

Mudrock Petrology

In press:

- Milliken, K. L.**, M. D. Rudnicki, D. N. Awwiller, in press, Organic matter-hosted pore system, Marcellus Formation (Devonian), Pennsylvania, USA: AAPG Bulletin, v. 97, p. in press.
- 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.
- 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.
- 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.

Since 2000:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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
- Land, L. S. and **Milliken, K. L.**, 2000, Regional loss of SiO₂ and CaCO₃, and gain of K₂O 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.

Older mudrock items:

- 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.
- 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.
- 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.
- 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.

Sandstone Diagenesis/Provenance

- Milliken, K. L.**, E. J. Comer, and K. M. Marsaglia, 2012, Modal sand composition at Sites C0004, C0006, C0007, and C0008, IODP Expedition 316, Nankai accretionary prism: [Proceedings of the Integrated Ocean Drilling Program \[online\]](#), Vol. 314/315/316, pp. 1-17.
- 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, v. 124, p. 1007-1024.
- 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.
- 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
- 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.
- 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.
- McBride, E. F. and **Milliken, K. L.**, 2006, Giant calcite-cemented concretions, Dakota Formation, central Kansas, USA: Sedimentology, v. 53, p. 1161-1179.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

Geoscience Education/Curriculum Materials/Reviews/Reference Materials

- 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.
- 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.

- Milliken, K. L.** (compiler), 2006, Getting Started with Understanding Diagenetic Controls on Sandstone Reservoir Quality: AAPG/DataPages Getting Started Series, No. 4, CD-ROM
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.

Carbonates and Odd-ball rock types

- 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 Geysers Field, Chile: *Applied Geochemistry*, v. 24, 664-676.
- 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.
- 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
- 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
- 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.
- 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.

- 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 Xeologico de Laxe, No. 28, p. 193-212.
- 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.

Techniques

- 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.
- Milliken, K. L.**, 2002, Observation of microbial structures in rocks using 3D light microscopy: Journal of Sedimentary Research, v. 72, p. 220-224.