Supplement, Abstract T43A-1634.

Gale, J. F. W., Lander, R. H., and Reed, R. M., 2006, Predicting fracture and porosity evolution in dolostone (abs.): American Association of Petroleum Geologists Annual Convention, v. 15, p. 35-36.

Gale, J. F. W., Reed, R. M., and Holder, Jon, 2006, Natural fractures in the Barnett Shale (ext. abs.), in The Rocky Mountain Association of Geologists and The Rocky Mountain PTTC 2006 Fall Symposium: Shale gas: from grass roots exploration to production, September 25, unpaginated.

Gale, J. F. W., Reed, R. M., and Lander, R. H., 2006, Synkinematic carbonate fracture-sealing cements in opening-mode fractures: characteristics and models (abs.): American Association of Petroleum Geologists Annual Convention, v. 15, p. 35.

Hooker, J. N., Laubach, S. E., Gale, Julia F. W., and Reed, R. M., 2006, Microfractures in sandstone (abs.): American Association of Petroleum Geologists Annual Convention, v. 15, p. 49.

Neumann, V. H., Gale, J. F. W., Reed, R. M., Oliveira, A. A., and Barbosa, J. A., 2006, Fraturas nos calcários laminados aptianos do araripe: resultados iniciais da aplicação da técnica de escalas (abs.), in Bolotim do 7th Simpósio do Cretáceo do Brasil: 1st Simpósio do Terciário do Brasil, April 2-6, Serra Negra, Brazil, p. 94.

Reed, R. M., and Laubach, S. E., 2006, Preliminary fracture analysis of Mississippian Barnett Shale samples, Fort Worth Basin, Texas (abs.): Geological Society of America, South-Central Section, Abstracts with Programs, v. 38, no. 1, p. 8.

Reed, R. M., 2005, Occurrence of mineral-filled microfractures in igneous and metamorphic rocks as determined by SEM-based cathodoluminescence imaging (abs.): Geological Society of America Abstracts with Programs, v. 37, no. 3, p. 11.

Reed, R. M., and Laubach, S. E., 2005, Integrated SEM-based cathodoluminescence imaging and fluid inclusion analysis of crack-seal quartz cement in sandstone macrofractures (abs.): Geological Society of America Abstracts with Programs, v. 37, no. 7, p. 235.

York, Ana, Molineux, Ann, Skelton, P. W., and Reed, Robert, 2005, Radiolite from the Upper Cretaceous Austin Group, Central Texas (abs.), in Filkorn, H. F., Johnson, C. C., Molineux, A., and Scott, R. W., eds., Seventh International Congress on Rudists: abstracts and post-congress field guide, p. 100.

Reed, R. M., 2004, Relict grain-cement textures in metasandstones revealed using SEM-based cathodoluminescence imaging (abs.): Geological Society of America Abstracts with Programs: v. 36, no. 5, p. 455.

Gale, J. F. W., Gomez, Leonel, Laubach, S. E., Marrett, Randall, Olson, J. E., Holder, Jon, and Reed, R. M., 2003, Predicting and characterizing fractures in the Ellenburger: using the link between diagenesis and fracturing (abs.), in New methods for locating and recovering remaining hydrocarbons in the Permian Basin: The University of Texas at Austin, Bureau of Economic Geology; Petroleum Technology Transfer Council; and University Lands West Texas Operations, p. 8.

Gomez, Leonel, Gale, J. F. W., Reed, R. M., Loucks, R. G., Ruppel, S. C., and Laubach, S. E., 2003, New techniques in fracture imaging and quantification: applications in the Ellenburger Group, West Texas (abs.), in Hunt, T. J., and Lufholm, P. H., The Permian Basin: back to basics: West Texas Geological Society Fall Symposium: West Texas Geological Society Publication #03-112, p. 419-420.

Gomez, Leonel, Gale, J. F. W., Reed, R. M., Loucks, R. G., Ruppel, S. C., and Laubach, S. E., 2003, New techniques in fracture imaging and quantification: applications in the Ellenburger Group, West Texas (abs.), in New methods for locating and recovering remaining hydrocarbons in the Permian Basin: The University of Texas at Austin, Bureau of Economic Geology; Petroleum Technology Transfer Council; and University Lands West Texas Operations, p. 9.

Gomez, Leonel, Gale, J. F. W., Reed, R. M., Loucks, R. G., Ruppel, S. C., and Laubach, S. E., 2003, New techniques in fracture imaging and quantification: applications in the Ellenburger Group, West Texas (abs.): American Association of Petroleum Geologists Annual Convention Official Program, v. 12, p. A64.

Reed, R. M., and Milliken, K. L., 2003, SEM-based cathodoluminescence imaging in sandstone provenance analysis: quartz and feldspar grains, zircons, and siliceous rock fragments (abs.): Geological Society of America Abstracts with Programs, v. 34, no. 7, p. 391.

- Reed, R. M., Laubach, S. E., and Hooker, J. N., 2003, The role of quartz-lined microfractures in sandstone diagenesis (abs.): Austin Geological Society Newsletter, v. 37, no. 6, p. 12-13.
- Gale, J. F. W., Laubach, S. E., Marrett, Randall, Olson, J. E., Holder, Jon, and Reed, R. M., 2002, Predicting and characterizing fractures in dolomite reservoirs: using the link between diagenesis and fracturing (abs.), in The geometry and petrogenesis of dolomite hydrocarbon reservoirs: Proceedings, Petroleum Studies Group: London, Burlington House, unpaginated.
- Laubach, S. E., Reed, R. M., Olson, J., Lander, R., and Bonnell, L., 2002, Interaction between diagenetic reactions and mechanics of opening-mode fractures in sandstones: the message from crack-seal texture (abs.): Geological Society of America Northeastern Section Meeting, Abstracts with Programs, v. 34, no. 1, p. A-10-A-11.
- Reed, R. M., and Milliken, K. L., 2002, A technique for avoiding imaging problems associated with carbonate minerals on SEM-based cathodoluminescence systems (abs.): Geological Society of America Northeastern Section Meeting, Abstracts with Programs, v. 34, no. 1, p. A-9.
- Reed, R. M., and Rougvie, J. R., 2002, Low-pressure deformation and metamorphism of the Proterozoic Llano Uplift, Central Texas (abs.): Geological Society of America Abstracts with Programs, v. 34, no. 3, p. A7.
- Reed, R. M., Laubach, S. E., and Hooker, J. N., 2002, The role of quartz-lined microfractures in sandstone diagenesis (abs.): Geological Society of America Abstracts with Programs, v. 34, no. 6, p. A372.
- Reed, R. M., Laubach, S. E., Clift, S. J., Hooker, J. N., and Makowitz, Astrid, 2002, Macrofractures, microfractures, and fracture-cement relations in Permian sandstones from the Val Verde Basin, West Texas (abs.): Geological Society of America Abstracts with Programs, v. 34, no. 3, p. A11.
- Ortega, Orlando, Marrett, Randall, Laubach, S. E., Milliken, K. L., Olson, J., and Reed, R. M., 2001, Outcrop analogs for fractured reservoir characterization, Rangely field, Colorado (abs.): American Association of Petroleum Geologists Annual Convention Official Program, v. 10, p. A148.
- Reed, R. M., and Laubach, S. E., 2000, Crack-seal texture in quartz-lined, opening-mode fractures formed in quartz-rich sandstones: an example of interrelated structure and diagenesis (abs.): Geological Society of America Abstracts with Programs, v. 32, no. 7, p. A229.
- Reed, R. M., 1999, Maintaining a geoscience website: pitfalls, problems and potential (abs.): Geological Society of America Abstracts with Programs, v. 31, no. 6, p. A87.
- Reed, R. M., and Laubach, S. E., 1999, Fracturing and quartz cementation in sandstone compaction bands: preliminary results from cathodoluminescence studies (abs.): Geological Society of America Abstracts with Programs, v. 31, no. 6, p. A87.
- Ortega, Orlando, Marrett, Randall, Hamlin, H. S., Clift, S. J., and Reed, R. M., 1998, Quantitative macrofracture prediction using microfracture observations: a successful case study in the Ozona Sandstone, West Texas (abs.): AAPG Annual Convention extended abstracts: American Association of Petroleum Geologists, v. 2, p. A503.
- Reed, R. M., and Laubach, S. E., 1998, Density and distribution of microfractures in sandstones: importance to diagenesis (abs.): American Association of Petroleum Geologists Abstracts, CD-ROM, 542.PDF.
- Reed, R. M., and Rougvie, J. R., 1998, Late syn-orogenic to post-orogenic granites in the Grenvillian Llano Uplift, Central Texas (abs.): Geological Society of Canada Abstracts, v. 23, p. A153-154.
- Reed, R. M., Roback, R. C., and Helper, M. A., 1998, Nature and age of ductile deformation associated with the "anorogenic" Town Mountain Granite, Llano Uplift, central Texas (abs.), in Basement Tectonics 12, Central North America and other regions, Proceedings of the 12th

International Conference on Basement Tectonics, p. 291.

Marrett, Randall, Ortega, Orlando, Reed, R. M., and Laubach, S. E., 1997, Predicting macrofracture permeability from microfractures (abs.): American Association of Petroleum Geology Annual Meeting Official Program, v. 6, p. A76.

Laubach, S. E., Milliken, K. L., Clift, S. J., Burns, Sara, and Reed, R. M., 1996, New subsurface fracture characterization methods for siliciclastic rocks (abs.): Geological Society of America, South-Central Section Meeting, Abstracts with Programs, v. 28, no. 1.

Reed, R. M., 1996, Emplacement and deformation of late syn-orogenic to post-orogenic granites in the Grenvillian Llano Uplift, Central Texas: a preliminary report (abs.): Geological Society of America Abstracts with Programs, v. 28, no. 1, p. 59.

Reed, R. M., and Laubach, S. E., 1996, The role of microfractures in the development of quartz overgrowth cements in sandstones: new evidence from cathodoluminescence studies (abs.): Geological Society of America Abstracts with Programs, v. 28, no. 7, p. A280.

Reed, R. M., Eustice, R. A., Rougvie, J. R., and Reese, J. F., 1996, Sedimentary structures, paleo-weathering, and protoliths of metamorphic rocks, Grenvillian Llano Uplift, Central Texas (abs.): Geological Society of America Abstracts with Programs, v. 28, no. 1, p. 59.

Reed, R. M., 1995, A complex strain and intrusion fabric related to trans-solidus deformation: The Wolf Mountain Intrusion, Llano Uplift, Texas (abs.), in Brown, M., and Piccoli, P., eds., The origin of granites and related rocks: 3rd Hutton Symposium Abstracts: U.S. Geological Survey Circular 1129, p. 124-125.

Reed, R. M., 1995, Ductile deformation in granites and contact metamorphic rocks, Llano Uplift, central Texas (abs.): Geological Society of America Abstracts with Programs, v. 27, no. 2, p. 82-83.

Reed, R. M., and Helper, M. A., 1994, Evidence for solid-state deformation of ~1.1 Ga "anorogenic" granites in the Llano Uplift, Texas (abs.): Geological Society of America Abstracts with Programs, v. 26, no. 1, p. 25.

Reed, R. M., and Williams, M. L., 1993, Formation mechanism of the Pelham dome, western Bronson Hill Anticlinorium, central Massachusetts (abs.): Geological Society of America Abstracts with Programs, v. 25, no. 6, p. A475.

Peterson, V. L., Williams, M. L., Robinson, P., and Reed, R. M., 1990, Late orogen-parallel extension: an example and kinematic implications from the Bronson Hill anticlinorium, central New England: Geological Society of America Abstracts with Programs, v. 22, no. 7, p. A368.

Reed, R. M., 1990, Relative timing of microfabric deformational phases and metamorphism, northern portion of the Pelham dome, north-central Massachusetts (abs.): Geological Society of America Abstracts with Programs, v. 22, no. 2, p. A64.

Reed, R. M., and Williams, M. L., 1989, Petrofabric kinematic indicators in the northern portion of the Pelham dome, western Bronson Hill Anticlinorium, central Massachusetts (abs.): Geological Society of America, Abstracts with Programs, v. 21, no. 2, p. 60.

Awards

Awards and Honorary Societies

A. I. Levorsen Award as co-author of Best Paper presented at Gulf Coast Section, GCSSEPM/GCAGS Annual Meeting, "Preliminary Classification of Matrix Pores in Mudrocks"

President's Award for Outstanding Paper in the GCAGS Journal: "Scanning-electron-microscope petrographic evidence for distinguishing organic-matter pores associated with depositional organic matter versus migrated organic matter in mudrock" (co-author Robert Loucks), 2014

Third Place Gordon I. Atwater Award for poster "Pore Morphology and Distribution in the Cretaceous Eagle Ford Shale, South Texas, USA," 2012 GCAGS Convention, Austin, Texas, 2012

President's Certificate for Excellence in Presentation (Best Oral Presentation), AAPG Energy Minerals Division (EMD), 2011

Grover E. Murray Best Published Paper Award as co-author of Third-Place Paper published in GCAGS Transactions, "Preliminary Classification of Matrix Pores in Mudrocks", 2010

EMD Best Poster Award (with Robert Loucks Annual Meeting of the American Association of Petroleum Geologists, 2007

President's Certificate for Excellence, Energy Minerals Division, American Association of Petroleum Geologists, 2007

President's Certificate for Excellence, Energy Minerals Division, American Association of Petroleum Geologists, for poster titled "Synkinematic Carbonate Fracture Sealing Cements in Opening-Mode Fractures: Characteristics and Models", 2006

Outstanding Student Research Award, Geological Society of America, 1994

Graduate Student Petrography Award, Department of Geological Sciences, The University of Texas, 1992

National Merit Scholarship, The University of Texas at Austin, 1981 - 1985

Teaching and Advising

University Courses Taught

Pores in the Mississippian Barnett Shale of the northern Fort Worth Basin: primary, secondary, and possible fracture-related examples: Bureau of Economic Geology research seminar, The University of Texas at Austin, Austin, Texas, November 17, 2006.

Introduction to the Bureau's scanning electron microscope: Bureau of Economic Geology Technical Seminar, Austin, Texas, August 2003.

Student Committee Participation

Member, B.S. Thesis Committee, Elizabeth R. Hatley, EBSD Analysis of Garnet Orientations and Garnet-Pair Misorientations in Metamorphic Rocks: The University of Texas at Austin, 2007

Member, B.S. with Honors Thesis Committee, Wesley D. Crawford, Jr., A Comparative Study of Eclogitic Remnants from the Llano Uplift, Central Texas: The University of Texas at Austin, 2005

Presentations

Presentations

Invited talk: Distinguishing organic matter pores associated with in-place organic matter versus migrated organic matter in mudrocks: EMD/AAPG Unconventional Research Group Meeting, Houston, Texas, April 8, 2014.

Nano- and micro-pores in the Cretaceous Eagle Ford Shale, South Texas, USA: presented at GSA Annual Meeting, Denver, Colorado, October 3-November 3, 2011.

Pore system multiscale heterogeneity in organic-bearing mudrocks: presented at 45th South-Central Section GSA Annual Meeting, New Orleans, Louisiana, March 27-29, 2011.

A close look at the Barnett pore network and questions that need answering: invited talk presented at AAPG Unconventional Gas Research Committee Meeting, San Antonio, Texas, April 2008.

Morphology, distribution, and genesis of nanometer-scale pores in the Mississippian Barnett Shale: presented at the AAPG Annual Convention, San Antonio, Texas, April 2008.

Integrated SEM-based cathodoluminescence imaging and fluid inclusion analysis of crack-seal quartz cement in sandstone macrofractures: presented at Geological Society of America Annual Meeting, Salt Lake City, Utah, October 17, 2005.

Relict grain-cement textures in metasandstones revealed using SEM-based cathodoluminescence imaging: presented at Geological Society of America Annual Meeting, Denver, Colorado, November 10, 2004.

Use of SEM-CL in identifying cryptic metaclastic rocks: presented to Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, April 14, 2004.

Microfractures, macrofractures, and fracture-cement relations in sandstones: examples from Oklahoma and Texas: presented to Tulsa Geological Society, Tulsa, Oklahoma, February 24, 2004.

Some uses of SEM-based cathodoluminescence imaging in sandstone petrology: presented to Graduate Sandstone Petrology class, University of Tulsa, Tulsa, Oklahoma, February 24, 2004.

SEM-based cathodoluminescence imaging in sandstone provenance analysis: quartz and feldspar grains, zircons, and siliceous rock fragments: presented at the Geological Society of America Annual Meeting, Seattle, Washington, November 2003.

Fracture characterization based on microfracture surrogates, Pottsville Sandstone, Black Warrior Basin, Alabama: presented at Gulf Coast Association of Geological Societies Annual Convention, Austin, Texas, October 31, 2002.

Avoiding imaging problems associated with carbonate minerals on SEM-based cathodoluminescence systems: presented to Department of Geological Sciences, The University of Texas at Austin, Austin, Texas, September 16, 2002.

Low-pressure deformation and metamorphism of the Proterozoic Llano Uplift, Central Texas: presented at South-Central Section Meeting, Geological Society of America, Alpine, Texas, April 11, 2002.

A technique for avoiding imaging problems associated with carbonate minerals on SEM-based cathodoluminescence systems: presented at Northeast Section Meeting, Geological Society of America, Springfield, Massachusetts, March 25, 2002.

Interaction between diagenetic reactions and mechanics of opening-mode fractures in sandstones: the message from crack-seal texture: presented at Northeast Section Meeting, Geological Society of America, Springfield, Massachusetts, March 25, 2002.

Maintaining a geoscience website: pitfalls, problems, and potential: invited talk presented at Geological Society of America, Cordilleran Section Meeting, Berkeley, California, 1999.

Activities of a Professional Nature

Professional Societies

American Association of Petroleum Geologists

Austin Geological Society

Geological Society of America