

Report of Baylor University Geology Department Faculty Research Accomplishments, 2009 calendar year (as of 05-31-2010)

2009 Geology Faculty Publications (underline = Baylor Geology Faculty) (* = peer-reviewed journal article) (S = Geology Ph.D. student first-authored publication)

- * (1) Carr, M.E., Jumper, D.L., and Yelderman, J.C., Jr., 2009, A comparison of disposal methods for on-site sewage facilities within the state of Texas, USA: *The Environmentalist*, v. 29, no. 4, p. 381-387.
- * (2) Chen, C., Lau B.L.T., Gaillard, J.-F., Packman A.I., 2009, Temporal evolution of pore geometry, fluid flow, and solute transport resulting from colloid deposition: *Water Resources Research*, v. 45, W06416. doi:10.1029/2008WR007252.
- (3) Driese, S.G., 2009, Paleosols, pre-Quaternary, in Gornitz, V. (ed.), *Encyclopedia of Paleoclimatology and Ancient Environments*: New York, Kluwer Academic Publishers, p. 748-751.
- * (4) Forbes, M.G., Yelderman, J., Doyle, R., Clapp, A., Hunter, B., Enright, N., and Forbes, W., 2009, Hydrology of Coastal Prairie freshwater wetlands: *Wetland Science and Practice*, v. 26, no. 3, p. 12-17.
- * (5) Forman, S., Nordt, L., Gomez, J., and Pierson, J., 2009, Late Holocene dune migration on the south Texas sand sheet: *Geomorphology*, v. 108, p. 159-170. doi: 10.1016/j.geomorph.2009.01.001.
- * (6) Li, C., Qi, J., Feng, Z., Yin, R., Guo, B., and Zhang, F., 2009, Process-based soil erosion simulation on a regional scale: The effect of ecological restoration in the Chinese Loess plateau, in Yin, R. (ed.), *An Integrated Assessment of China's Ecological Restoration Programs*: New York, Springer-Verlag, p. 113-130.
- * (7) Nordt, L.C., and Driese, S.G., 2009 Hydropedological assessment of a Vertisol climosequence on the Gulf Coast Prairie land Resource Area of Texas: *Hydrology and Earth System Science Discussions*, v. 6, p. 3637-3668, www.hydrol-earth-syst-sci-discuss.net/6/3637/2009/
- * (8) Nordt, L.C., and Wilding, L.P., 2009, Organic carbon sequestration potential of cultivated Vertisols in the Coast Prairie Major Land Resource Area of Texas: *Soil Science Society of America Special Publication 57*, Madison, WI, p. 159-168.
- * (9) Peppe, D.J., McNulty, K.P., Cote, S.M., Harcourt-Smith, W.E.H., Dunsworth, H.M., and Van Couvering, J.A., 2009, Stratigraphic interpretation of the Kulu Formation (Early Miocene, Rusinga Island, Kenya) and its implications for primate evolution: *Journal of Human Evolution*, v. 56, p. 447-461.
- * (10) Peppe, D.J., Evans, D.A.D., and Smirnov, A.V., 2009, Magnetostratigraphy of the Ludlow Member of the Fort Union Formation (Lower Paleocene) of the Williston Basin North Dakota: *Geological Society of America Bulletin*, v. 121, p. 65-79. doi: 10.1130/B26353.1.
- * (11) Pulliam, J., Sen, M.K., Simmons, N., and Pasyanos, M., 2009, Seismic velocity estimation in the Middle East from multiple waveform functionals: P & S receiver functions, waveform fitting, and surface wave dispersion, 2009 monitoring research review: *Ground-Based Nuclear Explosion Monitoring Technologies*, pp.176-183.
- * (12) Sharma, K., Liu, H., Lau, B.L.T., Li, J., Yu, T., and Liu, Y., 2009, Biological fixed film systems: *Water and Environmental Research*, v. 81, p. 1194-1216. doi: 10.2175/106143009X12445568399532.

- ***S** (13) Shunk, A.J., **Driese, S.G.**, and **Dunbar, J.A.**, 2009, Late Tertiary paleoclimatic interpretation from lacustrine rhythmites in the Gray Fossil Site, northeastern Tennessee, USA: *Journal of Paleolimnology*, v. 42, p. 11-24: DOI 10.1007/s10933-008-9244-0.
- ***S** (14) Shunk, A.J., **Driese, S.G.**, Farlow, J.O., Zavada, M., and Zobia, M.K., 2009, Late Neogene paleoclimate and paleoenvironment reconstructions from the Pipe Creek Sinkhole, Indiana, USA: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 274, p. 271-283.
- *(15) Wang, W., Ma, Y.-Z., **Feng, Z.-D.**, Meng, H.-W., Sang, Y.-L., and Zhai, X.-W., 2009, Vegetation and climate changes during the last 8660 cal. A BP in central Mongolia, based on a high-resolution pollen record from Lake Ugii Nuur: *Chinese Science Bulletin*, v. 54, p. 1579-1589.
- *(16) White, J.C., **Parker, D.F.**, and Ren, M., 2009, The origin of trachyte and pantellerite from Pantelleria, Italy: Insights from thermodynamic modeling: *Journal of Volcanology and Geothermal Research*, v. 179, p. 33-55.
- *(17) Wu, H.N., Ma, Y.Z. and **Feng, Z.-D.**, 2009, Climatic and environmental changes in the Zulihe River Basin on the western part of the Chinese Loess Plateau since 25,000 yr BP: *Palaeogeography Palaeoclimatology Palaeoecology*, v. 273, p. 191-199.
- *(18) Yang, X., Pattison, S., Lin, Y., Ikehata, K., **Lau, B.L.T.**, Chang, S., and Liu, Y., 2009, Agricultural wastes: *Water and Environmental Research*, v. 81, p. 1490-1544. doi: 10.2175/106143009X12445568399974.
- *(19) Zou, S., Cheng, G., Xiao, H., Xu, B., and **Feng, Z.**, 2009, Holocene natural rhythms of vegetation and present potential ecology in the Western Chinese Loess Plateau: *Quaternary International*, v. 194, p. 55-67.

2010 (to May 31, 2010) Geology Faculty Publications (underline = Baylor Geology Faculty) (* = peer-reviewed journal article) (S = Geology Ph.D. student first-authored publication)

- *(1) **Atchley, S.C.**, N. Ball, and L. Hunt, 2010, Reservoir characterization and facies prediction within the Upper Cretaceous Doe Creek Member, Valhalla Field, west-central Alberta, Canada: *American Association of Petroleum Geologists Bulletin*, v. 94, p. 1-25.
- *(2) **Dunbar, J.** and **Allen, P.M.**, (in press), Erosion rates during the 1950's drought inferred from sedimentation in PL566 reservoirs, McCulloch, Co., TX: *Water Resources Research*, (accepted for publication)
- *(3) Forbes, M. G., **Yelderman, J. C.**, Potterton, T., and Doyle, R., (in press), Effects of intermittent loading on nitrogen removal in horizontal subsurface flow wetlands: *Water Science and Technology* (accepted for publication, reference number: WST-WSTWS-EM10353R1).
- *(4) Li, C.B., Qi, J.G., **Feng, Z.-D.**, Yin, R., Guo, B., and Zhang, F., and Zou, S., 2010, Quantifying: the effect of ecological restoration on soil erosion in China's Loess Plateau region: an application of the MMF approach: *Environmental Management*, v. 45, p. 476-487. doi: 10.1007/s00267-009-9369-6.
- S** *(5) Mintz, J.S., **Driese, S.G.**, and White, J.D., 2010, Environmental and ecological variability of Middle Devonian (Givetian) forests in Appalachian basin paleosols, New York, USA: *PALAIOS*, v. 25, p. 85-96. doi: 10.2110/palo.2009.p09-086r.

- *(6) **Nordt, L.C.**, (in press), Late Quaternary fluvial landscape evolution of the Rio Casas Grandes and San Pedro: Implications for the archaeological record, *In Late Archaic Cerros de Trincheras Sites of Chihuahua, Mexico*, R. Hard and R. Roney (eds.), University of Utah Press.
- *(7) **Nordt, L.C.**, and **Driese, S.G.**, 2010, A modern soil characterization approach to reconstructing physical and chemical properties of paleo-Vertisols: *American Journal of Science*, v. 310, p. 37-64. doi: 10.2475/01.2010.02.
- *(8) **Nordt, L.C.**, and **Driese, S.G.**, 2010, New weathering index improves rainfall estimates from Vertisols: *Geology*, v. 38, no. 5, p. 407-410. doi: 10.1130/G30689.
- *(9) **Peppe, D.J.**, *accepted*, Megafloral change in the early and middle Paleocene in the Williston Basin, North Dakota, USA: *Palaeogeography, Palaeoclimatology, Palaeoecology*.
- *(10) **Peppe, D.J.**, Royer, D.L., Wilf, P., and Kowalski, E.A., in press, Paleoaltimetry from fossil leaves: errors bigger than Mountains: *Tectonics*.
- *(11) Royer, D.L., Miller, I.M., **Peppe, D.J.**, and Hickey, L.J., 2010, Leaf economic traits support a weedy habitat for early angiosperms: *American Journal of Botany*, v. 97, p. 438-445. doi:10.3732/ajb.0900290
- *(12) Tryon, C., Faith, T.J., **Peppe, D.J.**, Fox, D.L., McNulty, K.P., Jenkins, K., Garrett, N., Dunsworth, H.M., Harcourt-Smith, *accepted*, Paleoenvironmental context for Middle Stone Age hominins in Equatorial Africa: The Pleistocene Wasiriya Beds of Rusinga Island (Kenya): *Journal of Human Evolution*.
- *(13) Wang, W., Ma, Y.Z., and **Feng, Z.-D.**, *accepted*, A prolonged dry mid-Holocene climate revealed by pollen and diatom data from Ugii Nuur lake core in central Mongolia: *Quaternary International*.
- *(14) Zhang, C., **Feng, Z.-D.**, Yang, Q., Gou, X., and Sun, F., 2010, Holocene environmental variations recorded by organic-related and carbonate-related proxies of the lacustrine sediments from Bosten Lake, northwestern China: *The Holocene*, v. 20, p. 363-372. doi: 10.1177/0959683609353428.

New Grants and Contracts AWARDED in 2009

Project Number	Sponsor	Name of Project	Project Director	PI Last Name	Start Date	Term Date	AWARD AMOUNT	Extension Date	Additional Funding
032-75ES	City of Woodway	Escarpment-City of Woodway	Yelderman, Joe	Yelderman	1/1/2009	7/30/2009	\$ 14,249.00		
032-75FA	MCGCD	Spatial Database-MCGCD	Yelderman, Joe	Yelderman	6/18/2009	10/7/2009	\$ 9,649.00		
032-75FN	DOE/UT	Seismic Velocity: Estimation in the Middle East	Pulliam, Jay	Pulliam	7/10/2009	12/31/2011	\$291,825.00		
032-75FC	USGS	Potential Tsunami Sources Affecting the US Atlantic and Gulf of Mexico Coasts	Pulliam, Jay	Pulliam	7/17/2009	9/30/2009	\$ 5,863.00		
032-75FF	NSF	Collaborative Research: Calibrating the Paleosol Carbonate CO ₂ Barometer for Vertic Paleosols by Monitoring Soil CO ₂ in Modern Vertisols	Driese, Steve	Driese, Nordt	8/15/2009	7/31/2012	\$ 96,957.00		
032-75FK	NSF	Collaborative Research: Pleistocene-Holocene Climate Variability of the Southern Appalachian Region	Driese, Steve	Driese	10/1/2009	9/30/2012	\$ 61,058.00		
032-5585	Murphy-Cormier	Nutrient Reduction Study	Yelderman, Joe	Yelderman				12/31/2010	\$ 27,914.00
032-75CE	DOE	Gas Hydrates - DOE	Dunbar, John	Dunbar				12/31/2011	\$ 115,650.00

TOTAL NEW FUNDING = \$479,601.00; TOTAL RENEWAL FUNDING = \$143,564.00
TOTAL NEW FUNDING (2009) = \$623,165

Grants, Contracts and Software Patents SUBMITTED in 2009, and status as of May 31, 2010

Date Submitted	Name of Sponsor	Project Director	PI Last Name	REQUEST ED AMOUNT	STATUS
4/27/09	Water Research Foundation	Lau, Boris	Lau	\$ 75,000.00	Not funded
5/4/09	United States Geological Survey	Pulliam, Jay	Pulliam	\$ 5,863.00	Funded
7/8/09	Marie Curie Actions	Lau, Boris	Lau	\$ 116,377.00	Not funded
7/15/09	NSF EarthScope	Pulliam, Jay	Pulliam	\$ 255,768.00	Funded
7/16/09	Water Research Foundation - Univ. of Wisconsin	Lau, Boris	Lau	\$ 107,219.00	Not funded
8/10/09	NSF - MRI	Driese, Steve	Driese/Lau	\$ 576,620.00	Not funded
8/17/09	University Wisconsin-EPA	Lau, Boris	Lau	\$ 240,000.00	Not funded
9/14/09	Norman Hackerman Advanced Research Prog.	Lau, Boris	Lau	\$ 200,000.00	Not funded
9/14/09	Norman Hackerman Advanced Research Prog.	Pulliam, Jay	Pulliam/Dunbar	\$ 150,000.00	Funded
9/14/09	Norman Hackerman Advanced Research Prog.	Yelderman, Joe	Yelderman	\$ 125,000.00	Not funded
10/12/09	University of Texas, Exxon Mobil	Pulliam, Jay	Pulliam	\$ 128,664.00	Funded
10/15/09	NSF	Feng, Zhaodong	Feng	\$ 412,129.00	Pending
10/14/09	S. Trinity Groundwater Conservation District	Yelderman, Joe	Yelderman	\$ 20,328.00	Funded
11/13/09	NSF	Pulliam, Jay	Pulliam	\$ 289,304.00	Pending
12/1/09	NSF	Peppe, Dan	Peppe	\$ 52,722.00	Funded

TOTAL REQUESTED NEW FUNDING = \$ 2,769,409.00; TOTAL AWARDED NEW FUNDING (2010) = \$ 613,345.00

Respectfully submitted by Steven G. Driese,
Professor and Geology Department Chair
May 31, 2010