

Report of Baylor University Geology Department Faculty Research Accomplishments, 2010 calendar year (16 GEO faculty, excludes adjunct and jointly-appointed faculty from other Departments)

2010 Peer-Reviewed Geology Faculty Publications (underline = Baylor Geology Faculty) (* = peer-reviewed journal article) (S = Geology Ph.D. student first-authored publication)

- * (1) Arnold, J.G., Allen, P.M., Volk, M., and Bosch, D.D., 2010, Assessment of different representations of spatial variability on SWAT model performance: *Transactions of the American Society of Agricultural and Biological Engineers*, v. 53, no.5, p. 1433-1443.
- * (2) Atchley, S.C., Ball, N., and Hunt, L., 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.
- * (3) Bosch, D.D., Arnold, J.G., Volk, M., and Allen P.M., 2010, Simulation of a low gradient coastal plain watershed using the SWAT landscape model: *Transactions of the American Society of Agricultural and Biological Engineers*, v. 53, no. 5, p. 1445-1456.
- (4) Cronin, V.S., and Sverdrup, K.A., 2010, Finding the Moho under Milwaukee – peer-reviewed classroom activity developed in association with the SERC workshop on Understanding the Deep Earth: available online via <http://serc.carleton.edu/NAGTWorkshops/deepearth/activities/40458.html>.
- * (5) Driese, S.G., Ludvigson, G.A., Roberts, J.A., Fowle, D.A., González, L.A., Smith, J.J., Vulava, V.M., and McKay, L.D., 2010, Micromorphology and stable-isotope geochemistry of historical pedogenic siderite formed in PAH-contaminated alluvial clay soils, Tennessee, USA: *Journal of Sedimentary Research*, v. 80, p. 943-954.
- * (6) Dunbar, J.A., Allen, P.M., and Bennett, S.J., 2010, Effect of multiyear drought on upland sediment yield and subsequent impacts on flood control reservoir storage: *Water Resources Research*, v. 46, W05526, doi:10.1029/2008WR007519.
- * (7) Forbes, M.G., Yelderman, J.C., Potterton, T., and Doyle, R., 2010, Effects of intermittent loading on nitrogen removal in horizontal subsurface flow wetlands: *Water Science and Technology*, v. 62, no. 8. p. 1865-1871
- * (8) Li, C., Qi, J., 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 * (9) 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.
- * (10) Narasimhan, B., Srinivasan, R., Bednarz, S. Earnst, M. and Allen, P.M., 2010, A comprehensive modeling approach for reservoir water quality assessment and management due to nonpoint source pollution: *Transactions of the American Society of Agricultural and Biological Engineers*, v. 53, no. 5, p. 1605-1617.

- * (11) **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.
- * (12) **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/G30689.1.
- * (13) **Parker, D.F.**, Hodges, F.N., Perry, A., Mitchener, M.E., Barnes, M.A., and Ren, M., 2010, Geochemistry and petrology of late Eocene Cascade Head and Yachats Basalt and alkalic intrusions of the central Oregon Coast Range, U.S.A.: *Journal of Volcanology and Geothermal Research*, v. 198, p. 311-324.
- * (14) **Peppe, D.J.**, 2010, Megafloral change in the early and middle Paleocene in the Williston Basin, North Dakota, USA: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 298, p. 224-234.
- * (15) **Peppe, D.J.**, Royer, D.L., Wilf, P., and Kowalski, E.A., 2010, Quantification of large uncertainties in fossil leaf paleoaltimetry: *Tectonics*, 29, TC3015, doi:10.1029/2009TC002549.
- * (16) 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*, 97(3): 1-8.
- * (17) Sankey, J.T., **S.C. Atchley**, **Nordt, L.C.**, **Driese, S.G.**, **Dworkin, S.J.**, Longrich, N., and Fricke, H., 2010, Paleosol evidence for Late Cretaceous paleoenvironments of west Texas: implications for terrestrial biogeography and biodiversity, in Titus, A., ed., *The Late Cretaceous of Southern Utah: Critical Window into End Mesozoic Ecosystems, Cretaceous Field Conference*: Indiana University Press, Bloomington, Indiana.
- * (18) Satsukawa, T., Michibayashi, K., Raye, U., Anthony, E., **Pulliam, J.**, and Stern, R.J., 2010, Uppermost mantle anisotropy beneath the southern Laurentian margin: Evidence from Knippa peridotite xenoliths, Texas: *Geophysical Research Letters*, v. 37, L20312, doi:10.1029/2010GL044538.
- * (19) Tryon, C.A., Faith, T.J., **Peppe, D.J.**, Fox, D.L., McNulty, K.P., Jenkins, K., Garrett, N., Dunsworth, H.M., Harcourt-Smith, W.E.H., 2010, Paleoenvironmental context for Middle Stone Age hominins in Equatorial Africa: The Pleistocene Wasirya Beds of Rusinga Island (Kenya): *Journal of Human Evolution*, v. 59, p. 657-671. doi:10.1016/j.jhevol.2010.07.020.
- * (20) Zhang, C.J., **Feng, Z.-D.**, Yang, Q.L., 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. 363-373. doi: 10.1177/0959683609353428.

**2011 (to May 31, 2011) Peer-reviewed Geology Faculty Publications
(underline = Baylor Geology Faculty) (* = peer-reviewed journal article) (S =
Geology Ph.D. student first-authored publication)**

- * (1) Blute N., Brandhuber P., De Haan M., Ghosh A., Gorczyca B., Gurian P., Hartson M., Kwan P., **Lau B.**, Lemieux F., Liu Y., Lytle D., Marsh H., Nason J., Speight V., Rayburn C., and Via S., in press,

Recent research every utility manager needs to know about: *Journal of the American Water Works Association*.

- * (2) **Driese, S.G.**, Jirsa, M.A., Ren, M., Brantley, S.L., Sheldon, N.D., **Parker, D.**, and Schmitz, M., 2011, Neoproterozoic paleoweathering of tonalite and metabasalt: implications for reconstructions of 2.69 Ga early terrestrial ecosystems and paleoatmospheric chemistry: *Precambrian Research*, doi:10.1016/j.precamres.2011.04.003.
- * (3) **Driese, S.G.**, Schultz, B.S., and McKay, L.D., 2011, Genesis of clay-rich soils from carbonate bedrock on upland surfaces in the Valley and Ridge Province, eastern Tennessee, USA: *Southeastern Geology*, v. 48, p. 1-22.
- * (4) Deonarine A., **Lau, B.L.T.**, Aiken G.R., Ryan J.N. and Hsu-Kim H., 2011, Effects of humic substances on precipitation and aggregation of zinc sulfide nanoparticles: *Environmental Science and Technology*, v. 45(8), p. 3217–3223; DOI: 10.1021/es1029798.
- * (5) Faith, J.T., Choiniere, J.N., Tryon, C.A., **Peppe, D.J.**, and Fox, D.L., 2011, On the taxonomic status and paleoecology of *Rusingoryx atopocranium* (Mammalia, Artiodactyla), an extinct Pleistocene bovid from Rusinga Island, Kenya: *Quaternary Research*, v. 75, p. 697-707. doi:10.1016/j.yqres.2010.11.006.
- * (6) **Feng, Z.-D.**, M. Ran, Q.L. Yang, X.W. Zhai, W. Wang, X.S. Zhang, and C.Q. Huang, in press, Stratigraphies and chronologies of Late Quaternary loess-paleosol sequences in the core area of Central Asian Arid Zone: *Quaternary International* (online: doi:10.1016/j.quaint.2010.10.019).
- * (7) **Feng, Z.-D.**, and Yang, Q.L., in press, Problems in radiocarbon dating of eolian and lacustrine sequences: *Radiocarbon*.
- * (8) Gallagher, M.E., **Hockaday, W.C.**, Masiello, C.A., Snapp, S., McSweeney, C.P., Baldock, J.A., 2011, Biochemical Suitability of crop residues for cellulosic ethanol: Disincentives to nitrogen fertilization in corn agriculture: *Environmental Science and Technology*, v. 45(5), p. 2013-2020; DOI: 10.1021/es103252s.
- S* (9) Jennings, D.S., Lovelace, D.M., and **Driese, S.G.**, 2011, Differentiating paleowetland subenvironments using a multi-disciplinary approach: an example from the Morrison Formation, south central Wyoming, USA: *Sedimentary Geology*; doi:10.1016/j.sedgeo.2011.03.005.
- * (10) Li, Z.-H., Labbé, N., **Driese, S.G.**, and Grissino-Mayer, H.D., 2011, Micro-scale analysis of tree-ring $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ on α -cellulose spline reveals high-resolution intra-annual climate variability and tropical cyclone activity: *Chemical Geology*, v. 284, p. 138-147.
- S* (12) Mintz, J.S., **Driese, S.G.**, Ludvigson, G.A., and Breecker, D.O., in press, Seasonal influence of changing hydrology on pedogenic calcite precipitation in Vertisols, Dance Bayou, Brazoria County, TX: Implications for estimating paleoatmospheric pCO_2 : *Journal of Sedimentary Research*; doi: 10.2110/jsr.2011.36.
- * (13) **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.

- * (14) **Nordt, L.C.**, Collins, M., Monger, H., and Fanning, D., in press, Entisols (2nd Edition), in *Handbook of Soil Science*, P. Huang (ed.), CRC Press, Boca Raton, Florida.
- * (15) **Nordt, L.C.**, **Dworkin, S.I.**, and **Atchley, S.C.**, accepted, Biogeochemical and ecosystem behavior interpreted from Late Cretaceous and Early Paleocene paleosols and climates in the western interior of North America: *Geological Society of America Bulletin*.
- * (16) **Pepe, D.J.**, Johnson, K.R., Evans, D.A., accepted, Magnetostratigraphy of the Lebo and Tongue River Members of the Fort Union Formation (Paleocene) in the northeastern Powder River Basin, Montana: *American Journal of Science*.
- * (17) **Pepe, D.J.**, Royer, D.L., Cariglino, B., Oliver, S.Y., Newman, S., Leight, E., Enikolopov, G., Fernandez-Burgos, M., Herrera, F., Adams, J.M., Correa, E., Currano, E.D., Erickson, J.M., Hinojosa, L.F., Hoganson, J.W., Iglesias, A., Jaramillo, C.A., Johnson, K.R., Jordan, G., Kraft, N.J.B., Lovelock, E.C., Lusk, C.H., Niinemets, Ü., Peñuelas, J., Rapson, G., Wing, S.L., Wright, I.J., 2011, Sensitivity of leaf size and shape to climate: global patterns and paleoclimatic applications: *New Phytologist*, v. 190: 724-739. doi: 10.1111/j.1469-8137.2010.03615.x.
- * (18) Ramezani, J., Hoke, G.D., Fastovsky, D.E., Bowering, S., Therrien, F., **Dworkin, S.I.**, **Atchley, S.C.**, and **Nordt, L.C.**, in press, High-precision U-Pb zircon geochronology of the Late Triassic Chinle Formation, Petrified Forest National Park (Arizona, USA): *Geological Society of America Bulletin*.
- * (19) Southard, R.J., **Driese, S.G.**, and **Nordt, L.C.**, in press, Vertisols: Chapter E5.7, (2nd Edition), in *Handbook of Soil Science*, P. Huang (ed.), CRC Press, Boca Raton, Florida.
- S* (20) Stinchcomb, G.E., Messner, T.C., **Driese, S.G.**, **Nordt, L.C.**, and Stewart, R.M., 2011, Pre-colonial (A.D. 1,100-1,600) sedimentation related to prehistoric maize agriculture and climate change in eastern North America: *Geology*, v. 39, p. 363-366.
- S* (21) Trendell, A.M., **Atchley, S.C.**, **Nordt, L.C.**, and **Dworkin, S.I.**, accepted, Depositional and diagenetic controls on reservoir attributes within a fluvial outcrop analog: Late Triassic Sonsela Member, Petrified Forest National Park, Arizona: *American Association of Petroleum Geologists Bulletin*.
- * (22) Tryon, C.A., **Pepe, D.J.**, Faith, J.T., *Van Plantinga, A., Nightingale, S., Ogondo, J., Fox, D.L., accepted, Late Pleistocene artefacts and associated fauna from Rusinga and Mfangano islands, Lake Victoria, Kenya: *Azania*.
- * (23) Wang, W., Ma, Y.Z., **Feng, Z.-D.**, Narantsetseg, T., Liu, K.-B., and Zhai, X., 2011, A prolonged dry mid-Holocene climate revealed by pollen and diatom records from Lake Ugii Nuur in central Mongolia: *Quaternary International*, v. 229, p. 74-83. doi:10.1016/j.quaint.2010.06.005.
- * (24) Waters, M.R., Forman, S.L., Jennings, T.A., **Nordt, L.C.**, **Driese, S.G.**, Feinberg, J.M., Keene, J.L., Halligan, J., Lindquist, A., Pierson, J., Hallmark, C.T., Collins, M.B., and Wiederhold, J.E., 2011, The Debra L. Friedkin Site, Texas and the origins of Clovis: *Science*, v. 331, p. 1599-1603.
- * (25) Zeng, F. -W., Masiello, C.A., **Hockaday, W.C.**, in press, Controls on the origin and cycling of riverine dissolved inorganic carbon in the Brazos River, Texas: *Biogeochemistry*, doi: 10.1007/s10533-010-9501-y.

New GEO Grants and Contracts AWARDED to Baylor University in 2010

Project Number	Sponsor	Name of Project	Project Director	PI Last Name	Start Date	AWARD AMOUNT	Additional Funding
032-43AM	S. Trinity Groundwater Conservation District	Contract #010710-003	Yelderman, Joe	Yelderman	1/8/2010	\$ 20,328.00	
032-75CE	DOE, National Energy Tech Lab-Pittsburg	DE-FC26-06NT42959--mod #6	Dunbar, John	Dunbar	1/21/2010		\$ 115,650.00
032-75FZ	Evolving Earth Foundation	Award letter	Peppe, Daniel	Peppe	4/12/2010	\$ 3,000.00	
032-75GA	University of Texas-Exxon	Subaward UTA10-000388	Pulliam, Jay	Pulliam	4/26/2010	\$ 128,664.00	
032-75GF	Texas Higher Education Coordinating Board	Award agreement contract #01850	Pulliam, Jay	Pulliam	6/24/2010	\$ 74,138.00	
	URSA Undergraduate Research Scholarly Achievement	Seismic Refraction Study of a Rifted Margin: The Texas Gulf Coast	Pulliam, Jay			\$4,934.00	
	Gulf Coast Association of Geological Societies	Broadband Seismic Investigation of a Rifted Margins: The Texas Gulf Coastal Plain	Pulliam, Jay			\$10,000.00	
030-4659	National Science Foundation	EAR-1047609	Driese, Steven	Driese	8/16/2010	\$20,000.00	
032-75GL	National Science Foundation	BCS-1013108	Peppe, Daniel	Peppe	9/1/2010	\$ 52,722.00	
032-75GS	Tarrant County Water District	agreement	Lau, Boris	Lau	12/17/2010	\$ 7,500.00	
032-75GQ	Texas On-site wastewater treatment research council	contract # 582-11-99565	Yelderman, Joe	Yelderman	12/21/2010	\$ 71,157.00	

TOTAL NEW FUNDING = \$ 377,509.00; TOTAL RENEWAL FUNDING = \$115,650.00
TOTAL NEW + RENEWAL FUNDING (2010) = \$493,159.00

New GEO Grants and Contracts Supporting Activities of GEO Faculty (but not run through Baylor University) in 2010

Project Number	Sponsor	Name of Project	Project Director	PI Last Name	Start Date	AWARD AMOUNT
(Funds from Husky Energy)	Husky Energy, Ltd. (Calgary, Alberta, Canada)	Devonian Jean Marie/ Kakisa study, NE BC Canada;	Atchley, Stacy	Atchley	9/01/2010	\$ 127,000.00
(Funds from NSF)	National Science Foundation (Office of International Science and Education)	Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean: A Workshop to Build Seismological Collaboration and Capacity	PI: Ray Willemann (Incorporated Research Institutions for Seismology), Co-Investigators: Jay Pulliam (Baylor University) and Karen Fischer (Brown University).	Pulliam	07/01/2010	\$ 60,000.00
(Funds from USAID)	U.S. Agency for International Development (USAID)	Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean: A Workshop to Build Seismological Collaboration and Capacity	PI: Ray Willemann (Incorporated Research Institutions for Seismology), Co-Investigators: Jay Pulliam (Baylor University) and Karen Fischer (Brown University).	Pulliam	07/29/2010	\$80,000.00
(Funds from AGU)	American Geophysical Union (AGU)	Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean: A Workshop to Build Seismological Collaboration and Capacity	PI: Ray Willemann (Incorporated Research Institutions for Seismology), Co-Investigators: Jay Pulliam (Baylor University) and Karen Fischer (Brown University).	Pulliam	05/25/2010	\$8,000.00
(Funds from Rice Univ.)	National Science Foundation	NSF OCE-0928941	Hockaday, William	Hockaday	08/01/10	\$ 40,000.00
(funds from New York University)	National Geographic Society (NGS)	Quaternary Archaeology and Environments of Rusinga and Mfangano Islands, Kenya	PI: Christian Tryon (NYU), Co-Investigators: Dan Peppe (Baylor University), J. Tyler Faith (George Washington University)	Peppe	06/01/10	\$25,000.00

(Funds from Johns Hopkins University)	National Geographic Society (NGS)	Geochronology of <i>Ardipithecus ramidus</i> fossil sites at Gona, Afar Region, Ethiopia	PI: Naomi Levin (Johns Hopkins University), Co-Investigators: Dan Peppe (Baylor University), Sam Bowring (MIT), Jay Quade (University of Arizona), Scott Simpson (Case Western University)	Peppe	04/01/10	\$25,000.00
(Funds from New Mexico Museum of Natural History)	Bureau of Land Management	Studies of a unique K-T boundary interval preserved within the Bisti/De-na-zin Wilderness Area, San Juan Basin, New Mexico	PI: Tom Williamson (NMMNH), Co-Investigators: Dan Peppe (Baylor University), Ross Second (University of Nebraska), Anne Weil (Oklahoma State University)	Peppe	09/01/11	\$25,000.00

TOTAL AWARDED NEW FUNDING (2010) Supporting GEO Activities = \$390,000.00

GEO Grants and Contracts SUBMITTED through Baylor University in 2010; status as of May 31, 2010

Date Submitted	Name of Sponsor	Project Director	Project Title	REQUESTED AMOUNT	STATUS
1/8/10	National Science Foundation	Daniel Peppe	Collaborative Proposal: The First Four Million Years of the Age of Mammals in the San Juan Basin, New Mexico: Examining Early Paleocene Climate Change and the Mammalian Radiation	\$203,439.00	Not funded
1/19/10	National Science Foundation	Zhaodong Feng (w/Stephen Dworkin)	Collaborative Research: High-resolution Reconstruction of Mid-Holocene Bioclimatic Changes in the Central Plain of China	\$151,844.00	Not funded
1/29/10	Undergraduate Research Scholarly Achievement	Jay Pulliam	Seismic Refraction Study of a Rifted Margin: The Texas Gulf Coast	\$4,934.00	Funded
2/24/10	Evolving Earth Foundation	Daniel Peppe	Paleoclimate reconstructions using soils from Early Miocene Proconsul sites on Rusinga Island, Kenya	\$3,000.00	Funded
6/1/10	Norman	Daniel Peppe	Paleoenvironmental	\$81,259.00	Not

	Hackerman Advanced Research Program, Texas Higher Education Coordinating Board		interpretations of hominin deposits from the Wasiriya Beds on Rusinga Island		funded
6/3/10	National Science Foundation	Steven Driese	Proposal for Joint SEPM-NSF Workshop: Paleosols and Surface Soil System Analogs	\$20,000.00	Funded
6/4/10	National Institutes of Health	Boris Lau	Interactions between Nanoparticles and Protein Molecules	\$387,203.00	Not funded
6/8/10	United States Department of Agriculture	William Hockaday	Effect of Nitrogen Management Strategies on Biofuel Corp Biochemical and Soil Carbon Stocks	\$100,811.00	Funded
6/30/10	National Science Foundation	William Hockaday (w/multiple Baylor co-PIs)	Early Career: Baylor Solid-state Nuclear Magnetic Resonance Facility for Biogeochemical Studies	\$222,150.00	Pending
7/1/10	Texas Onsite Wastewater Research Council	Joe Yelderman, Jr.	Changes in On-site Wastewater Treatment and Evaluation: Influent Equalization	\$71,157.00	Funded
7/7/10	Gulf Coast Association of Geological Societies	Jay Pulliam	Broadband Seismic Investigation of a Rifted Margins: The Texas Gulf Coastal Plain	\$10,000.00	Funded
7/14/10	Marie Curie Foundation, European Union	Boris Lau	Pb- Calcite Surface Interactions: The Role of Microbial Metabolites	\$299,107.00	Funded
10/7/10	National Science Foundation	Zhaodong Feng (w/Stephen Dworkin)	Collaborative Research: High-resolution Reconstruction of Holocene Bioclimatic Changes in the Core Area of the Central...	\$393,051.00	Not funded
10/19/10	American Chemical Society	Boris Lau (w/William Hockaday)	Elucidating the Role of Natural Organic Matter on the Aggregation and Surface Deposition of Mineral Nanoparticles	\$100,000.00	Pending
11/22/10	National Science Foundation	Zhaodong Feng	Collaborative Research: Environmental and archaeological investigations of the rise and fall of early complex societies in the Central Plain of China	\$204,826.00	Pending

**TOTAL REQUESTED NEW FUNDING = \$2,252,781.00; TOTAL AWARDED NEW
AND RENEWAL FUNDING (2010) through BU = \$493,159.00**

GEO Professional Presentations given in 2010 (underline = Baylor Geology Faculty) (S = Baylor Geology student first-authored presentation) (note: excludes “in-house” talks presented at BU)

- (1) **Allen, P.M.**, Capello, S. and Coffman, D., 2010, Comparison of submerged Jet testing to Field erosion Rates in Clay and Sand Channels: Proceedings of Abstracts and Papers (on CD-ROM) of the Joint 4th Federal Interagency Hydrologic Modeling Conference and 9th Federal Interagency Sedimentation Conference, Riviera Hotel, Las Vegas, Nevada, June 27-July1, 2010.
- (2) **Allen, P.M.**, Arnold, J.G., Capello, S., and Coffman, D., 2010, Channel erosion estimate for urbanizing watershed: submerged jet testing and SWAT-DEG: Conference Proceedings Paper American Society of Agricultural and Biological Engineers (ASABE) Conference, Earth University, Costa Rica, February of 2010.
- S(3) Ball, N.H., **Atchley, S.C.**, and Hunt, L.E., 2010, Depositional and diagenetic controls on reservoir quality and their petrophysical prediction within the Upper Cretaceous Doe Creek Member of the Kaskapau Formation at Valhalla Field, northwest Alberta, Canada: 2010 Canadian Society of Petroleum Geologists Meeting, Abstracts with Programs.
- (4) Beverly, E.J., Ashley, G.M., **Driese, S.G.**, and Sikes, N.S., 2010, New insights into spatial variability of rift basin paleosols using sedimentology, paleopedology, and soil geomorphology, Olduvai Gorge, Tanzania: presented at GSA Annual Meeting in Denver, CO, October 2010 (GSA Abstracts with Programs Vol. 42, No. 5).
- (5) Boyd, D.E., Dillon, T., Arratia, M., Weart, C., Mote, A., Myrick, M., Ohman, S., Theis, H., **Pulliam, J.**, Grand, S.P., Ellins, K., and Olson, H., 2010, Teachers involved in expeditionary seismology: The TIES that bind, Seismological Research Letters (abstracts from the annual meeting of the Seismological Society of America, 21-23 April 2010, Portland, OR), v. 81, No. 2, p. 303.
- (6) Breecker, D.O., Michel, L.A.^S, Mintz, J.S., **Driese, S.G.**, and **Nordt, L.C.**, 2010, Soil CO₂ measurements in modern Vertisols and implications for estimations of paleoatmospheric CO₂ from pedogenic carbonates: presented at GSA Annual Meeting in Denver, CO, October 2010 (GSA Abstracts with Programs Vol. 42, No. 5).
- S(7) Clapp A., and **Yelderman, J.**, 2010, Developing sustainable water resources starts at the end: National Groundwater Association Groundwater Summit, 2010 Denver, Colorado, April 11-15.
- S(8) Clapp A., Forbes, M. and **Yelderman, J.**, 2010, Storage and Nexus for Coastal Prairie, freshwater wetlands: International Society of Wetland Scientists, Annual Meeting Salt Lake City Utah, May 27-June2.
- (9) **Cronin, V.S.**, 2010, Teaching about the basic internal structure of Earth in an introductory physical geology course: *invited* online presentation developed in association with the SERC workshop on *Understanding the Deep Earth*; PowerPoint file available online via http://serc.carleton.edu/NAGTWorkshops/deepearth10/teaching_about_basic_internal.ppt and the presentation is available for replay at <http://serc.carleton.edu/NAGTWorkshops/deepearth10/>.
- (10) **Cronin, V.S.**, 2010, A method for using earthquake focal mechanism solutions to identify the surface trace of seismogenic faults [poster]: Margins Planning Workshop, San Antonio, Texas (<http://www.nsf-margins.org/SuccessorProgram/>).
- (11) **Cronin, V.S.**, 2010, Some thoughts on engaging the next generation of geoscientists: UNAVCO, Boulder, Colorado, June 4-5, 2010.

- (12) **Cronin, V.S.**, 2010, SLAM – A reconnaissance tool to help find seismogenic faults using earthquake focal mechanism solutions [poster]: Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean – A workshop to build seismological collaboration and capacity, held in Heredia, Costa Rica, October 24-28, 2010 (http://www.iris.edu/hq/middle_america/)
- (13) **Cronin, V.S.**, 2010, Educating the public about deep-Earth science: Abstract ED41B-0632 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
- (14) DiPietro, L., Michel, L.A., and **Peppe, D.J.**, 2010, Late Pleistocene expansion of arid grasslands in equatorial Africa: evidence from the Pleistocene Wasiriya Beds, Rusinga Island, Lake Victoria, Kenya: Texas Association of Biological Anthropology Conference.
- (15) **Driese, S.G.**, 2010, “Soil CO₂ measurements in modern Vertisols and implications for estimations of paleoatmospheric CO₂ from pedogenic carbonates”: talk presented at Department of Geography and Earth and Planetary sciences combined colloquium at University of Tennessee-Knoxville, October 15, 2010.
- (16) **Driese, S.G.**, 2010, “Multi-proxy approaches to interpreting climate and time in the geologic record using soils”: talk presented at the University of Texas at Austin, Department of Geosciences, November 8, 2010).
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- (20) **Dunbar, J.A.**, P. D. Higley, 2010, Mapping hydrate deposits in deepwater sediments using DC resistivity techniques: Subsea Survey Conference, Galveston, Texas, Nov. 9-11.
- (21) Dunsworth, H.M., Harcourt-Smith, W.E.H., McNulty, K.P., and **Peppe, D.J.**, 2010, New catarrhine fossils from the early Miocene of Rusinga and Mfangano Islands, Kenya, American Journal of Physical Anthropology Supplement 47: 74.
- (22) **Dworkin, S.I.**, **Nordt, L.C.**, and **Atchley, S.C.**, 2010, Isotopic reliability of dispersed organic matter in paleosols: Program Volume for SEPM-NSF Workshop “Paleosols and soil surface analog systems”, September 21-25, Petrified Forest National Park, Arizona.
- (23) **Dworkin, S.I.**, **Nordt, L.C.**, and **Atchley, S.C.**, 2010, A 7 Ma record of atmospheric $\delta^{13}\text{C}$ derived from organic matter in Late Cretaceous and Early Tertiary paleosols: 2010 GSA Annual Meeting, Abstracts with Programs.
- (24) Enright, N., Hunter, B., Forbes, M., **Yelderman, J.**, Doyle, R., Clapp, A., and Forbes, W., 2010, Use of Lidar to evaluate surface water storage in Coastal Prairie freshwater wetlands around Galveston Bay, Texas?: International Society of Wetland Scientists, Annual Meeting in Salt Lake City Utah, May 27-June 2.
- (25) Forbes, M., Doyle, R., and **Yelderman, J.**, 2010, Can small freshwater wetlands play a role in regional water quality?: International Society of Wetland Scientists, Annual Meeting in Salt Lake City Utah, May 27-June 2.
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- (34) **Lau B.L.T.**, Huang R., Ikuma K., Chiu N., 2010, Surface interactions of nanoparticles with model lipid membrane: The Society of Environmental Toxicology and Chemistry (SETAC) North America 31st Annual Meeting, Portland, Oregon, 2010.
- (35) **Lau B.L.T.**, Huang R., Madden A.S., 2010, Adsorption of hematite nanoparticles on self-assembled monolayer (SAM)-modified surfaces: Nano 2010: Environmental Effects of Nanoparticles and Nanomaterials, Clemson University, South Carolina, 2010.
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- (38) Lopez-Venegas, A.M., **Pulliam, J.**, Ten Brink, U.S., Mintz, H.E., von Hillebrandt-Andrade, C., and Huérfano, V., 2010, Accuracy and sensitivity of earthquake locations offshore Puerto Rico, Abstract S21B-2032: presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 December 2010.
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- (41) McCarthy, P.J., and **Atchley, S.C.**, 2010, Pedologic approaches to alluvial sequence stratigraphy: talk presented at SEPM-NSF workshop "Paleosols and Soil Surface Analog Systems", Holbrook, AZ, September 25, 2010.
- (42) McLellan, T., Deenik, J., **Hockaday, W.**, Campbell, S., and Antal, M., 2010, Effect of charcoal volatile matter and feedstock on soil microbe-carbon-nitrogen dynamics: American Geophysical Union, San Francisco, CA, December 17, 2010.
- S(43) Meier, H., **Nordt, L.**, and Forman, S., 2010, Late Quaternary alluvial history of the Owl Creek drainage basin: A geomorphic response to environmental change: Geological Society of America Abstracts with Programs, v. 42, Denver, CO.

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- S(45) Mintz, H., **Pulliam, J.**, Lopez Venegas, A., ten Brink, U., and Hillebrandt-Andrade, C., 2010, Investigation of the source of the seismic swarms at the eastern end of the Puerto Rico Trench: Seismological Research Letters (abstracts from the annual meeting of the Seismological Society of America, 21-23 April 2010, Portland, OR), v. 81, No. 2, p. 366.
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- S(48) Mintz, J.S., **Driese, S.G.**, Ludvigson, G.A., and Breecker, D.O., 2010, Influence of changing hydrology on pedogenic calcite precipitation in Vertisols, Dance Bayou, Brazoria County, TX: Implications for estimating paleoatmospheric pCO₂: talk presented at fall American Geophysical Union (AGU) meeting in San Francisco, CA, December 2010.
- (49) **Nordt, L.**, 2010, The buried soil stable C isotope record of vegetation and climate change across the Pleistocene/Holocene in the midcontinent: American Association of Quaternary Geologists, Laramie WY. August (Invited).
- (50) **Nordt, L.**, and **Driese, S.**, 2010, Pedosystem science approach to characterizing and interpreting the fossil record of soils: SEPM-NSF Workshop on Paleosols and Soil Surface Analog Systems, Petrified Forest National Park, Arizona, September 21-25, 2010.
- (51) **Nordt, L.**, **Dworkin, S.**, and **Atchley, S.C.**, 2010, Characterization of paleosols across the K-T boundary using pedotransfer functions: a case study from Big Bend National Park, U.S.A., integrating biogeochemical and climate controls on evolving terrestrial ecosystems: 2010 GSA Annual Meeting Abstracts with Programs, v. 42, No. 5, p. 670.
- (52) **Parker, D.F.**, 2010, Geochemistry and petrology of late Eocene Cascade Head and Yachats Basalt and alkalic intrusions of the central Oregon Coast Range, U.S.A.: talk presented at the Dept. of Geological Sciences, University of Texas at El Paso in September of 2010.
- (53) **Peppe, D.J.**, Tryon, C., Faith, J.T., Van Plantinga, A., Garrett, N.D., Fox, D.L., Nightingale, S., and Ogondo, J., 2010, Late Pleistocene expansion of arid grasslands in equatorial Africa: evidence from the Pleistocene Wasiriya Beds, Rusinga Island, Lake Victoria, Kenya: Texas Association of Biological Anthropology Conference.
- (54) **Peppe, D.J.**, 2010, Towards a better understanding of the terrestrial ecosystem: integrating paleobotany, paleopedology, sedimentology, and geochemistry: talk presented at SEPM-NSF workshop "Paleosols and Soil Surface Analog Systems", Petrified Forest National Park, Holbrook, AZ, September 25, 2010.
- (55) **Peppe, D.J.**, 2010, Digital leaf physiognomy: using leaf size and shape to reconstruct ancient climates: talk presented at Southern Methodist University, Department of Earth Sciences colloquium series.
- (56) Pfluger, S., Massengale, R., and **Yelderman, J.C., Jr.**, 2010, Study to compare reduction of bacterial numbers and virulence by multiple onsite wastewater treatment methods: presentation: 18th Annual Meeting of the Texas On-Site Wastewater Treatment Research Council Conference (TOWTRC), Mesquite, Texas.
- (57) **Pulliam, J.**, Barrington, T., Xia, Y., and Grand, S.P., 2010, Seismic anisotropy and crustal thickness of eastern flank of the Rio Grande Rift: Seismological Research Letters (abstracts from the annual

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- (58) **Pulliam, J.**, 2010, A seismic investigation of edge-driven convection associated with the Rio Grande Rift: talk presented at University of Houston, Department of Geosciences, September 7, 2010.
- (59) **Pulliam, J.**, Lopez-Venegas, A.M., Ten Brink, U.S., Mintz, H.E., and von Hillebrandt-Andrade, C., 2010, Deployment of ocean bottom seismographs south of the Puerto Rico Trench Yields new insights into the behavior of seismic swarms: Experiments with Portable Ocean Bottom Seismograph Workshop, Snowbird, UT, September 26-28, 2010.
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- (61) **Pulliam, J.**, Mintz, H.E., Lopez-Venegas, A.M., Ten Brink, U.S., Huérfano, V., and von Hillebrandt-Andrade, C., 2010, Seismic sequences in the Sombrero Seismic Zone: Geophysical Hazards and Plate Boundary Processes in Central America, Mexico and the Caribbean: A Workshop to Build Seismological Collaboration and Capacity, Heredia, Costa Rica, 24-27 October 2010.
- (62) **Pulliam, J.**, 2010, Evolution of the southern margin of Laurentia: A seismic investigation: Invited Lecture, Texas State University at San Marcos, August 27, 2010.
- (63) **Pulliam, J.**, Van Avendonk, H., Norton, I., Christeson, G., Stoffa, P.L., Gurrola, H., Stern, R., Anthony, E., Keller, G.R., Mickus, K., 2010, 4-D Structure of the ocean-continent transition in the northern Gulf of Mexico: An experiment with portable ocean bottom seismographs: Experiments with Portable Ocean Bottom Seismograph Workshop, Snowbird, UT, September 26-28, 2010.
- (64) Pyle, L., **Hockaday, W.**, Masiello, C., Boutton, T., LeCroy, C., and Kinney, T., 2010, Production and isotopic composition of black nitrogen following the experimental charring of plant materials: American Geophysical Union, San Francisco, CA, December 17, 2010.
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- S(66) Rockett, C., **Pulliam, J.**, and Grand, S.P., 2010, A seismic investigation of the Rio Grande Rift: The role of edge-driven convection in continental rifting, Seismological Research Letters (abstracts from the annual meeting of the Seismological Society of America, 21-23 April 2010, Portland, OR), v. 81, No. 2, p. 360.
- (67) Satsukawa, T., Michibayashi, K., Stern, R.J., Raye, U., Anthony, E., and **Pulliam, J.**, 2010, Uppermost mantle anisotropy beneath the southern Laurentian margin: Evidence from Knippa peridotite xenoliths, Texas: Japan Geoscience Union Meeting 2010, Chiba City, Japan, 27 May 2010
- S(68) Secrest, S.H., **Cronin, V.S.**, and **Dworkin, S.I.**, 2010, Analysis of calcite-filled faults in carbonate strata, Balcones trend near Waco, Texas: Geological Society of America Abstracts with Programs, Vol. 42, No. 5, p. 473; abstract available online at http://gsa.confex.com/gsa/2010AM/finalprogram/abstract_179751.htm.
- (69) Sen, M.K., **Pulliam, J.**, Dutta, U., Ghosh, R., Gök, R., and Pasyanos, M., 2010, Seismic velocity estimation in the Middle East from multiple waveform functionals: P & S Receiver Functions, Waveform Fitting, and Surface Wave Dispersion, 2010 Monitoring Research Review, Orlando, FL, 21-23 September 2010.
- (70) Sen, M.K., Dutta, U., **Pulliam, J.**, Ghosh, R., Mellors, R., and Pasyanos, M., 2010, Seismic velocity estimation by joint inversion of P & S receiver function, waveform fitting, and surface wave dispersion, Abstract S43C-08: presented at 2010 Fall Meeting, American Geophysical Union, San Francisco, Calif., 13-17 December 2010.
- S(71) Stinchcomb, G.E., **Driese, S.G.**, and **Nordt, L.C.**, 2010, Soil geomorphology and stratigraphy reveal mid- to late Holocene channel instability along the Delaware River, USA: presented at GSA Annual Meeting in Denver, CO, October 2010 (GSA Abstracts with Programs Vol. 42, No. 5).

- S(72) Trendell, A.M., **Atchley, S.C.**, and **Nordt, L.C.**, 2010, Channels, overbanks and paleosols: the relationship between climate, base level and lithofacies heterogeneity within the Triassic Sonsela Member, PFNP Arizona: 2010 AAPG Annual Meeting Abstracts with Programs, AAPG Search and Discovery #90104.
- (73) Tryon, C.A., Faith, J.T., and **Peppe, D.J.**, 2010, Late Quaternary mammals from Rusinga Island, Kenya: implications for environmental change and megafaunal extinctions: Journal of Vertebrate Paleontology, 30 (Suppl 3).
- (74) Tryon, C., Faith, T.J., **Peppe, D.J.**, Fox, D.L., McNulty, K.P., Jenkins, K., Garrett, N., Dunsworth, H.M., and Harcourt-Smith, W.E.H., 2010, Paleoenvironmental context for Middle Stone Age hominins in Equatorial Africa: The Pleistocene Wasirya Beds of Rusinga Island (Kenya): PaleoAnthropology 2010: A34.
- S(75) Van Plantinga, A., **Peppe, D.J.**, Tryon, C., and Faith, J.T., 2010, Geoaerchology of the Pleistocene Wasirya Beds, Rusinga Island, Kenya: presented at GSA Annual Meeting in Denver, CO, October 2010 (GSA Abstracts with Programs Vol. 42, No. 5).
- S(76) Van Plantinga, A.A., **Peppe, D.J.**, Tryon, C., and Faith, J.T., 2010, Geoarchaeology of the Pleistocene Wasirya Beds, Rusinga Island, Kenya: Texas Association of Biological Anthropology Conference.

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- S(1) Barrington, T., and **Pulliam, J.**, 2011, Seismic anisotropy of the Rio Grande Rift and surrounding regions: Texas Undergraduate Research Day at the Capitol: Transforming Texas Through Undergraduate Research, Austin, TX, 14 February 2011.
- (2) Breecker, D.O., Michel, L.A., Yoon, J., Mintz, J.S., **Driese, S.G.**, and **Nordt, L.C.**, 2011, Toward calibrating the paleosols carbonate CO₂ barometer for paleoVertisols: talk to be presented at International Goldschmidt Conference.
- (3) **Driese, S.G.**, 2011, New research opportunities in “deep-time” paleopedology: (talk presented at 48th Annual Soil Survey and Land Resource Workshop in College Station, TX, on February 3, 2011).
- (4) **Driese, S.G.**, and Ashley, G.M., 2011, New research opportunities in studies of “deep-time” using paleosols and proposed interface with NSF Critical Zone studies: (talk presented to NSF Earth Sciences Directorate in Arlington, VA, by Dr. Steven G. Driese and Dr. Gail M. Ashley on March 31, 2011).
- (5) Dyar, M.D., Carosino, M.L., Tucker, J.M., Speicher, E.A., Brown, E.A., Clegg, S.M., Wiens, R.C., Barefield, J.E., Delaney, J.S., Ashley, G.M., and **Driese, S.G.**, 2011, Error analysis for remote laser-induced breakdown spectroscopy analysis using combinations of igneous, sedimentary and phyllosilicate samples: talk presented at 42nd Lunar and Planetary Science Conference, Houston, TX, March, 2011.
- (6) Furman, O., Usenko S., and **Lau, B.L.T.**, 2011, Aggregation and adsorption of silver nanoparticles: Effects of surface modification by humic substances: American Chemical Society (ACS) Fall Meeting, Denver, 2011.
- (7) Furman, O., **Lau, B.L.T.**, and Usenko, S., 2011, Spatial and temporal mercury fluxes in remote lake sediment cores from Western U.S. National Parks: American Chemical Society (ACS) Fall Meeting, Denver, 2011.
- (8) Gurrola, H., Pratt, K., and **Pulliam, J.**, 2011, Processing innovations necessary to maximize resolution of models of the northern Gulf Coast Plain using data from the “GUMBO” seismic study: Geological Society of America, South-Central Section annual meeting, New Orleans, LA, 27-29 March 2011

- (9) Gurrola, H., Pratt, K., **Pulliam, J.**, and **Dunbar, J.**, 2011, Processing innovations necessary to maximize resolution of models of the northern Gulf Coast Plain using broadband data from the “GUMBO” broadband seismic study: 2011 EarthScope National Meeting, Austin, TX, 18-20 May 2011.
- (10) **Hockaday, W.C.**, 2011, Studying the effects of atmospheric CO₂ concentration on the carbon cycle with ecosystem biochemical inventories: invited talk presented at Texas A&M University, March 22, 2011.
- (11) **Hockaday, W.C.**, Gallagher, M., Masiello, C., Pyle, L., Polley, W., and Baldock, J., 2011, The responses of soil carbon and biochemical stocks to changing atmospheric CO₂ concentration are soil-type-dependent: Texas Soil Survey and Land Resources Workshop, College Station, TX, 3 February, 2011
- (12) Meltzer, A., Cabello, O., Beck, S., Barrientos, S., Fischer, K., Sandvol, E., Turkelli, N., Barstow, N., Lerner-Lam, A., Willemann, R., Nyblade, A., Simpson, D., **Pulliam, J.**, and Pennington, W., 2011, Geophysical infrastructure, seismological research, and earthquake hazard assessment: Bridging the gap: European Geophysical Union General Assembly 2011, Vienna, Austria, 3–8 April 2011.
- S(13) Mintz, J.S., **Driese, S.G.**, Harlow, R.H., Wright, T.C., and **Atchley, S.C.**, 2011, Middle Devonian landscapes, climates and the correlation of continental strata in the northern Appalachian basin: talk presented at the Northeastern Section GSA Meeting in Pittsburg, PA, in March, 2011.
- S(14) Mintz, J.S., **Driese, S.G.**, Harlow, R.H., Wright, T.C., and **Atchley, S.C.**, 2011, Sequence stratigraphic analysis of Middle Devonian fluvial deposits and correlation with marine accommodation trends in the Appalachian basin, New York, USA: talk presented at the Annual Meeting of the American Association of Petroleum Geologists in Houston, TX, April 2011.
- (15) **Peppe, D.J.**, Deino A.L., McNulty, K.P., Lehmann, T., Harcourt-Smith, W.E.H., Dunsworth, H.M., Fox, D.L., 2011, New age constraints on the early Miocene faunas from Rusinga and Mfangano Islands (Lake Victoria, Kenya), *American Journal of Physical Anthropology*, 144(S52): 237.
- (16) **Pulliam, J.**, 2011, Lithospheric erosion at Laurentia’s southwestern edge: Geological Society of America, South-Central Section annual meeting, New Orleans, LA, 27-29 March 2011.
- (17) **Pulliam, J.**, **Dunbar, J.**, and Gurrola, H., 2011, Gulf of Mexico Basin Opening (GUMBO): A seismic study of the Texas Gulf Coast: Geological Society of America, South-Central Section annual meeting, New Orleans, LA, 27-29 March 2011.
- (18) **Pulliam, J.**, Mintz, H., Lopez Venegas, A., Ten Brink, U., Huérffano, V., and Hillebrandt-Andrade, C., 2011, Seismic sequences associated with complex subduction in the northeast Caribbean: 19th Caribbean Geological Conference, Le Gosier, Guadeloupe, France, 21-24 March 2011.
- S(19) Rockett, C., **Pulliam, J.**, and Grand, S.P., 2011, Seismic tomographic imaging of an upper mantle anomaly beneath the Rio Grande Rift: 2011 EarthScope National Meeting, Austin, TX, 18-20 May 2011.
- S(20) Speckien, M., **Pulliam, J.**, **Dunbar, J.**, Gurrola, H., and Van Avendonk, H., 2011, Orogeny, deformation, rifting, and sediment burial on the Texas Gulf Coast: An EarthScope target: 2011 EarthScope National Meeting, Austin, TX, 18-20 May 2011.
- (21) Tryon, C.A., Faith, J.T., **Peppe, D.J.**, Van Plantinga, A., Fox, D.L., Garrett, N., Keegan, W.F., Ogondo, J. 2011, Middle Stone Age hominin occupation of arid environments in the Lake Victoria basin: New evidence from Rusinga and Mfangano islands, Kenya: *PaleoAnthropology* 2011.
- (22) Zhang F., **Lau B.L.T.**, and Bruce, E., 2011, Understanding the importance of surface adsorption in cellular uptake of silver nanoparticles: Fifth International Conference on Nanotechnology – Occupational and Environmental Health, Boston, Massachusetts, 2011.

Respectfully submitted by Steven G. Driese,
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 May 13, 2011