

KATHERINE A. GILES

Professor, Department of Geological Sciences
Director, Institute of Tectonic Studies
New Mexico State University, Las Cruces, NM 88003
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Fulbright Scholar

EDUCATION

- 1991 - Ph.D. in Geology**, University of Arizona, Tucson
Dissertation Title: Interpretation of the lower Mississippian Joana Limestone and implications for the Antler orogenic system.
Advisor: William R. Dickinson
- 1985 - M.S. in Geology**, University of Iowa, Iowa City
Thesis Title: Stratigraphy, petrology, and interpretation of the Iatan Limestone (Upper Pennsylvanian) in northwestern Missouri and adjacent states.
Advisor: Philip H. Heckel
- 1981 - B.S. in Geology**, University of Wisconsin, Madison

PROFESSIONAL EXPERIENCE – Post-Graduate only

2003-present: Professor, New Mexico State University

Courses taught on a regular basis -

Carbonate Petrography and Depositional Systems; Advanced Stratigraphic Concepts; Basin Analysis; Invertebrate Paleontology; Introductory Geology, Undergraduate & Undergraduate Honors

1998-2003 Associate Professor, New Mexico State University

1993-1998: Assistant Professor, New Mexico State University

1998-present: Director, Institute of Tectonic Studies, New Mexico State University.

Co-PI of the Salt-Sediment Interaction Joint Industry Research Consortium, Phase III

1998-present: Consulting Geologist, Reservoir characterization and continuity, stratigraphic analysis, salt tectonics

1991-1993: Senior Carbonate Research Geologist, Exxon Production Research Company, Houston, TX

RECENT AWARDS AND HONORS

AAPG Distinguished Lecturer 2007-2008.

New Mexico Geological Society Honorary Member 2004; President 2000; Executive Committee 1997-03.

Geological Society of America Fellow 2004.

Fulbright Scholar 2000-2001, Science and Technology Division.

American Chemical Society-Petroleum Research Fund Advisory Board, 2004-Present.

Institute of Tectonic Studies, NMSU, Appointed Director 1999-Present.

SEPM Carbonate Research Group Appointed Chair 2000-2003.

PROFESSIONAL SOCIETY MEMBERSHIP AND ACTIVITIES

American Association of Petroleum Geologists-*Distinguished Lecturer 2007-2008, Student/Mentor Liason Program, PROWESS Committee, Distinguished Lecturer Committee 2008.*

Geological Society of America-*Fellow 2004, JTCP, Minorities & Women in Geosciences Committee.*

New Mexico Geological Society –*Honorary Member, 2004; President 2000, Co-Chair 2002 Fall Field Conference, Co-Chair Technical Program 2002 Spring Meeting, Co-Editor Geology of New Mexico NMGS Special Publication.*

Society for Sedimentary Geology-*Carbonate Research Group Chair 2000-2004.*
West Texas Geological Society

INVITED LECTURES (Last 5 years; not related to professional meetings or AAPG

DL

Houston Geological Society (Lecture & Fieldtrip), La Asociacion Mexicana de Geologos Petroleos (fieldtrip), Los Alamos Geological Society, NM Tech, New Orleans Geological Society, Roswell Geological Society, Stanford Univ., Univ. of Arizona, Univ. of Iowa, UNLV, Univ. of New Mexico, Univ. Northern Arizona, Univ. of Oklahoma, UT-El Paso, UT- Austin, Enterprise -Salt Workshop, Phillips Petroleum-Houston, ExxonMobil Research Lab.

PUBLICATIONS (an asterisk * denotes student advisees of K. A. Giles)

- Giles, K. A.**, *Druke, D. C., *Mercer, D. W., and *Hunnicut-Mack, L., 2008, Controls on Upper Cretaceous (Maastrichtian) Heterozoan Carbonate Platforms Developed on Salt Diapirs, La Popa Basin, NE Mexico; *in*: Lukasik, J. and Simo, J. A, eds., Controls on Carbonate Platform Development, SEPM Special Pub. No. 89, p. 107 - 124.
- Klosterman, S. L., Sandy, M. R., Vega, F. J., **Giles, K. A.**, *Graf, K., *Shelley, D., and J. Sole, 2007, New Paleocene Rhynchonellide Brachiopods from the Potrerillos Formation, Northeast Mexico, *J. Paleont.*, V. 81, p. 483-489.
- *Frye, M. C. and **Giles, K. A.**, 2006, Forebulge sourcing of the Mississippian Antler foreland basin system: The Tripon Pass Limestone of northwestern Utah and north-central Nevada: *in* Harty, K.M. and Tabet, D. E., eds., *Geology of Northwest Utah*. Utah Geological Association Publication 34, p. 1-28.
- *Perrone-Vogt, M. and **Giles, K. A.**, 2006, Got Moonmilk? The characterization of moonmilk in Spider Cave, Carlsbad Caverns National Park, New Mexico: *New Mexico Geological Society Guidebook, 57th Field Conference, Caves and Karst of Southeastern New Mexico, 2006*, p.175-184.
- *Aschoff, J. L. and **Giles, K. A.**, 2005, Salt diapir-influenced, shallow-marine sediment dispersal patterns: Insights from outcrop analogs: *American Association of Petroleum Geologists Bulletin*, v. 89, p. 447-469.
- Lawton, T. F., *Shipley, K. W., *Aschoff, J. L., **Giles, K. A.**, and Vega, F. J., 2005, Basinward transport of Chicxulub ejecta by tsunami-induced backflow, La Popa basin, northeastern Mexico, and its implications for distribution of impact-related deposits flanking the Gulf of Mexico: *Geology*, v. 33, p. 81-84.
- Giles, K. A.**, Lawton, T. F., and Rowan, M. G., 2004, Summary of Halokinetic Sequence Characteristics from Outcrop Studies of the La Popa Salt Basin, NE Mexico: *in* Post, P., et al. eds., *Salt-Sediment Interaction and Hydrocarbon Prospectivity: Concepts, Applications, and Case Studies for the 21st Century*; 24th Annual GCS-SEPM Foundation Bob F. Perkins Research Conference Proceedings, p. 625-634.
- Kues, B. S, and **Giles, K. A.**, 2004, The Late Paleozoic Ancestral Rocky Mountains system in New Mexico: *in* Mack, G. H. and **Giles, K. A.**, (eds.), *Geology of New Mexico, A Geologic History*: New Mexico Geological Society Special Publication, p. 95-136.
- Franseen, E. K. and **Giles, K. A.**, 2003, Carbonates: *Geotimes Highlights Issue*, v. 48, p. 18.
- Rowan, M. G., Lawton, T. F., **Giles, K. A.**, and Ratliff, R. A., 2003, Near-salt deformation in La Popa basin, Mexico, and the Northern Gulf of Mexico: A general model for passive diapirism: *American Association of Petroleum Geologists Bulletin*, v. 87, p. 733-756.
- Giles, K. A.** and Lawton, T. F., 2002, Halokinetic sequence stratigraphy adjacent to El Papalote diapir, La Popa basin, northeastern Mexico: *American Association of Petroleum Geologist Bulletin*, v. 86, p. 823-841.

- Giles, K. A.**, Lucas, S. G., Lueth V. W., and Myers, R. G., 2002, Second-Day Road Log from Alamogordo to Tularosa, Rhodes Canyon, Lake Lucero, and return to Alamogordo, *in* Lueth, V. W., Giles, K. A., Lucas, S. G., Kues, B. S., Myers, R., and Ulmer-Scholle, D. S., eds., *Geology of White Sands*, New Mexico Geological Society 53rd Annual Field Conference, p. 29-52.
- Giles, K. A.**, McMillan, N. J., *McCarson, B. L., 2002, Geochemical analysis and paleoecologic implications of phosphatic microspherules (otoliths?) from Frasnian-Famennian boundary strata in the Great Basin, USA. *in* Racki, G. and House, M. R., (eds.) *Late Devonian Biotic Crisis: Ecological, Depositional and Geochemical Records: Palaeogeography, Palaeoclimatology, Palaeoecology Special Issue*, v. 181, p. 11-125.
- Kues, B. S., **Giles, K. A.**, Mack, G. H., Lawton, T. F., 2002, A Late Pennsylvanian outer shelf marine fauna from a highstand systems tract, Derry Hills, south-central New Mexico, *New Mexico Geology*, v. 24, p. 121-130.
- Lawton, T. F., **Giles, K. A.**, Mack, G. H., Singleton, D. S., and Thompson, A. D., 2002, Lower Wolfcampian conglomerate in the southern Caballo Mountains, Sierra County, New Mexico: Stratigraphy, correlation, and implications for Late Pennsylvanian-Early Permian tectonics, *in* Lueth, V. W., Giles, K. A., Lucas, S. G., Kues, B. S., Myers, R., and Ulmer-Scholle, D. S., eds., *Geology of White Sands*, New Mexico Geological Society 53rd Annual Field Conference, p. 1-28.
- Lucas, S. G., Lueth V. W., Kues, B. S., Myers, R. G., and **Giles, K. A.**, 2002, First-Day Road Log from Alamogordo to Tularosa, Mockingbird Gap, Trinity Site, Oscuro, and Three Rivers, *in* Lueth, V. W., Giles, K. A., Lucas, S. G., Kues, B. S., Myers, R., and Ulmer-Scholle, D. S., eds., *Geology of White Sands*, New Mexico Geological Society 53rd Annual Field Conference, p. 1-28.
- Lueth V. W., Lucas, S. G., **Giles, K. A.**, and Kues, B. S., 2002, Third-Day Road Log from Alamogordo to Tularosa, Mockingbird Gap, Trinity Site, Oscuro, and Three Rivers, *in* Lueth, V. W., Giles, K. A., Lucas, S. G., Kues, B. S., Myers, R., and Ulmer-Scholle, D. S., eds., *Geology of White Sands*, New Mexico Geological Society 53rd Annual Field Conference, p. 53-78.
- Lawton, T. F., Vega, F. J., **Giles, K. A.**, and Rosales-Dominguez, C., 2001, Stratigraphy and origin of the La Popa basin, Nuevo Leon and Coahuila, Mexico, *in* Bartolini, C., Buffler, R. T., and Cantú-Chapa, A., eds., *Mesozoic and Cenozoic evolution of the western Gulf of Mexico basin: Tectonics, sedimentary basins and petroleum systems: Tulsa, Oklahoma*, American Association of Petroleum Geologists Memoir 75, p. 219-240.
- Pope, M. C. and **Giles, K. A.**, 2001, Carbonate Sediments: Geotimes - Annual Highlights Issue, v.46, p. 20 - 21.
- Giles, K. A.** and Lawton, T. F., 2000, Salt tectonics and sedimentation of the La Popa basin, Nuevo Leon, Mexico: American Association of Petroleum Geologists Annual Meeting Fieldtrip Guidebook #4, 106pp.
- Giles, K. A.** and Soreghan, G. S., 2000, Lithofacies Distribution and Reservoir Heterogeneity within Pennsylvanian bioherms, western Orogrande basin, New Mexico: *in*, Johnson, K.

- S. (ed.), Platform carbonates in the southern Midcontinent, 1996 Symposium: Oklahoma Geological Survey Circular 101, p. 269-274.
- Soreghan, G. S., Engel, M. H., Furley, R. A., and **Giles, K. A.**, 2000, Glacioeustatic transgressive reflux: Stratiform dolomite in Pennsylvanian bioherms of the western Orogrande basin, New Mexico: *Journal of Sedimentary Research*, v. 70, p. 1315-1332.
- Giles, K. A.** and Lawton, T. F., 1999, Attributes and Evolution of an Exhumed Salt Weld, La Popa Basin, Northeastern Mexico: *Geology*, v. 27, p.323-326.
- Giles, K. A.**, *Bocko, M. L., Lawton, T. F., 1999, Stacked Late Devonian lowstand shorelines and their relation to tectonic subsidence at the Cordilleran Hingeline, Western Utah: *Journal of Sedimentary Research*, v. 69, p. 1181-1190.
- Soreghan, G. S. and **Giles, K. A.**, 1999, Amplitudes of Late Pennsylvanian glacioeustasy: *Geology*, v. 27, p. 255 - 258.
- Soreghan, G. S. and **Giles, K. A.**, 1999, Facies character and stratal responses to accommodation in Pennsylvanian bioherms, Western Orogrande Basin, New Mexico: *Journal of Sedimentary Research*, v. 69, p. 893 - 908.
- Giles, K. A.**, 1998, An Alternative Model for the Origin of Lower Mississippian Waulsortian Mounds in the Sacramento Mountains, New Mexico: *New Mexico Geological Society, 49th Fall Field Conference Guidebook, Las Cruces Country II*, p. 155-160.
- Giles, K. A.**, 1998, Review of the "Geology of Southern New Mexico: A Beginner's Guide" by Greg H. Mack. *Geotimes*, v.43, p.31-32.
- DeCelles, P. G. and **Giles, K. A.**, 1997, Foreland basin systems: Reply: *Basin Research*, v. 9, p. 171-176.
- Giles, K. A.**, 1997, An alternative origin for lower Mississippian Waulsortian mounds in the Sacramento Mountains, New Mexico: Allochthonous slope deposits? *in* Kirkby, K., **Giles, K. A.**, and Dorobek, S., (eds.), *GSA Field Guide to the Lower Mississippian Waulsortian Mounds, Sacramento Mountains, New Mexico*, 13pp.
- Kirkby, K., **Giles, K. A.**, and Dorobek, S., 1997, Road Log for the lower Mississippian Waulsortian Mounds, Sacramento Mountains, New Mexico, field trip: *in* Kirkby, K., **Giles, K. A.**, and Dorobek, S., (eds.), *GSA Field Guide to the Lower Mississippian Waulsortian Mounds, Sacramento Mountains, New Mexico*, p. 1-15.
- Lawton, T.F. and **Giles, K. A.**, 1997, Field Guide to El Papalote Diapir: *in* Soegaard, K., **Giles, K.**, Vega, F., and Lawton, T., (eds.), *Structure, Stratigraphy and Paleontology of Late Cretaceous-Early Tertiary Parras-La Popa Foreland Basin near Monterrey, Northeast Mexico, AAPG Field Trip #10*, p. 55-73.
- Giles, K. A.**, 1996, Tectonically forced retrogradation of the lower Mississippian Joana Limestone, Nevada and Utah: *in* M. W. Longman and M. D. Sonnenfeld, (eds.), *Paleozoic Systems of the Rocky Mountain Region. Rocky Mountain Section of SEPM (Society for Sedimentary Geology)*, p. 145-164.

- Giles, K. A.**, 1996, Review of "Carbonate Mud-Mounds, Their Origin and Evolution", Monty, C. L. V., Bosence, W. J., Bridges, P. H., and Pratt, B. R., (eds.), *Journal of Sedimentary Research*, v. 66, p.1169-1170.
- Budd, A. F. and **Giles, K. A.**, 1996, Chapter 15, Guadalupe Mountains National Park, *in* Harris, A. G., Tuttle, E. and Tuttle, S. D., (eds.), *Geology of the National Parks*, Fifth Edition, Kendall/Hunt Publishing, Dubuque, Iowa, p.187-196.
- DeCelles, P. G. and **Giles, K. A.**, 1996, Foreland basin systems: *Basin Research*, v. 8, p. 105-123.
- Giles, K. A.**, and Dickinson, W. R., 1995, Influence of lithospheric flexure on development of stratigraphic sequences in foreland settings: An example from the Antler foreland, Nevada and Utah: *in* Dorobek, S. and Ross, G., (eds.), *Stratigraphic Evolution of Foreland Basins*, SEPM Spec. Pub. 52, p. 187-211.
- Giles, K. A.**, 1994, Stratigraphic and tectonic framework of the Upper Devonian Pilot basin in east-central Nevada and western Utah: *in* Dobbs, S. W., (ed.), *Structural and Stratigraphic Investigations and Petroleum Potential of Nevada: Special Emphasis on the Area South of the Railroad Valley Oil Producing Trend: Nevada Petroleum Society 1994 Field Conference Guidebook*, p. 165-186.
- Dickinson, W. R., Soreghan, G. S., and **Giles, K. A.**, 1994, Glacio-eustatic origin of Permo-Carboniferous cycles: Evidence from the southern Cordilleran foreland region: *in* Dennison, J. M. and Effensohn, F. R., (eds.), *Tectonic and Eustatic Controls on Sedimentary Cycles*, SEPM Concepts in Sedimentology and Paleontology #4, p. 25-34.
- Goebel, K. A.**, 1991, Paleogeographic setting of the Late Devonian to Early Mississippian transition from passive to collisional margin, Antler foreland, eastern Nevada and western Utah: *in* Cooper, J. D. and Stevens, C. H. (eds.), *Paleozoic Paleogeography of the United States - II: Pacific Section of S.E.P.M. Spec. Pub. 67*, p. 401-418.
- Goebel, K. A.**, Bettis, E. A. III, and Heckel, P. H., 1989, Upper Pennsylvanian paleosol in Stranger Shale and underlying Iatan Limestone, southwestern Iowa: *Journal Sedimentary Petrology*, v. 59, p. 224-232.

ABSTRACTS FOR LAST 5 YEARS ONLY

- Druke, J. and **Giles, K. A.**, 2008, Depositional Setting and Distribution of Sands within Type A Halokinetic Sequences: An Example from the Paleocene Upper Mudstone Member, Potrerillos Formation, La Popa Basin, Mexico: AAPG Annual Meeting, San Antonio, TX, p. 47-48.
- *Hannah, P.T., *Hearon, T.E., IV, Lawton, T.F., Rowan, M.G., **Giles, K.A.** Field evidence for debris flows beneath an allochthonous salt canopy, Willouran Ranges, South Australia. Accepted AAPG Annual Meeting, San Antonio, TX, p. 75.
- *Hearon, T.E., IV, *Hannah, P.T., Lawton, T.F., Rowan, M.G., **Giles, K.A.**, Neoproterozoic allochthonous salt-body geometry, minibasins and salt-influenced sedimentation in the Willouran Ranges, South Australia: Accepted AAPG Annual Meeting, San Antonio, TX, p. 80.
- *Romero, J. G. and **Giles, K. A.**, New insights on the formation of Waulsortian mud-mounds: A case study from the Sacramento Mountains, New Mexico. Accepted AAPG Annual Meeting, San Antonio, TX. p. 172.
- Rowan, Mark G., Lawton, Timothy F., **Giles, Katherine A.**, *Hannah, P. Tyler, *Hearon, Thomas E. IV, Advance of allochthonous salt sheets: field evidence from the Patawarta diapir, Flinders Ranges, South Australia. Accepted AAPG Annual Meeting, San Antonio, TX, p. 174.
- Giles, K.** and *Druke, J, 2007, Linked hyperpycnal flows and Heterozoan reefs as indicators of wetter climates in La Popa Basin, NE Mexico: Geophysical Research Abstracts, V. 9, p. 10699.
- *Loera, D.M. and **Giles, K.A.**, 2006, Attributes and history of the Cretaceous-Eocene La Popa salt weld derived from halokinetic sequence stratigraphy: American Association of Petroleum Geologists 2006 Annual Convention Abstracts Volume, p. 65.
- Giles, K. A.**, and *Druke, D., 2005, Controls on Cretaceous and Paleogene reefal carbonate platforms developed on passive salt diapirs, La Popa basin, northeast Mexico: American Association of Petroleum Geologists 2005 Annual Convention Abstracts Volume, p. 52.
- Giles, K. A.**, Lawton, T. F., and Rowan, M. G., 2005, Halokinetic sequence types and controls within La Popa salt basin, northeast Mexico: American Association of Petroleum Geologists 2005 Annual Convention Abstracts Volume, p. 51-52.
- Giles, K. A.**, *Druke, D., Lawton, T. F., and Rowan, M. G., 2004, The influence of combined halokinesis and foreland shortening on depositional sequences during the Hidalgoan orogeny, La Popa basin, NE Mexico: 32nd International Geological Congress, Florence, Italy, Scientific Sessions Abstracts, Part 1, p. 685.
- Giles, K. A.**, Lawton, T. F., and Rowan, M. G., 2004, Halokinetic sequences within a depositional sequence framework: AAPG 2004 Annual Convention Abstracts Volume, p. A52.

- *Druke, D. and **Giles, K. A.**, 2004, The effects of halokinesis and orogenesis on carbonate platform development: The Upper Cretaceous San Jose Lentil, La Popa Basin, Mexico: AAPG 2004 Annual Convention Abstracts Volume, p. A37.
- *Shiple, K. W., *Aschoff, J. L., Lawton, T.F., **Giles, K. A.**, and Vega, F. J., 2004, Sedimentologic analysis of Chicxulub-derived, ejecta-bearing K/T deposits, La Popa basin, Northeastern Mexico. Geophysical Research Abstracts, v.b 6, p.00401.
- *Shiple, K., *Aschoff, J., Lawton, T., **Giles, K.**, and Vega., F., 2004, Ejecta-bearing deposits at the K/T boundary, La Popa basin, northeastern Mexico: 32nd International Geological Congress, Florence, Italy, Scientific Sessions Abstracts, Part 2, p. 1469.
- Giles, K. A.**, Lawton, T. F., and Rowan, M. G., 2003, Halokinetic Sequences, G.S.A. Annual Meeting Abstracts with Programs, v. 34 , p. 642.
- Druke, D. and **Giles, K.**, 2003, The effects of halokinesis and orogenesis on carbonate platform development: The Upper Cretaceous San Jose Lentil, La Popa Basin, Mexico: G.S.A. Annual Meeting Abstracts with Programs, v. 34 , p. 339.
- Goldhammer, R. K. and **Giles, K. A.**, 2003, Paleocene La Popa platform-Complex sequence architecture and facies tracts of an isolated platform driven by syndepositional salt tectonics, La Popa basin, Northeast Mexico, A.A.P.G Annual Meeting Abstracts, v. 12, p. A63.
- Rowan, M. G., **Giles, K. A.**, Lawton, T. F., Ratliff, R. A., 2003, Deformation during passive diapirism: implications for exploration and production around salt diapirs; Proceedings of the 6th Petroleum Geology of Northwest Europe Conference, London, 1p.
- Shiple, K. W., *Aschoff, J. L., Lawton, T.F., **Giles, K. A.**, and Vega, F. J., 2003, Sedimentologic and petrologic analysis of Upper Cretaceous impact-related deposits, La Popa basin, Northeastern Mexico: G.S.A. Annual Meeting Abstracts with Programs, v. 35 , p.602-603.