

Ronald C. Counts, PhD

Mississippi Mineral Resources Institute
Department of Geology and Geological Engineering
University of Mississippi, Oxford, Mississippi, 38677

rcounts@olemiss.edu

Education

U.S. Geological Survey	Mendenhall Fellow	Post-doctoral	2013-2014
University of Cincinnati	Geology	Ph.D.	2012
Utah State University	Geosciences	M.S.	2005
University of Southern Indiana	Geology	B.S.	1999

Appointments and Professional Experience

- *Associate Professor, Dept. of Geology and Geological Engineering, University of Mississippi, (Jan 2022-present)*
- *Associate Director, Mississippi Mineral Resources Institute, University of Mississippi, 2018-present*
- *Adjunct. Asst. Professor, Dept. of Geology and Geological Engineering, University of Mississippi, (2019-2021)*
- *Adjunct Asst. Professor, University of Memphis, (2019-present)*
- *Senior Project Manager, SubstrataGraphics LLC, Evansville, Indiana (2017-2018)*
- *Research Geologist, U.S. Geological Survey, Reston, Virginia (2014-2017)*
- *Adjunct Faculty, University of Southern Indiana (2005-2010)*
- *Geologist, Kentucky Geological Survey, Henderson, Kentucky (2002-2012)*
- *Hydrologic Technician, Kentucky Geological Survey, Henderson, Kentucky (1999-2001)*

Courses Taught

2018-Present, University of Mississippi, Geology and Geological Engineering

GE 405 Applied Geophysics

GE 490 Directed studies for undergraduates-field investigation of a landslide

GE 591 Special Topics: Hydrology topics in coastal engineering and flood modeling

GE 591 Special Topics: Characterizing the hydrology of coarse-grained alluvial fans along the Mississippi Alluvial valley wall

GE 591 Special Topics: Evolution of the Mississippi River's alluvial valley

ENGR 695 Graduate Seminar

GEOL 530 Geology Field Studies

Summer 2013, Indiana University-Purdue University Indianapolis

Field Instructor (2 weeks) for NSF REU- Angel Mounds: Multidisciplinary Training for Native American Students in Environmental and Social Sciences through Archaeological Research

2012, Adjunct Faculty, Madisonville Community College, Madisonville, Kentucky

GLY 111- Physical Geology, GLY 112- Physical Geology Lab

2005, 2007, 2009, Adjunct Faculty, University of Southern Indiana, Evansville, Indiana

GEOG 112-Earth System Science,

GEOL 131-Environmental Geology

2001– 2002, Teaching and Research Assistant, Utah State University, Logan, Utah

GEOL 3600 courses (undergraduate geomorphology)

1998-1999, Undergraduate teaching assistant, University of Southern Indiana

Physical Geology and Historical Geology labs

Graduate Advisory Committee Chair:

- William Lewis, M.S. Engineering Geology 2018-2020, Graduated
- Trevor Dempsey, M.S. Geology, 2020-2022, current
- Kristian Macais, M.S. Geology, 2020-2022, current
- Jodi Messick, M.S. Geology, 2020-2022, current

Graduate Advisory Committee Member

- Md. Rizwan Hasan, M.S. University of Memphis Earth Sciences, 2020

Pedagogic Service

- Treasurer, Indiana-Kentucky Geological Society, 2006
- Secretary, Indiana-Kentucky Geological Society, 2007
- Evansville Seismic Hazard Ad-Hoc advisory committee member (2003-2006)
- Volume Co-editor, 2006, GSA Field Guide 12, “From the Cincinnati Arch to the Illinois Basin”
- Session Co-chair, 2017, “No Dates No Rates—Utilizing Geochronometers to Quantify Rates of Geomorphic Processes or Archaeological Development over a Wide Range of Temporal and Spatial Scales”, Geological Society of America Annual Meeting, Seattle, WA
- Session Co-chair, 2017, “Seismic Zones, Paleoseismology, and Neotectonics in the Southeastern United States”, Geological Society of America Southeastern Section Meeting, Richmond, VA
- Mapping Advisory Board Member, Mississippi Geological Survey, 2018-Present
- Search committee member, Mississippi Mineral Resources Director, 2021-2022
- Session co-chair, 2022, “Intraplate earthquakes in the eastern United States”, Geological Society of America North-central and South-Central Combined meeting, Cincinnati, Ohio
- Peer Reviewer, U.S. Geological Survey Earthquake Hazards Grants
- Peer Reviewer, American Chemical Society Research Grants
- Peer Reviewer, Scholarly Journals
 - Catena
 - Geology
 - Quaternary Research
 - American Journal of Science

Educational Outreach

- (January 2020) North Junior High School, Evansville, Indiana *What are earthquakes and how do we prepare for them?* (~500 7th and 8th graders)
- (November 2015) Castle North Middle School, Evansville, Indiana, *Earthquakes and the Wabash Valley Seismic Zone* (to over 1,000 students-the entire school)
- (December 2014) Central Public Library, Evansville, Indiana, *Earthquakes in the midwestern United States* (~40 community members)
- (June 2012) Boy Scout Troop 301, Henderson, Kentucky, *Geology is Fun!* (50 Boy Scouts)
- (October 2013) North Junior High School, Evansville, Indiana, *Earthquakes and Plate Tectonics* (~400 7th and 8th graders)
- (May 2014) Highland Elementary School, Owensboro Kentucky, *Earthquakes* (125 5th graders)
- (September 2012) North Junior High School, Evansville, Indiana, *Earthquakes and Plate Tectonics* (~250 7th graders)
- (October 2011) North Junior High School, Evansville, Indiana, *Earthquakes and Plate Tectonics* (~225 7th graders)
- (October 2010) North Junior High School, Evansville, Indiana, *Earthquakes and Plate Tectonics* (~190 7th graders)
- June 2009) Boy Scout troop 301, Rocks and minerals (~30 scouts)

Research and Scholarship

Refereed Journal Publications and Book Chapters in Review/Revision

(17) Pratt, T., Shah, A., Counts, R., Horton, W., and Chapman, M., *in review*, Shallow faulting in the epicentral area of the 1886 Charleston, South Carolina earthquake, *submitted to the Bulletin of the Seismological Society of America*.

(16) Counts, R.C., Woolery, E., Van Arsdale, R., Mahon, S, Larsen, D., Price, A., Ward, A., Beck, E.G., and Nash, T., *in revision*, Multiple episodes of Quaternary Displacement on the Meeman Shelby Fault, Eastern Arkansas, *submitted to the Bulletin of the Seismological Society of America*.

(15) Cox, R.T., Hatcher, R.D., Forman, S., Counts, R., Vaughn, J., Gamble, E., Glasbrenner, J., Warrell, K., Adhikari, N., and Pinardi, S. *in review*, Synthesis of recent paleoseismic research on Quaternary faulting in the Eastern Tennessee seismic Zone, Eastern North America: Implications for seismic hazard and intraplate seismicity, *submitted to the Bulletin of the Seismological Society of America*

Refereed Journal Publications and Book Chapters Accepted or Published

(14) Dendy, Sarah N., Guenther, William R., Grimley, David A., Conroy, Jessica L., and Counts, R., *in press*, Detrital zircon geochronology and provenance of Pleistocene loess and contributing glacial sources, Midcontinental USA, *Quaternary Science Reviews*.

(13) Pazzaglia, Frank j., Malenda, Helen, McGavick, Matthew, Raup, Cody, Carter, Mark, Berti, Claudio, Mahan, Shannon, Nelson, Michelle, Rittenour, Tammy, Counts, Ron, Willenbring, Jane, Germanoski, Dru, Peters, Steve, and Holt, William, *in press*. River terrace evidence of tectonic processes in the eastern North American plate interior, South Anna River, Virginia, *Journal of Geology*.

(12) Counts, R.C., Van Arsdale, R., Woolery, E., Murari, M., Owen, L., Beck, E., and Durbin, J., 2021, Late Holocene surface deformation near the southern limits of the Wabash Valley Seismic Zone of Kentucky and Indiana, central U.S., *Bulletin of the Seismological Society of America*, 111, 1154-1179.

(11) Grimley, D., Counts, R., Wang, H., Conroy, J., Dendy, S., Nield, C., 2020, Last glacial maximum ecological and climatic records from terrestrial gastropod assemblages in Peoria loess, western Kentucky, *Journal of Quaternary Science* early online publication, <https://doi.org/10.1002/jqs.3206>.

(10) Eason, A., Woolery, E., Counts, R., Van Arsdale, R., Larsen, D., Mahan, S., and Beck, G., 2019. Quaternary displacement on the Joiner Ridge Fault, eastern Arkansas, *Seismological Research Letters*, 90, 2250-2261. <https://doi.org/10.1785/0220190149>.

(9) Cox, Randel T., Hatcher Jr., Robert D., Counts, Ronald C., Gamble, Eric, Glasbrener, Jake, and Warrell, Kathleen, 2018. Quaternary faulting along the Dandridge-Vonore fault zone in the Eastern Tennessee seismic zone, *GSA Field Guides*, 50, 81-94.

(8) Warrell, Kathleen F., Cox, Randel T., Hatcher Jr., Robert D., Vaughn, James D., and Counts, Ronald C., (2017). Paleoseismic evidence for multiple $M_w \geq 6$ earthquakes in the East Tennessee seismic zone during the late Quaternary, *Bulletin of the Seismological Society of America*, 107, 1610-1624.

(7) Ward, A., Counts, R., Van Arsdale, R., Larsen, D., and Mahan, S., 2017. Quaternary Displacement Rates on the Meeman-Shelby Fault and Joiner Ridge Horst, Eastern Arkansas: Results from Coring Mississippi River Alluvium *Seismological Research Letters*, 88, 442-455.

(6) Pazzaglia, F., Carter, M., Berti, C., Counts, R., Hancock, G., Harbor, D., Harrison, R., Heller, M., Mahan, S., Malenda, H., McKeon, R., Nelson, M., Prince, P., Rittenour, T., Spotlia, J., and Whittecar, R. 2015. Geomorphology, active tectonics, and landscape evolution in the Mid-Atlantic region, *GSA Field Guides*, 40, 109-169.

(5) Counts, R., Murari, M., Owen, L., Mahan, S., and Greenan, M. 2015. Late Quaternary chronostratigraphic framework of terraces and alluvium along the lower Ohio River, southwestern Indiana and western Kentucky, USA, *Quaternary Science Reviews*, 110, 71-92.

(4) Burton, W. C., Spears, D. B., Harrison, R. W., Evans, N. H., Schindler, J. S., and Counts, R. 2014. Geology and neotectonism in the epicentral area of the 2011 M5.8 Mineral, Virginia, earthquake: *GSA Field Guides*, 35, 103-127.

(3) Counts, R., and Obermeier, S.F., 2013. Seismic signatures: Small-scale features and ground fractures, in Cox, R.T., Tuttle, M.P., Boyd, O.S., and Locat, J., eds., *Recent Advances in North American Paleoseismology and Neotectonics East of the Rockies: Geological Society of America Special Papers*, 493, 203–219.

(2) Counts, R.C., Durbin, J.M., and Obermeier, S.F., 2008. Seismic ground-failure features in the vicinity of the Lower Wabash and Ohio River valleys, in Maria, A.H., and Counts, R.C., eds., *From the Cincinnati Arch to the Illinois Basin: Geological Field Excursions along the Ohio River Valley: Geological Society of America Field Guide 12*, p. 57–79.

(1) Counts, R., and Pederson, J., 2005, The nonglacial surficial geology of the Henrys Fork, Uinta Mountains, Utah and Wyoming, in Dehler, C.M., Pederson, J.L., Sprinkel, D.A., and Kowallis, B.J., editors, *Uinta Mountain Geology: Utah Geological Association Publication 33*, p. 155-169.

Funded Grants, Contracts, and Gifts (in development for 2022)

PI, Establishing a Luminescence Dating Laboratory with technician support at the University of Mississippi

Agency: *National Science Foundation, Facilities and Instrumentation*

Period: (three years) in development

Amount: ~\$700,000

Funded Grants, Contracts, and Gifts (pending)

PI, Holocene displacement in a negative flower structure in southwestern Indiana: evidence for a seismogenic strike-slip structure in the Wabash Valley seismic zone?

Agency: *U.S. Geological Survey, National Earthquake Hazards Reduction Program*

Period: (one year) pending

Amount: \$99,495

PI, Paleoseismic investigation of near-surface faults in the Charleston, South Carolina vicinity

Agency: *U.S. Geological Survey, Earthquake Hazards Science Center*

Period: June 2022 (pending)

Amount: \$18,000

Funded Grants, Contracts, and Gifts

PI, Geochronology of selected areas in the Mississippi Alluvial Plain aquifer system using Optically Stimulated Luminescence Dating

Agency: *U.S. Geological Survey, Lower Mississippi Water Science Center*

Period: Sept 2020-June 2022

Amount: \$230,000

PI, The Surficial Geology of the Tocowa 7.5-minute Quadrangle, Tallahatchie and Panola Counties, Mississippi: Investigating the contribution of clastic alluvial fans to the recharge of the Mississippi valley alluvial aquifer

Agency: *U.S. Geological Survey EDMAP*

Period: Jul 2020-Dec 2022 (delayed/extended due to Coronavirus travel restrictions)

Amount: \$17,485

PI, Paleoseismology of the Adams Mill fault at the Smithsonian Zoological Park, Washington DC: verification of preliminary OSL results showing a Quaternary slip history

Agency: *U.S. Geological Survey EDMAP*

Period: Jul 2020-Jun 2022 (delayed/extended due to Coronavirus travel restrictions)

Amount: \$78,137

PI, Petrel Geologic Modelling Software platform with all modules and full technical support for 3 licenses

Agency: *Schlumberger Corporation*

Period: Jul 2019-Jun 2022

Amount: \$3,385,536

Co-PI, Testing new innovations in ground penetrating radar technology: implications for characterizations of levees, transportation corridors, building infrastructure, and disaster mitigation planning

Agency: *University of Mississippi Disaster Resilience Constellation*

Period: Jan 2019-Dec 2019

Amount: \$5,425

PI, The Surficial Geology and 3D Geologic Framework of the Charleston 7.5-minute Quadrangle, Tallahatchie County, Mississippi

Agency: *U.S. Geological Survey EDMAP*

Period: Aug 2019-May 2021 (delayed/extended due to Coronavirus travel restrictions)

Amount: \$17,499

PI, Impact of aquitard breaches on ground water quality, Shelby County, Tennessee: Using GPR to map shallow confining layers

Agency: *Sub-contract from the University of Memphis to the University of Mississippi*

Period: Jun 2019-May 2020 (delayed/extended due to Coronavirus travel restrictions)

Amount: \$14,985

Co-PI, Using a hydraulic soil probe in outdoor classroom settings to teach subsurface characterization methods, piezometer and monitoring well installation, and subsurface sampling techniques: teaching skills used by practicing engineers to promote the pursuit of professional registration in post-baccalaureate careers

Agency: *Mississippi Board of Licensure for Professional Engineers and Surveyors*

Period: Dec 2018

Amount: \$27,750

Co-PI, Quaternary Displacement Rates on the Meeman-Shelby Fault and Joiner Ridge, second year

Agency: *U.S. Geological Survey, National Earthquake Hazards Reduction Program*

Period: January 2017-December 2017

Amount: \$114,688

PI, Testing whether seismic liquefaction resets luminescence signals in sediments

Agency: *U.S. Geological Survey Mendenhall Postdoctoral Fellowship Program*

Period: March 2017-March 2018

Amount: \$94,000

PI, Paleoseismic Investigation of the Meadow Bank Lineament in the Wabash Valley Seismic Zone:
Collaborative research between the University of Illinois and the University of Kentucky

Agency: *U.S. Geological Survey, National Earthquake Hazards Reduction Program*

Period: May 2012-April 2013

Amount: \$75,965

PI, Determining the Deformation History of a Newly Discovered Holocene Fault in the Wabash Valley Seismic Zone, Western Kentucky: Collaborative Research between the Kentucky Geological Survey and the University of Cincinnati

Agency: *U.S. Geological Survey, National Earthquake Hazards Reduction Program*

Period: Dec 2010-Nov 2011

Amount: \$90,669

Co-PI, Collaborative research project to address large earthquake seismology in the East Tennessee seismic zone

Agency: *Nuclear Regulatory Commission*

Period: 2011-2017

Amount: \$454,706

Graduate Research Assistantship

Agency: University of Cincinnati

Period: 2002-2003

Amount: \$12,782

Graduate Research Scholarship

Agency: University of Cincinnati

Period: 2007-2010

Amount: \$56,554

Graduate Student research grant

Agency: Geological Society of America

Period: 2002-2003

Amount: \$2,800

Published abstracts with Presentations (* student author)

(56) Macias, Kristian*, and Counts, R., Using Geophysics and Luminescence Geochronology to Determine the Age and Extent of the Adams Mill Fault at the Smithsonian National Zoological Park, Washington, D.C. *AGU Fall Meeting Abstracts*, Vol. 2020.

(55) Messick, Jodi*, and Counts, R., 2020. Using Rotoseismic Coring and Airborne Electromagnetic Data to Characterize the Mississippi River Valley Aquifer: Preliminary Results, *AGU Fall Meeting Abstracts*, Vol. 2020.

(54) Dempsey, Trevor*, Counts, R., and Gifford, J, 2021, Crowley's Ridge: a "Geologic Oddity", *AGU Fall Meeting Abstracts*, Vol. 2020.

(53) Counts, R.C., Yarborough, L., and Davidson, G, 2021. Use of Geophysics and UAS-Based Thermal for Mapping Potential Underseepage of Levees, Proceedings of the Association of Environmental and Engineering Geologists Annual Meeting, San Antonio, TX.

- (52) Counts, R.C, 2020. The diversion of glacial meltwater from the eastern St. Lawrence River outlet into the Ohio River basin by an MIS 3 advance of the Laurentide Ice Sheet: evidence from rapidly aggraded outwash and slackwater lake deposits in the lower Ohio River valley, *Geological Society of America Abstracts with Programs* v 52, no. 5.
- (51) Counts, R., 2019. A new, preliminary evaluation of the Adams Mill fault: Evidence of Quaternary faulting in Washington, D.C. *Seismological Society of America Annual Meeting, Eastern Section, Columbus Ohio*.
- (50) Hasan, R.* R., Counts, R., Larsen, D., Schoefnacker, S., and Waldron, B., 2019. Hydrogeologic investigation of subsurface stratigraphy using ground penetrating radar in southwestern Shelby County, Tennessee. *Geological Society of America Abstracts with Programs* v 51, no. 5.
- (49) Guenther, W., Grimley, D., Conroy, J., and Counts, J., 2019. Detrital Zircon geochronology and provenance of Quaternary Loess in central North America. *Geological Society of America Abstracts with Programs*, v 51, no. 5.
- (48) Counts, Ronald, and Monaghan, G. William, 2018. A chronostratigraphic record of Mid-Wisconsinan aggradation in the lower Ohio River valley and implications for the Laurentide Ice Sheet: *Geological Society of America Abstracts with Programs*, v.50, no. 6. doi: [10.1130/abs/2018AM-324727](https://doi.org/10.1130/abs/2018AM-324727)
- (47) Counts, Ronald, Woolery, Ed, Eason, Audrey*, Larsen, Daniel, and Van Arsdale, Roy, 2018. Late Pleistocene and Holocene faulting southeast of the New Madrid seismic zone: The Joiner Ridge and Meeman-Shelby blind Horsts, Eastern Arkansas: *Geological Society of America Abstracts with Programs*, V. 50, No. 6. doi: [10.1130/abs/2018AM-319884](https://doi.org/10.1130/abs/2018AM-319884).
- (46) Eason, Audrey* C., Counts, Ronald C., Larsen, Daniel, Woolery, Edward W., and Van Arsdale, Roy, 2018. Confirming Quaternary Displacement Rates on the Meeman-Shelby fault and Joiner Ridge Horst, Eastern Arkansas. *Geological Society of America Abstracts with Programs*, v.50, n. 3.
- (45) Cox, Randel, Hatcher, Jr., Robert, Glasbrenner, Jacob*, Counts, Ronald, Gamble, Eric*; and Warrell, Kathleen*, 2017. Eastern Tennessee Seismic Zone paleoseismology—alignment of faults displacing Quaternary sediments, and bedrock, and liquefaction features, confirm strong earthquakes in the past 15 ka. *Seismological Society of America Annual Meeting*, 18-20 April, Denver, Colorado.
- (44) Counts, Ronald, Powars, David, Schindler, Stephen, Horton Jr., Wright, and Landacre, Bryan, 2017. Investigating faulted terrace deposits at the Smithsonian National Zoo, Washington, D.C. *Geological Society of America Abstracts with Programs*, v.49, n. 3.
- (43) Cox, Randel, Hatcher, Jr., Robert, Counts, Ronald, Gamble, Eric*, Glasbrenner, Jacob*, and Warrell, Kathleen*, 2017. A seismicity/Quaternary faulting corridor in the eastern Tennessee seismic zone: an update. *Geological Society of America Abstracts with Programs*, v.49, n. 3.
- (42) Counts, Ronald, and Pratt, Thomas 2016. Testing the feasibility of using ground-penetrating radar to image Atlantic Coastal Plain strata and shallow deformation in the area of Charleston, SC: *Seismological Research Letters*, V. 88, no. 1, p 244.
- (41) Counts, Ronald, and Carter, Mark, 2016. Using Ground-penetrating radar to locate near-surface faults in the Virginia Piedmont: Preliminary results from the Everona Fault, *Geological Society of America Abstracts with Programs*, v. 48, n. 3.

- (40) Counts, Ronald, Ward, Alex C*, Van Arsdale, Roy B., Larsen, Daniel, Mahan, Shannon, 2016: Quaternary Displacement Rates on the Meeman-Shelby Fault and Joiner Ridge Horst, Eastern Arkansas: Evidence for Migrating Strain in the Reelfoot Rift, *Geological Society of America Abstracts with Programs*, v. 48.
- (39) McGavick*, Matt, Pazzaglia, Frank, Carter, Mark, Mahan, Shannon, Counts, Ronald, Rittenour, Tammy, and Summa-Nelson, Michelle, 2016: Landscape Evolution on the Virginia Piedmont: A new Soil Chronosequence, Luminescence (OSL and IRSL) and Cosmogenic (TCN) dating, and Intraplate Seismicity-Driven River Incision, *Geological Society of America Abstracts with Programs*, v. 48,
- (38) Counts, Ronald, Van Arsdale, Roy B., Larsen, Daniel, Carmichael, John K. and Hileman, Gregg, 2016: Progress toward Quaternary Displacement Rates on the Meeman-Shelby Fault and Joiner Ridge Horst, Eastern Arkansas, *Geological Society of America Abstracts with Programs*, v. 48, n. 3.
- (37) Hatcher, R.D. Jr., Cox, R., Counts, R., Glasbrenner, J*, and Warrell, K*, 2015: New data to help understand the paleoseismic history of the East Tennessee seismic Zone, *Geological Society of America Abstracts with Programs*, v. 47, n. 2, p. 47.
- (36) Glasbrenner, J., Hatcher, R.D. Jr., Gamble, E*, and Counts, R.C., 2015, Investigating possible paleoseismic evidence in the East Tennessee seismic zone, *Geological Society of America Abstracts with Programs*, v. 47, n. 2, p. 7.
- (35) Harrison, R., Counts, R. and Mahan, S., 2015, Rapid Late Pleistocene Incision along South Anna River in the Virginia Piedmont- Effects of a Changing Climate on Mid-Atlantic Drainages and Relevance to Paleoseismic Investigations in the Central Virginia Seismic Zone, *Geological Society of America Abstracts with Programs*, v. 47, n. 2, p. 7.
- (34) Counts, R., and Carter, M, 2015: Observations from trench exposures in the 2011 Mineral Virginia earthquake area at Roundabout Farm, *Geological Society of America Abstracts with Programs*, v. 47, n. 2, p. 90.
- (33) Counts, R.C., Monaghan, G. W., Wilson, J*, Pike, M*, and Herrmann, E., (2013). Liquefaction within Mound F at Angel Mounds: Evidence for Late Holocene seismicity in the midcontinental USA from an archaeological site, southwestern Indiana, *Geological Society of America Abstracts with Programs* **45**, no. 7, p. 95.
- (32) Monaghan, G. W., Wilson, J., Swartz, S*., Pike, M*, Durbin, J., Counts, R.C., Herrmann, E., and Thompson, A*, 2013, The Late Holocene built landscape at Angel Mounds: Results of NSF-REU research on earthworks at Angel Mounds, Indiana, *Geological Society of America Abstracts with Programs*, Vol. 45, No 7, P. 95.
- (31) Counts, R.C., Van Arsdale, R., Tuttle, M., Mahan, S, Obermeier, S., and Woolery, E., 2012, Paleoseismology in the New Madrid and Wabash Valley Seismic Zones, central United States: *Quaternary International*, v. 279–280, p. 99.
- (30) Beck, E.G., Waninger, S., Counts, R., Wedding, D*, Tapp, J., and Zhu, J., 2012, Using electrical resistivity to locate an abandoned fluorspar mine as a supplemental water source for the city of Marion, Kentucky, 2012 Kentucky Water Resources Annual Symposium Abstracts with Programs, Lexington, KY, March 19, 2012, p. 67.
- (29) Warrell, K. *, Cox, R., Counts, R., Vaughn, J., and Obermeier, S., 2013. New Paleoseismic Data Providing Additional Evidence for Large Prehistoric Earthquakes in the East Tennessee Seismic Zone, *Seismological Research Letters* 84, p. 158

- (28) Wang, H., Counts, R., and Waninger, S., 2012, Abrupt climate and hydrological changes in stable isotopes of loess rhizoliths during late glaciation in Midwestern USA, abstracts of the 21st International Radiocarbon Conference, Paris, France.
- (27) Warrell, Kathleen F*, Robert D. Hatcher Jr, Sarah A. Blankenship, Christopher W. Howard, Phillip M. Derryberry, Andrew L. Wunderlich, Stephen F. Obermeier, Ronald C. Counts, and James D. Vaughn, 2012, Detailed geologic mapping of Paleoseismic features: An added tool for seismic hazard assessment in the East Tennessee Seismic Zone, *Geological Society of America Abstracts with Programs*, vol. 44, no. 4, p. 19.
- (26) Warrell, Kathleen F*, Cox, R.D., Hatcher, R.D. Jr., Counts, R.C., Vaughn, J., and Obermeier, S., 2012, Paleoseismic evidence for large prehistoric earthquakes in the East Tennessee Seismic Zone. *Geological Society of America Abstracts with Programs*, Vol. 44, No 7, P. 291.
- (25) Obermeier, S.F., Olson, S., Vaughn, J., Green, R., and Counts, R., 2010, Clastic dikes and ground fractures: Seismic or not? Seismological Society of America Annual Meeting, 13-15 April 2011, Memphis TN.
Counts, R.C. and Obermeier, S.F., 2010, Small-Scale Signatures of Seismicity: *Geological Society of America Abstracts with Programs*, Vol. 42, No. 5.
- (24) Indurante, S., Wilson, M., Lee, B., Owens, P., McCauley, M., Libohova, A., Kabrick, J., Counts, R., and Follmer, L., 2010, Shawnee Hills Loess Catenas Project: A Central USA Major Resource Area (MLRA) Soil-Landscape Study, ASA, CSSA, SSSA Annual Meeting Abstracts.
- (23) Counts, R.C., Van Arsdale, R., and Wooley, E., 2009, Investigation of Quaternary displacement on the Uniontown Fault, western Kentucky, *Geological Society of America Abstracts with Programs*, Vol. 41, No. 1, p. 20.
- (22) Martin, S.L., Andrews, W., Counts, R., Crawford, M., Sparks, T., and Murphy, M., 2009, Geologic Mapping Section Projects at the Kentucky Geological Survey, *Geological Society of America Abstracts with Programs*, Vol. 41, No. 1, p. 11.
- (21) Mahan, S., Counts, R., Tuttle, M., and Obermeier, S., 2009, Can OSL be used to date paleoliquefaction events? Abstracts volume from meeting of Central and Eastern U.S. Earthquake Hazards Program, University of Memphis, Memphis, Tenn., October 28-29, pp. 24-25.
- (20) Counts, R.C., Wang, H., Grimley, D., and Mahan, S., 2008, Luminescence and radiocarbon chronology of loess-paleosol sequences in the lower Ohio River valley, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 5, p. 3.
- (19) Grimley, D., Wang, H., and Counts, R.C., 2008, A record of last glacial climate changes and paleoecology from a loess-paleosol record in western Kentucky, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 5, p. 4.
- (18) Counts, R.C., Woolery, E., and Van Arsdale, R., 2008, Quaternary faulting in Union County, KY: Preliminary results, *Geological Society of America Abstracts with Programs*, Vol. 40, No. 5, p. 80.
- (17) Counts, Ronald C., Waninger, Scott, and Obermeier, Stephen, 2007, Liquefaction Evidence for a Strong Earthquake in the Lower Ohio River Valley During the Mid to Late Holocene, *Geological Society of America Abstracts with Programs*, Vol. 39, No. 3.

- (16) Andrews, William M. Jr, Martin, Steven L., Counts, Ronald C., Crawford, Matthew M., and Weisenfluh, Gerald A., 2006, Using Digital Technology to Collect, Manage, Interpret and Deliver Geologic Mapping Data in Kentucky, *Geological Society of America Abstracts with Programs*, Vol. 38, No. 7, p. 163.
- (15) Counts, R., and Andrews, William M. Jr., 2006, New Mapping of Late Pleistocene Slackwater Deposits in the Lower Ohio River Valley, Western Kentucky: *Geological Society of America Abstracts with Programs*, Vol. 38, No. 4, p. 26.
- (14) Thompson, Mark F., Andrews, William M. Jr., Counts, Ronald C., Martin, Steven L., And Murphy, Michael, 2006, Quaternary Facies Models from new Ohio River Valley Mapping in Western Kentucky: *Geological Society of America Abstracts with Programs*, Vol. 38, No. 3, p. 76.
- (13) Andrews, William M. Jr., and Counts, Ronald C., 2006, Communicating new Quaternary Mapping to Non-Geological End Users, *Geological Society of America Abstracts with Programs*, Vol. 38, No. 3, p. 64.
- (12) Martin, Steven L., Andrews, William M. Jr., Counts, Ronald C., Thompson, Mark F., and Murphy, Michael, 2006, Digital Techniques Supporting Quaternary Geologic Mapping in the Ohio River Valley, Western Kentucky: *Geological Society of America Abstracts with Programs*, Vol. 38, No. 3, p. 29.
- (11) Counts, Ronald C., Andrews, William, and Martin, Steven L., 2005, New Interpretations of Quaternary Deposits in the Ohio River Valley in Western Kentucky: *Geological Society of America Abstracts with Programs*, Vol. 37, No. 5, p. 31.
- (10) Martin, Steven, Andrews, William M. Jr., Counts, Ronald C., and Thompson, Mark F., 2005, Surficial Geologic Mapping Along the Ohio River, Western Kentucky – Preliminary Results: *Geological Society of America Abstracts with Programs*, Vol. 37, No. 5, p. 31.
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- (9) Van Arsdale, R., Laresn, D., Counts, R., Woolery, E., and Eason, A., 2018, Quaternary Displacement Rates on the Meeman-Shelby Fault and Joiner Ridge, Second Year: Collaborative Research between the University of Memphis and USGS: National Earthquake Hazards Reduction Program Final Technical Report for Award G17AP00020, 20p.
- (8) Hatcher, R.D. Jr., Vaughn, J.D., Cox, R.T., Counts, R.C., Obermeier, S.F., and Warrell, K.F., 2014, Paleoseismology of the East Tennessee Seismic Zone: Fiscal Year 2013 Summary Report, Nuclear Regulatory Commission-Sponsored Research Project G6016; NUREG Document ML17041A146.

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Invited Talks and Lectures

- KEYNOTE Geological Society of America Annual Meeting, Montreal, Quebec, (28 October 2020): *The diversion of glacial meltwater from the eastern St. Lawrence River outlet into the Ohio River basin by an MIS 3 advance of the Laurentide Ice Sheet: evidence from rapidly aggraded outwash and slackwater lake deposits in the lower Ohio River valley*
- University of Memphis Department of Earth Sciences (1 February 2019): *Evidence for a large, Late Holocene earthquake on a strike-slip releasing bend near the southern limits of the Wabash Valley Seismic Zone*
- Los Alamos National Lab, Los Alamos, New Mexico (29 August 2018): *How a geologic mapping project evolved into research that could change paradigms for intraplate seismicity, Pleistocene glaciation, and Native American migration patterns*
- University of Mississippi Dept. of Geology and Geological Engineering (23 August 2018): *Quaternary displacement on the Meeman Shelby fault*
- Geological Society of America Annual Meeting, Indianapolis, Indiana (November 2018): *A chronostratigraphic record of Mid-Wisconsinan aggradation in the lower Ohio River valley and implications for the Laurentide Ice Sheet*
- George Mason University, Dept of Atmospheric, Oceanic, and Earth Sciences, (25 August 2017): *The Quaternary stratigraphy and geomorphology of the lower Ohio River Valley: a multi-proxy terrestrial paleoclimate record for the midcontinental USA*
- Indiana University, Department of Geology, Bloomington, Indiana, (3 February 2016) *Paleoseismic Features Within the Wabash Valley Seismic Zone in Western Kentucky*
- University of Cincinnati, Department of Geology, (17 September 2015): *A Geoscience Career at the USGS*

- University of Cincinnati, Dept. of Geology, Cincinnati, Ohio, (25 April 2014): *Late Quaternary landscape evolution and tectonic geomorphology of the lower Ohio River valley*
- Indiana Geological Survey, Bloomington, Indiana, (21 May 2013): *Late Quaternary landscape evolution and tectonic geomorphology of the lower Ohio River valley*
- Indiana-Kentucky Geological Society, Evansville, Indiana, (18 April 2012): *Ohio River terraces: terrestrial archives of climate change*
- University of Kentucky, Dept. of Earth and Environmental Sciences, Lexington, Kentucky, (1 December 2012): *Geologic Mapping and its Application to Scientific Research*
- KEYNOTE INQUA Congress, Bern, Switzerland, (23 July 2011): *Paleoseismology in the New Madrid and Wabash Valley Seismic Zones, central United States*
- University of Kentucky, Dept. of Earth and Environmental Sciences, Lexington, Kentucky, (8 September 2011): *Late Holocene Faulting in the lower Wabash Valley Seismic Zone*
- University of Evansville College of Arts and Science, (21 February 2011): *Earthquakes and Paleoseismology of the Wabash Valley Seismic Zone*
- University of Kentucky, Dept. of Earth and Environmental Sciences, Lexington, Kentucky, (7 September 2010): *Terrestrial Paleoclimate Records from Loess*
- USGS Central and Eastern U.S. Hazards Program, Memphis, Tennessee, (28 October 2009) *Paleoseismic features in the Wabash Valley Seismic Zone in Western Kentucky*
- University of Kentucky, Dept. of Earth and Environmental Sciences Seminar Series, Lexington, Kentucky, (29 July 2007): *Ice, hillslopes, rivers, and tectonics: A geomorphic tour through the Himalayan Mountains of northern India*