

Bureau of Economic Geology  
Jackson School of Geosciences  
The University of Texas at Austin  
(512) 471-6082 email: kittym@mail.utexas.edu

**Education**

Indiana University field camp	1974 (summer)
Vanderbilt University	B.A. 1975
University of Texas at Austin	M.A. 1977
<u>Thesis</u> : Silicified evaporite nodules from the Mississippian rocks of southern Kentucky and northern Tennessee, 121 p. (supervisor, R. L. Folk)	
University of Texas at Austin	Ph.D. 1985
<u>Dissertation</u> : Petrology and burial diagenesis of Plio-Pleistocene sediments, northern Gulf of Mexico, 112 p. (supervisor, L. S. Land)	

**Positions**

Senior Research Scientist, Bureau of Economic Geology	Sept 2008-present
Senior Research Scientist, Department of Geological Sciences	2004-2008
Research Scientist, Department of Geological Sciences	1999-2004
Research Associate, Department of Geological Sciences	1997-1999
Visiting Researcher, Institut Français du Pétrole	1996-1997
Research Scientist Associate, University of Texas at Austin	1987-1997
Lecturer, University of Texas at Austin	1991, 1995, 1998-present
Research Geologist, Exxon Production Research Co.	1985-1986
Research Associate, Bureau of Economic Geology	1979-1980
Teaching Assistant, University of Texas at Austin	1975-1979, 1981
Research Assistant, Vanderbilt University	1971-1975

**Scholarships and Academic Awards**

“Bronze Award” for ‘Teaching with Technology’, IITAP Program, University of Texas at Austin	2003, 2008
SEPM Excellence in Poster Presentation Award (with co-authors)	2001
Industry-supported Fellowship, University of Texas	1982-1983
Petrography Award, University of Texas	1982
Second place award with co-author for presentation, GSA South-central Section Annual Meeting	1977
National Association of Geology Teachers fellowship	1974
University scholarships, Vanderbilt University	1971-1975

**Invited Lectures and Symposia**

Baylor University, lecture, fall 2011  
2<sup>nd</sup> ExxonMobil Microscopy Symposium; keynote speaker; Houston, Texas, October 2010  
Encana Petroleum, “Lunch & Learn” Series, Dallas, Denver, spring, 2009  
UT Arlington, lecture, spring 2009  
INETI (Portuguese Institute for Engineering, Technology, and Innovation), Laboratory of Geosciences and Geomaterials, Porto: Scientific Keynote, Public Inauguration Ceremony of FE-EPMA, June 4, 2007  
University of Tulsa, lecture, spring 2007  
AAPG J. Ben Carsey Distinguished Lecturer, 2005-2006

Oklahoma State University, lecture, fall 2004  
Washington and Lee University, 2 lectures, fall 2004  
Hedberg Conference on Fracturing and Diagenesis, keynote address (with co-convener), spring 2004  
Fracture Research and Applications Consortium, speaker, annual meeting and field trip, 2003-2005  
East Texas Geological Society, lecture, fall 2002  
Instituto de Geologia, UNAM, 1-week short course in clastic diagenesis, summer 2002  
Trinity University, Department of Geology, lecture, spring 2002  
Dallas Geological Society, invited lecture, spring 2000  
University of Kansas (Lawrence), Dept. Geological Sciences, lecture, fall 1995  
Austin Geological Society, lectures, 1994, 2000  
Michigan Technological University, Dept. of Geology, lecture, spring 1994  
Baylor University, Dept. of Geology, lecture, spring 1993  
U.T. El Paso, Dept. of Geological Sciences, lecture, spring 1991  
Texaco Research Conference on Clastic Diagenesis, lecture, spring 1985  
Univ. of New Orleans, Dept. of Earth Sciences, lecture, spring 1985  
SEPM Research Conference, Relation of Organic Matter to Mineral Diagenesis, participant, fall 1983  
SEPM Research Conference, Stable Isotopes in Sedimentary Geology, speaker, fall 1981

### **Professional Memberships and Activities**

American Association of Petroleum Geologists

Member, Distinguished Lecture Committee, 2009-2011

Member, Committee for Core and Sample Preservation, 2000-2002

Member, Publications Committee, 1990-1995

Session co-chair, Sandstone Diagenesis: New Insights, Annual Meeting, Denver, Colorado, June 2009

Session co-chair, Sandstone Diagenesis and Reservoir Characteristics, Annual Meeting, Salt Lake City, May 1998

Geological Society of America

Fellow (elected 2008)

At-large member, Education Committee, 2002-2005

Co-convener of Folk Symposium on petrographic methods: Salt Lake City, Oct. 2005

NSF (DUE-CCLI) Panel, summer 2001, 2004, 2005, 2006

NSF-sponsored workshop: Teaching Sedimentary Geology in the 21<sup>st</sup> Century, July 14-16, 2006;

presenter on teaching sedimentary petrology

ODP/IODP

Shipboard Sedimentologist, Leg 149, Iberia Abyssal Plain, Spring 1993

Shipboard Sedimentologist, Expedition 316, NanTroSEIZE, Shallow Megaspall and Frontal Thrusts, Winter 2007/2008

Shipboard Sedimentologist, Expedition 320T, Readiness Assessment Team, February 2009

SEPM (Society for Sedimentary Geology)

Co-Editor, Journal of Sedimentary Research, 2004-2008

Associate Editor, Journal of Sedimentary Research, 1993-2000

Chairman, Clastic Diagenesis Research Group, 1991, 2003

### **Citation Performance**

As of December 2011 the materials listed below have been cited 833 times in 100+ journals (Thomson Science Citation Index). H-index = 18.

## Publications (\* : items co-authored with Jackson School students and post-docs)

### *In press:*

81. **Milliken, K. L.**, Esch., W. L. , Reed, R. M., Zhang T., 2012, Grain assemblages and strong diagenetic overprinting in siliceous mudrocks, Barnett Shale (Mississippian), Fort Worth Basin, Texas, U.S.A.: AAPG Bulletin, in press.
80. **Milliken, K. L.** and R. J. Day-Stirrat, 2012. Cementation in mudrocks: Brief review with examples from cratonic basin mudrocks: *in* Chatellier, J.-Y. (ed.), AAPG Memoir, in press.
79. \*Mackey, G. N., Horton, B. K., **Milliken, K. L.**, 2012, Provenance of Paleocene-Eocene Wilcox Group western Gulf of Mexico basin: Evidence for integrated drainage of the southern Laramide Rocky Mountains and Cordilleran arc: Geological Society of America Bulletin, in press.
78. \***Milliken, K. L.**, Papazis, P. K., Dohse, C., and Day-Stirrat, R. J., 2012, Carbonate Lithologies of the Mississippian Barnett Shale, Fort Worth Basin, Texas: *in* Breyer, J. A. (ed.), *Shale Reservoirs—Giant Resources for the 21st Century*, AAPG Memoir 97, in press.
77. \*Özkan, A., Cumella, S. P., **Milliken, K. L.**, and Laubach, S. E., 2011, Prediction of lithofacies and reservoir quality using well logs, Williams Fork Formation, Mamm Creek Field, Piceance Basin: AAPG Bulletin, v. 95, p. 1699-1723.
76. \***Milliken, K. L.** and S.-J. Choh, 2011, Carbonate Petrology v. 1.0: An Interactive Petrography Tutorial: Discovery Series No. 15, AAPG, Tulsa, Oklahoma, DVD.
75. \*Lu, J., **Milliken, K.L.**, Reed, R. M., and Hovorka, S., 2011, Diagenesis and sealing capacity of the Middle Tuscaloosa mudstone at the Cranfield CO2 injection site, Mississippi, USA: AAPG Environmental Geosciences, v. 18, p. 35-53.
74. **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. 10.1016/j.jsg.2010.03.008.
73. \*Makowitz, A., Lander, R., **Milliken, K.L.**, 2010, Chemical diagenetic constraints on the timing of cataclasis in deformed sandstone along the Pine Mountain Overthrust, Eastern Kentucky: Journal of Structural Geology, v. 32, 1923-1932. 10.1016/j.jsg.2010.04.014
72. \*Day-Stirrat, R.J., **Milliken, K. L.**, Dutton, S. P., Loucks, R. G., Hillier, S., Aplin, A. C., and Schleicher, A.M., 2010, Open-system chemical behavior in deep Wilcox Group mudstones, Texas Gulf Coast, USA.: Marine and Petroleum Geology, v. 27, p. 1804-1818.
- 71.\* Day-Stirrat, R., Dutton, S. P., **Milliken, K. L.**, Loucks, R. G., Aplin, A. C., Hillier, S., and van der Pluijm, B. A., 2010, Fabric anisotropy induced by primary depositional variations in the silt:clay ratio in two fine-grained slow fan complexes: Texas Gulf Coast and northern North Sea: Sedimentary Geology, v. 226, p. 42-53. doi: 10.1016/j.sed.geo.2010.01.007.
70. \*Landrum, J.T., Bennett, P.C., Engel, A.S. , Alsina, M.A., Pastén, P.A. , **Milliken, K. L.**, 2009, Partitioning geochemistry of Arsenic and Antimony, El Tatio Geysir Field, Chile: Applied Geochemistry, v. 24, 664-676.
69. \*Day-Stirrat, R. J., R. G. Loucks, **K. L. Milliken**, S. Hillier, and B. A. van der Pluijm, 2008, Phyllosilicate orientation demonstrates early timing of compactional stabilization in calcite-cemented concretions in the Barnett Shale (Late Mississippian), Fort Worth Basin, Texas (U.S.A): Sedimentary Geology, v. 208, p. 27-35.
68. Chafetz, H. S., Wu, Z., Lapen, T. J., and **Milliken, K. L.**, 2008, Geochemistry of preserved Permian aragonitic cements in the tepees of the Guadalupe Mountains, West Texas and New Mexico: Journal of Sedimentary Research, v. 78, p. 187-198.
67. Barker, D. S. and **Milliken, K. L.**, 2008, Cementation of the Footprint Tuff, Laetoli, Tanzania: Canadian Mineralogist, v. 46, p. 831-841. DOI : 10.3749/canmin.46.4.831
66. Julia K. Morgan, J. K., Clague, D. A., Borchers, D. C. Davis, A. S., and **Milliken, K. L.**, 2007, Mauna Loa's submarine western flank: Landsliding, deep volcanic spreading, and hydrothermal alteration: Geochemistry, Geophysics, Geosystems, v. 8, no. 5, Q05002, doi:10.1029/2006GC001420

65. \***Milliken, K. L.**, Choh, S.-J., Papazis, P. K., and Schieber, J. S., 2007, "Cherty" stringers in the Barnett Shale are agglutinated foraminifera: *Sedimentary Geology*, doi:10.1016/j.sedgeo.2006.12.012
64. \***Milliken, K. L.**, Choh, S.-J. and McBride, E. F., 2007, Sandstone Petrology, v. 2.0, A Tutorial Petrographic Image Atlas, Multimedia CD-ROM: American Association of Petroleum Geologists/DataPages, Discovery Series No. 10 (Second Edition), Tulsa, Oklahoma, CD-ROM. Awarded AAPG Certificate of Merit.
63. **Milliken, K. L.**, 2007, Provenance and diagenesis of heavy minerals, Cenozoic units of the north-western Gulf of Mexico sedimentary basin: *in* Mange, M. A. and Wright, D. T. (eds.), *Heavy Minerals in Use*, Development in Sedimentology, v. 58, p. 247-261.
62. \*Makowitz, A., Lander, R. H. and **Milliken, K. L.**, 2006, Diagenetic modeling to assess the relative timing of quartz cementation and brittle grain processes during compaction: American Association of Petroleum Geologists Bulletin, v. 90, p. 873-885.
61. McBride, E. F. and **Milliken, K. L.**, 2006, Giant calcite-cemented concretions, Dakota Formation, central Kansas, USA: *Sedimentology*, v. 53, p. 1161-1179.
60. Drits, V. A., McCarty, D., Sakharov, B.A. and **Milliken, K. L.**, 2005, Insight into structural and compositional homogeneity-heterogeneity of some ancient calcian dolomites: *Canadian Mineralogist*, v. 43, p. 1255-1290.
59. **Milliken, K. L.**, Reed, R. M. and Laubach, S. E., 2005, Quantifying compaction and cementation in deformation bands in porous sandstones: *in* Sorkhabi, R. and Tsuji, Y. (eds.), *Faults, fluid flow, and petroleum traps*: American Association of Petroleum Geologists Memoir 85, p. 237-249.
58. \*Choh, S.-J. and **Milliken, K. L.**, 2004, Virtual carbonate thin section using PDF: new method for interactive visualization and archiving: *Carbonates and Evaporites*, v. 19, p. 87-92.
57. **Milliken, K. L.**, 2004, Elemental Transfer in Sandstone-Shale Sequences: Chapter 5 *in* Mackenzie, F. T. (ed.), *Sediments, Diagenesis, and Sedimentary Rocks*, Vol. 7, Treatise on Geochemistry, Elsevier, p. 159-190.
56. Roberts, J. A., Bennett, P. C., Gonzalez, L. A., Macpherson, G. L. and **Milliken, K. L.**, 2004, Microbial precipitation of dolomite in methanogenic groundwater: *Geology*, v. 32, p. 277-280.
55. \*Choh, S.-J., **Milliken, K. L.** and McBride, E. F., 2003, Architecture and development of an interactive program for teaching highly visual material: a tutorial for sandstone petrology: *Computers and Geosciences*, v. 29, p. 1127-1135.
54. \*Makowitz, A. and **Milliken, K. L.**, 2003, Quantification of brittle deformation in compaction, Frio and Mt. Simon sandstones: *Journal of Sedimentary Research*, v. 73, p. 1007-1021.
53. McBride, E. F., Picard, M. D. and **Milliken, K. L.**, 2003, Calcite-cemented concretions in Cretaceous sandstone, Wyoming and Utah: *Journal of Sedimentary Research*, v. 73, p. 462-483.
50. **Milliken, K. L.**, 2003, Microscale distribution of kaolinite in Breathitt Formation sandstones (middle Pennsylvanian): implications for mass balance: *in* Worden, R. H. and Morad, S. (eds.), International Association of Sedimentologists, Special Publication No. 34, *Clay Cements in Sandstones*, Blackwell Science, p. 335-352.
49. \***Milliken, K. L.**, Barufaldi, J. P., McBride, E. F. and Choh, S.-J., 2003, Assessment of an interactive digital tutorial for undergraduate-level sandstone petrology: *Journal of Geoscience Education*, v. 51, p. 381-386.
48. 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, Serie Negra Black Quartzites: Tomar Cordoba Shear Zone, NE Portugal: *Mineralogy and Cathodoluminescence Studies: Cadernos Laboratorio Xeoloxico de Laxe*, No. 28, p. 193-212.
47. 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)phtanites and quartzites of the Série Negra (Crato-S. Martinho) E Portugal: towards a correct nomenclature based on mineralogy and cathodoluminescence studies: *Actas do VI Congresso Nacional de Geologia, Ciências da Terra, UNL, Lisboa, nº esp. V*, CD-ROM, B68-B71.
46. 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*, 73, p. 326-330.

45. Wilkinson, M., Haszeldine, R. S., and **Milliken, K. L.**, 2003, Cross formational flux of aluminium and potassium in Gulf Coast sediment: *in* Worden, R. H. and Morad, S. (eds.), International Association of Sedimentologists, Special Publication No. 34, *Clay Cements in Sandstones*, Blackwell Science, p. 147-160.
44. \***Milliken, K. L.**, Choh, S.-J. and McBride, E. F., 2003, Sandstone Petrology, v. 1.0, A Tutorial Petrographic Image Atlas, Multimedia CD-ROM: American Association of Petroleum Geologists/DataPages, Discovery Series No. 6, Tulsa, Oklahoma.
43. \*Makowitz, A. and **Milliken K. L.**, 2002, Quantitative measurements of brittle deformation with burial compaction, Frio Formation, Gulf of Mexico Basin: Gulf Coast Association of Geological Societies Transactions, v. 52, p. 695-706.
42. McBride, E. F., Abdel-Wahab, A. A. and **Milliken, K. L.**, 2002, Petrography and diagenesis of half-billion-year-old cratonic sandstone (Hickory), Llano Region, Texas: Bureau of Economic Geology, University of Texas at Austin, Report of Investigations 264, 74 p.
41. **Milliken, K. L.**, 2002, Observation of microbial structures in rocks using 3D light microscopy: Journal of Sedimentary Research, v. 72, p. 220-224.
40. **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.
39. **Milliken, K. L.**, 2001, Diagenetic heterogeneity in sandstone at the outcrop scale, Breathitt Formation (Pennsylvanian), Eastern Kentucky: American Association of Petroleum Geologists Bulletin, v. 84, p. 795-815.
38. Wilkinson, M., **Milliken, K. L.** and Haszeldine, R. S., 2001, Systematic dissolution of K-feldspar in deeply buried rift and passive margin sandstones: Journal of the Geological Society of London, v. 158, p. 675-683.
37. Land, L. S. and **Milliken, K. L.**, 2000, Regional loss of SiO<sub>2</sub> and CaCO<sub>3</sub>, and gain of K<sub>2</sub>O during burial diagenesis of Gulf Coast mudrocks, USA: *in* Worden, R. H. and Morad, S. (eds.), International Association of Sedimentologists Special Publication No. 29, *Quartz Cementation in Sandstones*, Blackwell Science, p. 183-198.
36. **Milliken, K. L.** and Laubach, S. E., 2000, Brittle deformation in sandstone diagenesis as revealed by scanned cathodoluminescence imaging with application to characterization of fractured reservoirs: Chapter 9 *in* Pagel, M., et al. (eds.), *Cathodoluminescence in Geosciences*, Springer, p. 225-243.
35. **Milliken, K. L.**, 1998, Carbonate diagenesis in non-marine foreland sandstones at the western edge of the Alleghanian overthrust belt, southern Appalachians: *in* Morad, S. (ed.), *Carbonate Cementation in Sandstones*, IAS Special Volume 26, p.87-105.
34. **Milliken, K. L.**, McBride, E. F., Cavazza, W., Cibir, U., Fontana, D., Picard, M. D. and Zuffa, G. G., 1998, Geochemical history of calcite precipitation in Tertiary sandstones, Northern Apennines, Italy: *in* Morad, S. (ed.), *Carbonate Cementation in Sandstones*, IAS Special Volume 26, p. 213-240.
33. Land, L. S., Mack, L. E., **Milliken, K. L.** and Lynch, F. L., 1997, Burial metamorphism of argillaceous sediment, Gulf of Mexico sedimentary basin: a reexamination: Geological Society of America Bulletin, v. 109, p. 2-15.
32. Gibson, I., Beslier, M.-O., Cornen, G., **Milliken, K. L.** and Seifert, K., 1996, Major and trace-element seawater alteration profiles in serpentinite formed during the development of the Galicia Margin, ODP Site 897: *in* Whitmarsh, R. B., et al., *Proceedings of the Ocean Drilling Program: Scientific Results*, v. 149, Ocean Drilling Program, College Station, Tex., p. 519-528.
31. Gibson, I., **Milliken, K. L.** and Morgan, J. K., 1996, Serpentinite-breccia landslide deposits generated during oceanic crustal extension at the Galicia Margin, ODP Site 899: *in* Whitmarsh, R. B., et al., *Proceedings of the Ocean Drilling Program: Scientific Results*, v. 149, Ocean Drilling Program, College Station, Tex., p. 571-576.
30. Laubach, S. E. and **Milliken, K. L.**, 1996, New fracture characterization methods for siliciclastic rocks: *in* Aubertin, M., et al. (eds.), *Rock Mechanics: Tools and Techniques*, Balkema, Rotterdam, p. 1209-1213.

29. Marsaglia, K. M., Garcia y Barragan, J. C., Padilla, I. and **Milliken, K. L.**, 1996, The evolution of the Iberian Passive Margin as reflected in sand provenance: *in* Whitmarsh, R. B., et al., *Proceedings of the Ocean Drilling Program: Scientific Results*, v. 149, Ocean Drilling Program, College Station, Tex., p. 269-280.
28. **Milliken, K. L.**, Lynch, F. L. and Seifert, K.E., 1996, Marine weathering of serpentinites and serpentinite breccias, Sites 897 and 899, Iberia Abyssal Plain: *in* Whitmarsh, R. B., et al., *Proceedings of the Ocean Drilling Program: Scientific Results*, v. 149, Ocean Drilling Program, College Station, Tex., p. 529-540.
27. **Milliken, K. L.** and Morgan, J. K., 1996, Chemical evidence for near-seafloor precipitation of calcite in serpentinites (Site 897) and serpentinite breccias (Site 899), Iberia Abyssal Plain: *in* Whitmarsh, R. B., et al., *Proceedings of the Ocean Drilling Program: Scientific Results*, v. 149, Ocean Drilling Program, College Station, Tex., p. 553-558.
26. Morgan, J. K. and **Milliken, K. L.**, 1996, Petrography of calcite veins in serpentinized peridotite basement rocks from the Iberia Abyssal Plain, Sites 897 and 899: kinematic and environmental implications: *in* Whitmarsh, R. B., et al., *Proceedings of the Ocean Drilling Program: Scientific Results*, v. 149, Ocean Drilling Program, College Station, Tex., p. 559-569.
25. \*Sharp, J. M., Jr., Kreisel, I., **Milliken K. L.**, Mace, R. E. and Robinson, N. I., 1996, Fracture skin properties and effects on solute transport: geotechnical and environmental implications: *Proceedings, 2nd North American Rock Mechanics Symposium, Montreal, Canada, A. A. Balkema, Rotterdam*, v. 2, p. 1329-1335.
24. Dickinson, W. W. and **Milliken, K. L.**, 1995, The diagenetic role of brittle deformation in compaction and pressure solution, Etjo Sandstone, Namibia: *Journal of Geology*, v. 103, p. 339-347.
23. McBride, E. F., **Milliken, K. L.**, Cavazza, W., Cibir, U., Fontana, D., Picard, M. D. and Zuffa, G. G., 1995, Inhomogeneous distribution of calcite cement at the outcrop scale in Tertiary sandstones, northern Apennines, Italy: *American Association of Petroleum Geologists Bulletin*, v. 79, p. 1044-1063.
22. \***Milliken, K. L.** and Eustice, R. A., 1995, Historical data on graduate-level participation of women in a large geoscience department: *Journal of Geological Education*, v. 43, p. 221-226.
21. \*Sharp, J. M., Jr., Robinson, N. I., Smyth-Boulton, R. C. and **Milliken, K. L.**, 1995, Fracture skin effects in groundwater transport: *in* Rossmanith, H.-P., et al. (eds.), *Mechanics of Jointed and Faulted Rock*, *Proceedings of the 2nd International Conference (Vienna)*, A.A. Balkema, Rotterdam, p. 449-454.
20. \*Boettcher, S. and **Milliken, K. L.**, 1994, Mesozoic-Cenozoic unroofing of the southern Appalachian Basin: apatite fission track evidence from middle Pennsylvanian sandstones: *Journal of Geology*, v. 102, p. 655-668.
19. \*Fu, L., **Milliken, K. L.**, and Sharp, J. M., Jr., 1994, Porosity and permeability variations in fractured and lense-gang-banded Breathitt Sandstones (Middle Pennsylvanian), eastern Kentucky: diagenetic controls and implications for modeling dual-porosity systems: *Journal of Hydrology*, v. 154, p. 351-381.
18. **Milliken, K. L.**, 1994, Cathodoluminescent textures and the origin of quartz silt in Oligocene mudrocks, South Texas: *Journal of Sedimentary Research*, v. A64, p. 567-571.
17. **Milliken, K. L.**, 1994, The widespread occurrence of healed microfractures in siliciclastic rocks: evidence from scanned cathodoluminescence imaging: *in* Nelson, P. P. and Laubach, S. E. (eds.), *Rock Mechanics: Models and Measurements, Challenges from Industry*, 1st North American Rock Mechanics Symposium, A. A. Balkema, Rotterdam, p. 825-832.
16. **Milliken, K. L.**, Mack, L. E. and Land, L. S., 1994, Elemental mobility in sandstones during burial: whole-rock chemical data, Frio Formation, South Texas: *Journal of Sedimentary Research*, v. A64, p. 788-796.
15. Cibir, U., Cavazza, W., Fontana, D., **Milliken, K. L.** and McBride, E. F., 1993, Comparison of composition and texture of calcite-cemented concretions and host sandstones, northern Apennines, Italy: *Journal of Sedimentary Petrology*, v. 63, p. 945-954.

14. **Milliken, K. L.** and Land, L. S., 1993, The origin and fate of silt-sized carbonate in subsurface Miocene-Oligocene mudrocks, South Texas Gulf Coast: *Sedimentology*, v. 40, p. 107-124.
13. **Milliken, K. L.**, 1992, Chemical behavior of detrital feldspars in mudrocks versus sandstones, Frio Formation (Oligocene), South Texas: *Journal of Sedimentary Petrology*, v. 62, p. 790-801.
12. **Milliken, K. L.** and Mack, L. E., 1990, Subsurface dissolution of heavy minerals, Frio Formation sandstones of the ancestral Rio Grande province, South Texas: *Sedimentary Geology*, v. 68, p. 187-199.
11. **Milliken, K. L.**, 1989, Petrography and composition of authigenic feldspars, Oligocene Frio Formation, South Texas: *Journal of Sedimentary Petrology*, v. 59, p. 361-374.
10. **Milliken, K. L.**, McBride, E. F. and Land, L. S., 1989, Numerical assessment of dissolution versus replacement in the subsurface destruction of detrital feldspars, Oligocene Frio Formation, South Texas: *Journal of Sedimentary Petrology*, v. 59, p. 740-757.
9. **Milliken, K. L.**, 1988, Loss of provenance information through subsurface diagenesis, Plio-Pleistocene sandstones, northern Gulf of Mexico: *Journal of Sedimentary Petrology*, v. 58, p. 992-1007.
8. Land, L. S., **Milliken, K. L.** and McBride, E. F., 1987, Diagenetic evolution of Cenozoic sandstones, Gulf of Mexico sedimentary basin: *Sedimentary Geology*, v. 50, p. 195-225.
7. Laudon, T. S., Thompson, M.R.A., Williams, P. L., **Milliken, K. L.**, Rowley, P. D. and Boyles, J. M., 1983, The Jurassic Latady Formation, Southern Antarctic Peninsula: *in* Oliver, R. L., et al. (eds.), *Antarctic Earth Science*, Cambridge University Press, Cambridge, N.Y., p. 308-314.
6. Land, L. S. and **Milliken, K. L.**, 1981, Feldspar diagenesis in the Frio Formation, Brazoria County, Texas: *Geology*, v. 9, p. 314-318.
5. Loucks, R. G., Richmann, D. L. and **Milliken, K. L.**, 1981, Factors controlling reservoir quality in Tertiary sandstones and their significance to geopressured geothermal production: University of Texas, Bureau of Economic Geology, Report of Investigations 111, 41 p.
4. **Milliken, K. L.**, Land, L. S. and Loucks, R. G., 1981, History of burial diagenesis determined from isotopic geochemistry, Frio Formation, Brazoria County, Texas: *American Association of Petroleum Geologists Bulletin*, v. 65, p. 1397-1413.
3. Richmann, D. L., **Milliken, K. L.**, Loucks, R. G. and Dodge, M. M., 1980, Mineralogy, diagenesis, and porosity in Vicksburg sandstones, McAllen Ranch Field, Hidalgo County, Texas: *Gulf Coast Association of Geological Societies Transactions*, v. 30, p. 473-481.
2. Loucks, R. G., Richmann, D. L. and **Milliken, K. L.**, 1979, Factors controlling porosity and permeability in geopressured Frio sandstone reservoirs, General Crude Oil/Department of Energy, Pleasant Bayou test wells, Brazoria County, Texas: *in* Dorfman, M. H. and Fisher, W. L. (eds.), *Fourth United States Geopressured-geothermal Energy Conference Proceedings*, v. 1, p. 46-82.
1. **Milliken, K. L.**, 1979, The silicified evaporite syndrome: two aspects of silicification history of former evaporite nodules from southern Kentucky and northern Tennessee: *Journal of Sedimentary Petrology*, v. 49, p. 245-256.

## Dictionary and Encyclopedia Entries

- Milliken, K. L.**, 2003, “**Diagenesis**”: in Middleton, G. V., et al. (eds.), *Encyclopedia of Sediments and Sedimentary Rocks*: Kluwer Academic Publishers, p. 214-219.
- Milliken, K. L.**, 2003, “**Geodes**”: in Middleton, G. V., et al. (eds.), *Encyclopedia of Sediments and Sedimentary Rocks*, Kluwer Academic Publishers, p. 306-308.
- Milliken, K. L.**, 1996, Terrigenous (clastic) sediments and rocks: in Dasch, E. J. (ed.), *Macmillan Encyclopedia of Earth Sciences*, Macmillan Publishing Co., pp. 974-79.

## Discussions, extended abstracts, unrefereed publications, etc.

- Milliken, K., McDonnell, Angela, and Day-Stirrat, R. J., 2009, Barnett Shale, 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. 104–105.
- Milliken, K. L.** (compiler), 2006, Getting Started with Understanding Diagenetic Controls on Sandstone Reservoir Quality: AAPG/DataPages Getting Started Series, No. 4, CD-ROM. Awarded AAPG Certificate of Merit.
- Choh, S-J., **Milliken, K. L.** and McBride, E. F., 2002, Interactive sandstone petrology: a digital tutorial for future reservoir geologists: Search and Discovery, invited submittal, <http://www.searchanddiscovery.com/documents/choh/index.htm>
- Lynch, F. L., **Milliken, K. L.**, Awwiller, D. N., Mack, L. E., Bloch, J., Hutcheon, I. E. and De Caritat, P., 1999, Tertiary volcanic rocks and the potassium content of Gulf Coast shales: the smoking gun: discussion and reply: *Geology*, v. 27, p. 663-665.
- Laubach, S. E., **Milliken, K. L.**, Marrett, R., Wright, P. and Belfield, W., 1996, Methods to quantify natural fracture attributes: Workshop sponsored by the Gas Research Institute, Austin, Tex., March 1996, 23 p.
- Maharaj, R. J., Dickinson, W. W. and **Milliken, K. L.**, 1996, The diagenetic role of brittle deformation in compaction and pressure solution, Etjo Sandstone, Namibia: discussion and reply: *Journal of Geology*, v. 104, p. 506-508.
- Milliken, K. L.**, 1994, Scanning cathodoluminescence studies of siliciclastic rocks: EM Applications Note, Oxford Instruments, Oxford, England, 4 p.
- Milliken, K. L.** and Land, L. S., 1994, Evidence for fluid flow in microfractures in geopressed shales: discussion: *American Association of Petroleum Geologists Bulletin*, v. 78, p. 1637-1640.
- ODP Leg 149 Scientific Party (including **Milliken, K. L.**), 1994, Drilling at the West Iberia Margin: *Geotimes*, v. 39, no. 3, p. 18-21.
- Sawyer, D. S., Whitmarsh, R. B., Klaus, A., et al. (including **Milliken, K. L.**), 1994, Proceedings of the Ocean Drilling Program 149, Initial Reports, College Station, Tex., 719 p.
- Whitmarsh, R. B., Sawyer, D. S., and ODP Leg 149 Scientific Party (including **Milliken, K. L.**), 1994, Upper mantle drilling in the ocean-continent transition west of Iberia: *Terra Nova*, v. 5, p. 327-331.
- Sharp, J. M., Jr., Galloway, W. E., Land, L. S., McBride, E. F., Blanchard, P. E., Bodner, D. P., Dutton, S. P., Farr, M. R., Gold, P. B., Jackson, T. J., Lundegard, P. D., Macpherson, G. L., and **Milliken, K. L.**, 1988, Diagenetic processes in northwest Gulf of Mexico sediments: *Developments in Sedimentology*, v. 43, p. 43-113.
- Milliken, K. L.**, 1985, Subsurface diagenesis of feldspars in Cenozoic sediments, northern and western margins, Gulf of Mexico sedimentary basin--summary: in McBride, E. F. and Ferrel, R.E. (eds.), *Timing of siliciclastic diagenesis: relation to hydrocarbon migration*: 6th Annual Research Conference of Gulf Coast Section, Society of Economic Paleontologists and Mineralogists, Program and Abstracts, p. 25-26.
- Milliken, K. L.** and Land, L. S., 1982, Fluid dynamics for cap-rock formation in Gulf Coast: discussion: *American Association of Petroleum Geologists Bulletin*, v. 66, p. 2685-687.



## Abstracts

- Day-Stirrat, R., Milliken, K. L., Dutton, S. P., Loucks, R. G., Hillier, S., Aplin, A. C., Schleicher, A. M., 2011, Open-system chemical behavior in deep Wilcox Group mudstones, Texas Gulf Coast, USA: American Association of Petroleum Geologists Annual Convention, p. 41.
- Özkan, A., **Milliken, K. L.**, Laubach, S.E., Holder, J., Olson, J.E., 2011, Quantification of effects of cementation on subcritical crack index by comparison of outcrop and subsurface samples of Williams Fork Formation, Piceance Basin: American Association of Petroleum Geologists Annual Convention, p.136-137.
- Zhang, T., Ruppel, S. C., **Milliken, K. L.**, and Yang, R., 2011, Experimental gas extraction by rock crushing: Evidence for preservation of methane in core samples from the Eagle Ford Formation: American Association of Petroleum Geologists Annual Convention, p. 205.
- Yang, R, Zhang, T., Ruppel, R. C., **Milliken, K.L.**, and Tang, X., 2011, Characterizing pore-size distribution in organic-rich shales with N<sub>2</sub> adsorption; GSA South-central Annual Meeting, in press.
- Milliken, K. L.** and R. J. Day-Stirrat, 2010, Cementation in Mudrocks: Current Understanding: AAPG Hedberg Conference, Austin, Texas.
- Kordi, M., Hovorka, S., **Milliken, K.L.**, Trevino, R., and Lu, J., 2010, Diagenesis and reservoir heterogeneity in the Lower Tuscaloosa Formation at Cranfield Field, Mississippi: Gulf Coast Association of Geological Societies, Annual Meeting, San Antonio, Texas, in press.
- Milliken, K. L.**, 2010, Agglutinated foraminifers as agents of textural coarsening in muddy sediments: FORAMS 2010, International Symposium on Foraminifera, Bonn Germany, Abstracts Volume with Program, p. 143.
- \*Lu, J., **Milliken, K.**, Reed, R. M., and Hovorka, S. D., 2010, Seal heterogeneity and sealing capacity for CO<sub>2</sub> injection at Cranfield Field, Mississippi, USA (abs.), in Ninth Annual Carbon Capture and Sequestration Conference, May 12, Pittsburgh.
- \*Lu, J., Reed, R. M., **Milliken, K.**, Meckel, T., and Hovorka, S. D., 2010, Seal characterization for Cranfield CO<sub>2</sub> 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.
- \*Mackey, G., **Milliken, K. L.**, Horton, B. K, 2010, Provenance of the South Texas Paleocene-Eocene Wilcox Group, western Gulf of Mexico Basin: Insights from sandstone modal compositions and detrital zircon geochronology: American Association of Petroleum Geologists Annual Convention, Abstracts, vol. 19, p. 157.
- Milliken, K. L.**, 2010, Integrated imaging and analysis of sedimentary materials: the mudrocks: (abs.), in Houston Geological Society and AAPG Energy Minerals Division Applied Geoscience Conference (AGC), U.S. Gulf Region Mudstones as Unconventional Shale Gas/Oil Reservoirs, Houston, Texas.
- \*Browne, C., **Milliken, K.**, Hayman, N., 2009, Particle size distribution in micro-shear bands from NanTroSEIZE drilling of the Nankai Accretionary Prism, Japan: AGU fall meeting.
- Reed, R. M., Loucks, R. G., and **Milliken, K. L.**, 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.
- \*Özkan, A., Cumella, S. P., **Milliken, K. L** and Laubach, S. E., 2009, Prediction of diagenesis and reservoir quality using well logs, Williams Fork Formation, Mamm Creek field, Piceance Basin (abs.): American Association of Petroleum Geologists Annual Convention, v. 18, p. 159.
- \***Milliken, K. L.**, Papazis, P. K., Dohse, C., and Day-Stirrat, R. J., 2009, Carbonate lithologies of the Barnett Shale (abs.): Geological Society of America, South-Central Section, Abstracts with Programs, v. 41, no. 2, p. 6.
- Milliken, K. L.**, 2009, Heterogeneity in mudrocks: Society of Petrophysicists and Well Log Analysts Spring Topical Conference, Gas Shale Evaluation and Completions, Houston, Texas.
- Milliken, K. L.** 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: Houston Geological Society and AAPG Energy Minerals Division Applied Geoscience Mudstone Conference (AGC), US Gulf Region Mudstones as Unconventional Shale Gas/Oil Reservoirs, Houston, Texas.
- \***Milliken, K. L.**, Makowitz, A., and Lander, R., 2008 Quartz cementation modeling to elucidate the timing of deformation along the Pine Mountain Overthrust, eastern Kentucky: GSA Annual Meeting, Abstracts with Programs Vol. 40, No. 6, p. 446.
- Day-Stirrat, R. J., Robert G. Loucks, **K. L. Milliken**, Ben A. van der Pluijm, 2008, Mississippian Barnett Shale: Characteristics and Concretions, American Association of Petroleum Geologists Annual Convention Abstracts (San Antonio).
- Milliken, K. L.** and Choh, S.-J., 2007, Teaching carbonate petrology using digital methods: GSA Abstracts with Programs Vol. 39, No. 6, p. 147.

- \*Day-Stirrat, R., Loucks, R. G., **Milliken, K. L.**, and Van der Plum, Ben A. 2007, Fabric of the Barnett Shale and its concretions; A multi-technique analysis: GSA Abstracts with Programs Vol. 39, No. 6, p.357.
- Dutton, S. P., Loucks, R. G., **Milliken, K. L.**, 2007, Extending feldspar diagenetic trends with data from deep to ultradeep Eocene Wilcox sandstones of the northern Texas Gulf of Mexico coast: GSA Abstracts with Programs Vol. 39, No. 6, p. 506.
- Milliken, K. L.** and Barker, D. S. 2007, Diagenesis of the Footprint Tuff (Pliocene), Laetoli, Tanzania: GSA Abstracts with Programs Vol. 39, No. 6, p. 173.
- \*Day-Stirrat, R. J., **Milliken, K. L.**, Loucks, R. G., and van der Pluijm, B. E., 2007, Characterization of clay mineral assemblages in the Barnett Shale; its diversity explored (abs.), *in* 44th Annual Meeting of the Clay Minerals Society, Santa Fe New Mexico, Program and Abstracts, p. 74.
- \*Landrum, Jeffrey T., Engel, Annette S., **Milliken, Kitty L.**, and Bennett, Philip C. 2006, Biogeochemistry of antimony and arsenic in hydrothermal fluids and opaline deposits from El Tatio Geysir Field, Chile: Geological Society of America Annual Meeting, Abstracts with Programs, v. 38, no. 7 p. 546.
- \***Milliken, K. L.** and Choh, S.-J., 2006, Using petrographic data from electron microbeam instrumentation in the curriculum: Digital resources can help: Geological Society of America Annual Meeting, Abstracts with Programs, v. 38, no. 7, p. 258. Invited submission.
- Milliken, K. L.** and Park, A., 2006, Petrographic characterization of chemical reactions in clastic diagenesis: American Association of Petroleum Geologists International Meeting, (Perth, Australia).
- Park, A. and **Milliken, K. L.**, 2006, Mass balance approach to clastic sediment diagenesis modeling: feldspar and calcite interaction: American Association of Petroleum Geologists International Meeting, (Perth, Australia), Abstracts volume.
- Park, A. and **Milliken, K. L.**, 2006, Sandstone-shale interaction of Gulf Coast: calcite mobilization in response to varying concentrations of CO<sub>2</sub>(g) and acetates, and feldspar buffering capacity: American Association of Petroleum Geologists Annual Meeting, (Houston, Texas), Abstracts volume, p. 81.
- Laubach, S. E, **Milliken, K. L.**, Olson, J. E. and Lander, R., 2005, Structural diagenesis: linked chemical and mechanical processes in sedimentary basins: American Association of Petroleum Geologists International Meeting, Paris (France) (Program Abstracts), CD-ROM.
- Milliken, K. L.** and Choh, S.-J., 2005, An interactive digital carbonate petrology tutorial for next generation geoscientists: Geological Society of America Annual Meeting, Abstracts with Programs, v. 37, no. 7, p. 254.
- Milliken, K. L.** and McBride, E. F, 2005, X-ray mapping of trace elements in concretionary calcite: Geological Society of America Annual Meeting, Abstracts with Programs, v. 37, no. 7, p. 254.
- \*Papazis, P. and **Milliken, K. L.**, 2005, Cathodoluminescent Textures and the origin of quartz in the Mississippian Barnett Shale, Fort Worth Basin, Texas: American Association of Petroleum Geologists Annual Meeting (Calgary, Canada), Abstracts volume, p. A105.
- \*Papazis, P., **Milliken, K.L.**, Choh, S.-J., Schieber, J. and Macquaker, J., 2005, The widespread occurrence of agglutinated foraminifera in black shales: Geological Society of America Annual Meeting, Abstracts with Programs, v. 37, no. 7, p. 188.
- Park, A. and **Milliken, K. L.**, 2005, Diagenetic sub-meter scale mass-redistribution between sandstones and shales: delineating various mineral reactions as sources and sinks of various cations: American Association of Petroleum Geologists Annual Meeting (Calgary, Canada), Abstracts volume, p. A105.
- \*VanBerkle, D. and **Milliken, K. L.**, 2005, Heterogeneities controlled by interbedding of eolian and fluvial deposits and its impact on reservoir quality, Weber and Maroon Formations, Rangely Field, Colorado, U.S.A: American Association of Petroleum Geologists Annual Meeting (Calgary, Canada), Abstracts volume, A144-45.
- Chafetz, H. S., Folk, R. L. and Milliken, K. L., 2004, Carbonate and Mn- and Fe-rich hot spring deposits, Belen (New Mexico, USA), Yellowstone National Park (Wyoming, USA), and northeastern Morocco: Inter-national Geological Congress, Florence (Italy) (Abstracts), CD-ROM.
- \*Choh, S-J. and **Milliken, K. L.**, 2004, Constructing an interactive sandstone petrology CD for undergraduates: bringing a classical subject into the digital age: Geological Society of America Annual Meeting, Abstracts with Programs, v. 36, no. 5, p. 236.
- \*Makowitz, A. and **Milliken, K. L.**, 2004, Brittle deformation in burial compaction of porous sandstones: International Geological Congress, Florence (Italy) (Abstracts), CD-ROM.
- \*Makowitz, A. and **Milliken, K. L.**, 2003, Quantifying brittle deformation during burial compaction of sand-stones: a comparison of values from the Frio and Mount Simon Formations: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A112.

- 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: Geological Society of America Annual Meeting, Abstracts with Programs, v. 35, no. 6, p. 391.
- Milliken, K. L.**, 2002, Petrography of ankerite cement, grain replacement, and fracture fill in foreland sandstones of the central rocky mountains: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A123.
- Reed, R. M. and **Milliken, K. L.** 2002, A technique for avoiding imaging problems associated with carbonate minerals on SEM-based cathodoluminescence systems. Geological Society of America, North-east Section Meeting, Abstracts with Programs, v. 34, no. 1.
- \*Choh, S-J., **Milliken, K. L.** and McBride, E. F., 2001, Interactive sandstone petrology: A digital tutorial for future reservoir geologists: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A35.
- \*Choh, S-J. **Milliken, K. L.** and McBride, E. F., 2001, Multimedia "sandstone petrology tutorial" for undergraduate sedimentary rocks laboratory: will enhanced learning lead to improved enrollment?: Geological Society of America Annual Meeting, Abstracts with Programs, v. 33, no. 6.
- \*Makowitz, A. and **Milliken, K. L.**, 2001, New data on the role of mechanical burial compaction in diagenesis: Frio Formation, Gulf of Mexico Basin: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. 123-24.
- Milliken, K. L.**, 2001, Endolithic microbial communities in fractures: insights gleaned from mineralized filaments in Cretaceous-age calcite veins in serpentinized peridoties, Iberia Abyssal Plain: Extended abstract, 32<sup>nd</sup> Lunar and Planetary Sciences Conference, Houston, Texas, CD-ROM.
- Milliken, K. L.**, 2001, Trace element geochemistry of associated carbonate cements and fracture fills in foreland basin sandstones, Wind River and Piceance Basins: Geological Society of American Annual Meeting and Exposition (Abstracts), v. 33, no. 6.
- \*Ortega, O. J., Marrett, R., Laubach, S. E., **Milliken, K. L.**, Olson, J. and Reed, R., 2001, Outcrop analogs for fractured reservoir characterization: Rangely Field, Colorado: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A148..
- Folk, R. L. and **Milliken, K. L.**, 2000, Morphological evidence for microbes associated with iron oxides in modern precipitates, laterites, jaspers, and BIFs: 3D light microscopy and SEM observations: Geological Society of America, South-eastern Section Meeting, Abstracts with Programs, v. 32, no. 2.
- Milliken, K. L.**, 2000, Diagenetic heterogeneity in a sandstone bed, Breathitt Formation, eastern Kentucky: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A99.
- Milliken, K. L.**, 2000, Mineralized filaments in deep sea calcitized serpentinite interpreted as fossils of fracture-dwelling microbes: Geological Society of American Annual Meeting, Abstracts with Programs, v. 32, no. 7.
- Wilkinson, M., Haszeldine, R. S. and **Milliken, K. L.**, 2000, Secondary porosity in deep prospects: implications of alkali feldspar dissolution: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A158.
- Abdel-Wahab, A., McBride, E. F., and **Milliken, K. L.**, 1999, Shallow diagenesis of the cratonic Hickory Sandstone (Late Cambrian), Llano Region: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A1.
- Milliken, K. L.** and Kirkland, B. L., 1999, 3-D light microscopy of microbial structures in sparry calcite: Geological Society of America Annual Meeting, Abstracts with Programs, v. 31, no. 7.
- \*Johns, M. K., Laubach, S. E. and **Milliken, K. L.**, 1997, Syncementation crack-tip and crack-seal microtextures and their implications for fracture connectivity and porosity interpretation: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A56.
- Clift, S. J., Laubach, S. E. and **Milliken, K. L.**, 1996, Classification of microfractures in siliciclastic oil and gas reservoirs using scanned CL: Geological Society of America, South-central Section Meeting, Abstracts with Programs, v. 28, no. 1.
- Laubach, S. E. and **Milliken, K. L.**, 1996, Using CL observations to evaluate fractures in siliciclastic petroleum reservoirs: International Conference on Cathodoluminescence and Related Techniques in Geosciences and Geomaterials, Nancy, France, p. 83-84.
- Laubach, S. E., **Milliken, K. L.**, Clift, S. J., Burns, S. and Reed, R. M., 1996, New subsurface fracture characterization methods for siliciclastic rocks: Geological Society of America, South-central Section Meeting, Abstracts with Programs, v. 28, no. 1.
- Milliken, K. L.**, 1996, Brittle deformation in sandstones as revealed by scanned cathodoluminescence imaging: International Conference on Cathodoluminescence and Related Techniques in Geosciences and Geo-materials, Nancy, France, p. 101-102.

- Milliken, K. L.**, 1996, Deformation bands formed by interrelated cementation and brittle fracture in porous sandstones, Hickory Formation, Central Texas: synkinematic diagenesis revealed by cathodoluminescence imaging: invited, American Association of Petroleum Geologists Annual Meeting (Abstracts), p. A98.
- Milliken, K. L.**, 1996, Polyphase emplacement of authigenic quartz in quartzose sandstones during fracturing: Geological Society of America, South-central Section Meeting, Abstracts with Programs, v. 28, no. 1.
- \*Johns, M. K., Laubach, S. E. and **Milliken, K. L.**, 1995, New microtextural evidence of syncementation fracturing in sandstone: Geological Society of America Annual Meeting, Abstracts, v. 27, no. 6.
- Land, L. S., Lynch, F. L., Mack, L. E. and **Milliken, K. L.**, 1995, Regionally inhomogeneous potash metasomatism, Paleogene mudrocks, Texas Gulf Coast: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. 53A.
- Marsaglia, K. M., Garcia y Barragan, J. C., Padilla, I. and **Milliken, K. L.**, 1995, Passive margin evolution and sand provenance: A preliminary model: Geological Society of America Annual Meeting, Abstracts with Programs, v. 27, no. 6.
- Milliken, K. L.**, 1995, Petrographic evidence of open-system chemical reactions in mudrocks in the Gulf of Mexico sedimentary basin: Geological Society of America Annual Meeting, Abstracts, v. 27, no. 6.
- Marsaglia, K. M., Garcia y Barragan, J. C., Padilla, I., Comas, M. C., Milkert, D., **Milliken, K. L.**, Ramirez, P. and Wilson, C., 1994, Stratigraphy, sedimentology, and sand provenance of Leg 149 sites, Iberian margin: EOS Transactions, American Geophysical Union, Fall Meeting Suppl., v. 75, no. 44.
- McBride, E. F., **Milliken, K. L.**, Cavazza, W., Cibir, U., Fontana, D., Picard, M. D. and Zuffa, G. G., 1994, Patterns of calcite cementation at the outcrop scale in Tertiary sandstones, Northern Apennines: American Association Petroleum Geologists Annual Meeting (Abstracts), p. 209.
- Milliken, K. L.** and Dickinson, W. W., 1994, Generation of apparent pressure solution fabrics by a brittle mechanism in quartz-rich sandstones: Geological Society of American Annual Meeting, Abstracts with Programs, v. 26, no. 7.
- Milliken, K. L.** and Morgan, J. K., 1994, Crack-seal origin of calcite veins in formerly 'exposed' mantle, ODP Sites 897 and 899, Iberia Abyssal Plain: EOS Transactions, American Geophysical Union, Fall Meeting Suppl., v. 75, no. 44.
- Dickinson, W. W. and **Milliken, K. L.**, 1993, Sandstone compaction by interrelated brittle deformation and pressure solution, Etjo Sandstone, Namibia: Geological Society of America Annual Meeting, Abstracts with Programs, v. 25, no. 6.
- Kugler, R. L., and **Milliken, K. L.**, 1993, Imaging of low-intensity cathodoluminescence in authigenic quartz, Norphlet sandstone, offshore Alabama: Journal of the Alabama Academy of Science, v. 64, no. 2, p. 117.
- Milliken, K. L.** and Land, L. S., 1993, Luminescent textures in quartz silt from Eocene and Oligocene shales, Texas Gulf Coast: Geological Society of America Annual Meeting, Abstracts with Programs, v. 25, no. 6.
- Wood, J. R. and **Milliken, K. L.**, 1993, Plagioclase diagenesis in subsiding basins: Geological Society of Canada/Mineralogical Society of Canada, Joint Annual Meeting 18, Abstract no. 555.
- \*Boettcher, S. S. and **Milliken, K.L.**, 1992, Apatite fission track evidence for post-Early Cretaceous erosional unroofing of middle Pennsylvanian sandstones from the southern Appalachian basin in Kentucky and Virginia: Geological Society of America Annual Meeting, Abstracts with Programs, v. 24, no. 7.
- \*Fu, L., **Milliken, K.L.** and Sharp, J. M., Jr., 1992, Permeability variations in liesegang-banded Breathitt sandstone (Pennsylvanian)--diagenetic controls: Geological Society of America Annual Meeting, Abstracts with Programs, v. 24, no. 7.
- Milliken, K. L.**, 1992, Petrographic documentation of reactions affecting detrital feldspars in mudrocks: American Association of Petroleum Geologists Annual Meeting (Abstracts), p. 89.
- Milliken, K. L.**, 1992, Regional diagenetic variations in middle Pennsylvanian foreland basin sandstones of the southern Appalachians: Geological Society of America Annual Meeting, Abstracts with Programs, v. 24, no. 7.
- Milliken, K. L.** and Land, L. S., 1991, Reverse weathering, the carbonate-feldspar system, and porosity evolution during burial of sandstones: American Association of Petroleum Geologists Bulletin, v. 75, p. 636.
- Milliken, K. L.**, Land, L. S., Mack, L. E. and Awwiller, D. N., 1991, Depth-related potassium gain and other elemental trends in mudrocks, Oligocene Frio Formation, South Texas: (Abstracts) Society of Economic Paleontologists and Mineralogists Annual Theme Meeting, Portland, Ore., p. 22-23.
- Milliken, K. L.** and Land, L. S., 1990, Petrography of silt (>10  $\mu$ ) in Miocene-Oligocene mudrocks of South Texas: Geological Society of America Annual Meeting, Abstracts with Programs, v. 22, no. 7.
- \*Land, L. S., Mack, L. E., Macpherson, G. L. and **Milliken, K. L.**, 1990, Open system diagenesis and the loss of provenance signatures: elemental and isotopic data from sandstones, Frio Formation, South Texas: American Association Petroleum Geologists Bulletin, v. 74, p. 699.

- Milliken, K. L.** and Mack, L. E., 1989, Comparison of detrital and authigenic heavy minerals in the modern Rio Grande and the Oligocene Frio Formation, South Texas: Geological Society of America Annual Meeting, Abstracts with Programs, v. 21, no. 6.
- Milliken, K. L.**, Land, L. S. and McBride, E. F., 1988, Feldspar diagenesis in the zone of partial alteration: Mid-year Meeting Abstracts, Society of Economic Paleontologists and Mineralogists, v. V.
- Milliken, K. L.**, McBride, E. F. and Land, L. S., 1988, Effect of feldspar diagenesis on modal composition, Frio Formation (Oligocene), South Texas: Geological Society of America Annual Meeting, Abstracts with Programs, v. 20, no. 7.
- Land, L. S. and **Milliken, K. L.**, 1986, Diagenesis of Gulf Coast Sediments--synthesis: 12th International Sedimentological Congress, Canberra (Australia), Abstracts, p. 174.
- Kugler, R. L. and **Milliken, K. L.**, 1985, Subsurface feldspar alteration and the loss of provenance information: Mid-year Meeting Abstracts, Society of Economic Paleontologists and Mineralogists, v. II.
- Land, L. S. and **Milliken, K. L.**, 1985, Diagenetic evolution in Cenozoic sandstones, Gulf of Mexico: Geological Association of Canada/Mineralogical Association of Canada, Joint Annual Meeting, Abstracts, v. 10, p. A33.
- Milliken, K. L.**, Gold, P. B. and Land, L. S., 1985, Feldspar diagenesis in Neogene sediments, northern Gulf of Mexico: American Association of Petroleum Geologists Bulletin, v. 69, p. 288.
- Milliken, K. L.**, 1984, Alteration of detrital mineral assemblages in Cenozoic sediments of the Texas-Louisiana Gulf Coast: Geological Society of America Annual Meeting, Abstracts with Programs, v. 16, no. 6.
- Milliken, K. L.**, 1984, Detrital composition of Plio-Pleistocene sands, offshore Louisiana: Gulf Coast Association of Geological Societies Transactions, v. 34, p. 395.
- Milliken, K. L.**, 1978, Non-sabkha evaporites (silicified) from Carboniferous limestones of southern Kentucky and northern Tennessee: American Association of Petroleum Geologists Bulletin, v. 62, p. 544.
- Milliken, K. L.** and Pigott, J. D., 1977, Variation of oceanic Mg/Ca ratio through time---implications of the calcite sea: Geological Society of America, South-central Section Meeting, Abstracts with Programs, v. 9, no. 1.

#### **Published Photographs**

- Cover photograph, *Geology*, v. 12, no. 8, August, 1984
- Cover Photograph, *Geology*, v. 9, no. 7, July, 1981

#### **External Funding Sources 1987 to present (\$2,270,918)**

- IODP Expedition 316, post-cruise support, **K. L. Milliken**, P. I., 2008-2010, \$14, 449
- “Design, Construction, and Evaluation of a Multi-author Interactive Tutorial for Carbonate Petrology”, **K. L. Milliken**, P. I., Educational Materials Development in Course Curriculum and Laboratory Improvement program of the Division of Undergraduate Education, National Science Foundation, 2006-2007, Award # 0536085, \$121,376.
- “Digital tutorial for sandstone petrography”, **K. L. Milliken**, P. I., Educational Materials Development in Course Curriculum and Laboratory Improvement program of the Division of Undergraduate Education, National Science Foundation, 2003-2005, Award # 0230578, \$302,000.
- “A very close look at the Earth: Electron-beam microscopy and microanalysis of natural materials”: W. Carlson with co-PIs P. Bennett and **K. Milliken**, Keck Foundation July 2001 - July 2002, \$750,000.
- “Digital petrographic tutorials for undergraduate petrology laboratories: Developing a test case in siliciclastic petrography”: **K. L. Milliken**, P.I., Earle McBride, co-P.I., Educational Materials Development grant from the Course Curriculum and Laboratory Improvement program of the Division of Undergraduate Education, at National Science Foundation, June 1, 2001 - May 31, 2002, Award # 0088763, \$75,000.
- “Occurrence and geochemistry of ankerite for elucidating the distribution of post-kinematic cementation in fractured reservoirs”, **K. L. Milliken**, P. I., Petroleum Research Fund, American Chemical Society, Jan. 1, 2000 - Aug. 31, 2002, \$60,000.
- “Digital petrographic tutorials for undergraduate petrology laboratories: Developing a demonstration version in siliciclastic petrology for GEO416M”; **K. L. Milliken**, and E. F. McBride, co-P.I., submitted in May 2000 to the University Information Technology Fee grant program for funding at levels between \$11,300 over 6 months and \$28,901 over 12 months (funded at a level of \$14,450 for 4 months, beginning Sept., 2000).
- ODP Leg 149, cruise support, **K. L. Milliken**, P. I., 1993, \$35,577.

"Provenance information from the silt fraction (10-62 $\mu$ m), Sites 897-901, Iberia Abyssal Plain", U.S. Science Support Program, USSSP012, **K. Milliken**, P. I., 1993-1997, \$19,396.

"Improved Resource Characterization Technology", GRI Contract No. 5082-211-0708 (Subcontract from Bureau of Economic Geology, University of Texas), **K. Milliken**, P. I., 1995-1997, \$32,868.

"Diagenesis of sandstones and shales, Northern Gulf of Mexico" funded by a consortium of petroleum companies, project directed by E. F. McBride and L. S. Land, 1987-1993, \$438,000.

"The effect of fracture "skins" on flow in doubly porous media: Quantification of permeability patterns", Texas Advanced Research Program, ARP 003658105, J. M. Sharp, Jr., P.I., 1992-1994, \$87,000.

"Rock-water interaction and provenance determination: Southern Alleghanian Foreland Basin Rocks", American Chemical Society Petroleum Research Fund ACS-PRF#22805-AC, E. F. McBride, P. I., proposal by **K. Milliken**, 1990-1992, \$40,000.

"The role of mudstones in burial diagenesis", Department of Energy DE-FG05-92ER14249, L. S. Land, P. I.; co-authored with **K. Milliken** and L. Mack, 1992-1994, \$203,688.

"Diagenesis of sandstones in foreland and piggy-back basins, northern Apennines, Italy", National Science Foundation EAR-9103985, E.F. McBride, P. I., 1991-1992, \$80,004

"Gulf Coast basinal mudstones: sources or sinks of diagenetic components?" National Science Foundation EAR -8904489, L. S. Land, P. I., co-authored with **K. Milliken**, 1989-1991, \$134,136.

### **Jackson School Project Participation (\$1, 047,141)**

"Silica geochemistry in the Barnett 'Shale'", P.I. **Kitty Milliken**, Jan. 2005 - Dec. 2005, \$25,000.

"Post-doc support to create a demo-version of a carbonate petrography tutorial", P.I. **Kitty Milliken**, Post-doc Suk-Joo Choh, Jan. 2005 - Dec. 2005, \$25,000.

"Start-up training and development for use of EBSD detector", P. I. **Kitty Milliken**; Research Associate Rob Reed, Jan. 2006-Dec. 2006, \$19,621.

"Deep- to ultradeep-burial diagenetic processes in siliciclastic strata", Project Team: Shirley Dutton, Bob Loucks, Earle McBride, **Kitty Milliken**, Jan. 2005 - Dec. 2006, \$350,000.

"Chemical/mechanical evolution of fracture systems", P. I. S. E. Laubach, R. Marrett; Project Team includes **K. L. Milliken**, J.E. Olson, R.H. Lander, Jan. 2005 - Dec. 2006, \$600,000.

"Radical questioning of carbonate diagenesis paradigms: predicting fracture and porosity evolution in dolostone," P. I. Julia Gale; Project Team includes Steve Laubach, Randy Marrett, **Kitty Milliken**, Larry Lake, Rob Lander, and others, Jan. 2005 - Dec. 2005, \$25,000.

"Organizing the Folk 80<sup>th</sup> birthday symposium", \$2,500.

### **Courses**

#### **Undergraduate**

GEO 416, Mineralogy and petrology, 1991.

GEO 420K, Introduction to field and stratigraphic methods, 1995; co-taught with Mark Helper.

GEO 416M, Sedimentary Rocks, fall 2005, co-taught with Jay Banner.

#### **Graduate**

GEO 391N, Analytical Techniques and Applications in Geology, 1999, 2000, 2001; co-taught with Doug Smith (now replaced by 390R).

GEO 390R, Analytical Techniques: Electron-beam Analysis, spring 2004, fall 2004; offered every fall; XRD and electron microbeam techniques with an emphasis on hands-on training on the electron microprobe.

GEO 391, Advanced Reservoir Characterization, Clastics, spring 2003, spring 2005; co-taught with Shirley Dutton, Bob Loucks, and Earle McBride; this course straddles the traditional divide between petroleum geology and petroleum engineering with a focus on reservoir properties at the pore scale.

GEO 383L, Sandstone Petrology, fall 2003, spring 2007, spring 2008, fall 2009

## **Academic Committees**

### **Graduate Supervisor**

David Hull (M.S.), graduated summer 2011, currently at Chesapeake

Aysen Ozkan, Ph.D., graduated spring 2010, currently at Shell research lab

Glen Mackey, M.S., graduated summer, 2009, currently at Univ. of Utah

Kara Dotter, M.S., graduated spring, 2006, "Characterization of Historic Lime Mortars", Ph.D. program, Queen's University, Belfast, Northern Ireland

Astrid Makowitz Ph.D., graduated spring 2004; "Brittle Deformation in Sandstone Compaction"

Petro Papazis, M.S., graduated summer, 2005; currently at Chevron, "Petrography of the Barnett Shale"

### **Member, Graduate Committees**

Maryam Mousavi, Ph.D., Dept of Petroleum and Geosystems Engineering.

John Hema, Ph.D., (Civil Engineering); Liquid nitrogen applications in concrete.

Thano Drimalas Ph.D. (Civil Engineering); Investigations in concrete durability.

Jason Idekker, Ph.D., (Civil Engineering); Investigations in concrete durability.

Diego Van Berkle, M.S.; Facies and diagenesis of Weber Sandstone as reflected in log character, Rangely Field, Colorado, graduated 2006

Matthew Davis, M.S.; graduated spring 2005, Tectonics of Tranquitas.

Tarek Elshayeb, Ph.D.; graduated summer 2004, "Diagenesis of Cotton Valley Sandstone, East Texas".

Terence Garner, Ph.D.; Petrographic and hydrologic characterization of fractures in granites.

Mikhail Gladkikh, Ph.D. (Department of Computational and Applied Mathematics); graduated spring 2005, "A priori predictions of macroscopic behavior of fluids in simple porous media".

Jonas Gournay Ph.D.; graduated fall 1999, "Phylloid algal bioherms and ooid grainstones: characterization of reservoir facies utilizing subsurface data from the Aneth Platform".

Joseph Mehring, M.S.; graduated spring 2005, "Origin of modern quartzarenite sand in beaches of the Florida Panhandle Coast".

Julymar Morantes M.S.; graduated summer 2003, "Quartz cementation modeling and reservoir quality of the Upper Cretaceous sandstones in Carito Field, North Monagas, Venezuela".

Laura Net M.S.; graduated summer 2003, "Diagenesis and reservoir quality of the Eolian Nugget/ Navajo sandstone (Early Jurassic), Utah and Wyoming".

Aysen Ozkan M.S.; graduated, summer 2001, "Diagenesis and porosity evolution of the Flathead Sandstone (Middle Cambrian), Wyoming and Montana".

Rogério Schiffer Souza Ph.D.; graduated fall 1999, "Integrated diagenetic modeling and reservoir quality assessment and prediction of the Agua Grande sandstones, early Cretaceous, Reconca".

Barbara Tillotson, M.S.; graduated spring 2003, "Bed and facies scale selectivity during late-stage dolomitization: Lower Ordovician El Paso Group, Franklin Mountains, West Texas".

### **Supervisor for Undergraduate independent-study and honors-thesis committees**

Emily, Comer, Fall 2008, Provenance of sands in the Nankai Accretionary Prism

Christian Dohse, spring 2007, Carbonate lithologies of the Barnett Shale

Phillip Montoya, 1 hr, fall 2003; Reading on liesegang bands and translation of 1913 and 1945 works by R. E. Liesegang.

### **Member for Undergraduate honors-thesis committees**

Mills, Stephanie, current, Cathodoluminescence of ore-deposit calcite

Petro Papazis, spring 2002; Cathodoluminescence imaging of veins in metasediments of the Franciscan Complex, Pacheco Pass, California; Mark Cloos, supervisor.

Cori Lambert, spring 1996; Oxygen isotopic study of quartz in soils and subjacent rhyolites, Big Bend Ranch State Natural Area, Texas.

Colby Drexler, spring 1995; Potassium metasomatism of Gulf Coast shales evaluated through gamma-ray logs.

### **Community Service**

Presentation, “Geodes”, at Cedar Park High School, Sept. 2003.

Presentation, “Concretions and geodes”, at Austin Gem and Mineral Society, Oct. 2002.

Judge, Science Fair, Murchison Middle School, 1998, 1999.

Presented GSA poster at meeting of Austin Geological Society, Feb. 2000.

“Identification Day”, twice-yearly rock and mineral ID for the public, Texas Memorial Museum, 2000-2010

### **Expertise**

My primary specialty is combining petrographic and geochemical methods to decipher histories of post-depositional modification in sedimentary rocks. My papers and current projects have applied this approach to sandstones, shales, carbonate rocks, and cherts in a program directed at understanding the fundamental chemical and mechanical processes of the upper crust.

**Petrographic methods:** conventional light microscopy; statistical analysis of detrital and authigenic components, especially in sandstones; electron microbeam imaging techniques.

**Geochemical methods:** electron microprobe analysis; stable isotopes.

Since 1985 I have consulted for the following companies and organizations: Arco Oil and Gas, BHP, Chevron-Texaco, ExxonMobil, Pemex, Texaco E&P Technology Development, Total, Shell Development Co., Sandstones Inc. (Maxxus Petroleum, Japex), RPI, U.S. Geological Survey, Bureau of Economic Geology, and Westport Technology. Work done for these groups includes sandstone petrography, electron microprobe analysis, short courses on diagenesis and reservoir quality, and instruction in electron microbeam imaging techniques.