

# CHARLES W. ROVEY II

## PERSONAL INFORMATION:

**Address:** Department of Geography, Geology, and Planning  
Missouri State University  
Springfield, MO 65804

417/836-6890 - Office

417/886-2795 - Home

[charlesrovey@missouristate.edu](mailto:charlesrovey@missouristate.edu) – email

## EDUCATION:

B.A. 1980 Augustana College, Rock-Island, IL, Geology.

M.S. 1983 University of Wisconsin-Milwaukee, Geosciences.

Ph.D. 1990 University of Wisconsin-Milwaukee, Geosciences.

## PROFESSIONAL EXPERIENCE:

Geologist, U.S. Army Corps of Engineers, Rock Island, IL. Stream gaging, drilling and mapping of subsurface stratigraphy at potential hydroelectric sites, summer, 1980; March-August, 1981.

Research Assistant, University of Wisconsin-Milwaukee, 1981-1983.

Hydrogeologist, Terracon Consultants, Inc., Des Moines, IA and Omaha, NE. Design and installation of ground-water monitoring networks, ground-water sampling, hydraulic testing, subsurface mapping of Quaternary sediments, 1984.

Teaching Assistant and Research Assistant, University of Wisconsin-Milwaukee, 1985-1990.

Sub-consultant to City of Bayside, Wisconsin. Feasibility study for municipal ground-water supply, 1989.

Hydrogeologist, Hydro-Search, Inc., Brookfield, WI. Consultant on project basis (full time summers of 1986 and 1988). Mapping of surface and subsurface glacial stratigraphy at landfills in Wisconsin and Illinois, and evaluation of existing/proposed ground-water monitoring networks, 1986-1989.

Assistant Professor, Missouri State University, 1991-1996 (Tenured, 1995).

Associate Professor, Missouri State University, 1996-2007

Professor, Missouri State University, 2007 - present

## REFEREED ARTICLES:

- Rovey, C.W. II and D.S. Cherkauer, 1994. Relation between hydraulic conductivity and texture in a carbonate aquifer: Observations. *Ground Water*, v. 32 (1), pp. 53-62.
- Rovey, C.W. II and D.S. Cherkauer, 1994. Relation between hydraulic conductivity and texture in a carbonate aquifer: Regional continuity. *Ground Water*, v. 32 (2), pp. 227-238.
- Rovey, C.W. II and M.K. Borucki, 1994. Bluff evolution and long term recession rates southwestern Lake Michigan. *Environmental Geology*, v. 23 (4), pp. 256-263.
- Rovey, C.W. II, 1994. Assessing flow systems in carbonate aquifers using scale effects in hydraulic conductivity. *Environmental Geology*, v. 23 (6), pp. 244-253.
- Rovey, C.W. II and M.K. Borucki, 1995. Re-examination of Quaternary bluff stratigraphy, southeast Wisconsin. *Geoscience Wisconsin*, v. 14, pp. 1-13.
- Rovey, C.W. II and M.K. Borucki, 1995. The southern margin of red till deposition in eastern Wisconsin. *Geoscience Wisconsin*, v. 14, pp. 15-23.
- Rovey, C.W. II and D.S. Cherkauer, 1995. Scale dependency of hydraulic conductivity measurements. *Ground Water*, v. 33 (5), pp. 769-780.
- Rovey, C.W. II and M.K. Borucki, 1995. Subglacial to proglacial sediment transition in a shallow glacial-lacustrine lake. *Boreas*, v. 24, pp. 117-127.
- Rovey, C.W. II and W.F. Kean, 1996. Pre-Illinoian glacial stratigraphy, north-central Missouri. *Quaternary Research*, v. 45, pp. 17-29.
- Rovey, C.W. II, 1997. Proposed reference sections and correlation of upper Silurian and Devonian strata, eastern Wisconsin. *Geoscience Wisconsin*, v. 16, pp. 37-45.
- Rovey, C.W. II, 1997. The nature and origin of gleyed polygenetic paleosols in the loess covered glacial drift plain of northern Missouri, USA. *Catena*, v. 31, pp. 153-172.
- Rovey, C.W. II, 1998. Digital simulation and verification of the scale effect in hydraulic conductivity. *Hydrogeology Journal*, v. 6, pp. 216-225.
- Niemann, W.L. and C.W. Rovey II, 2000. Comparison of hydraulic conductivity values obtained from aquifer pumping tests and conservative tracer tests. *Ground Water Monitoring and Remediation*, v. 20 (3), pp. 122-128.
- Rovey, C.W. II and W.L. Niemann, 2001. Wellskins and slug tests: where's the bias? *Journal of Hydrology*, v. 243, pp. 120-132.
- Rovey, C.W. II, and W.F. Kean, 2001. Palaeomagnetism of the Moberly formation, northern Missouri, confirms a regional magnetic datum within the pre-Illinoian glacial sequence of the midcontinental USA. *Boreas*, v. 30, pp. 53-60.
- Rovey, C.W. II and W.L. Niemann, 2005. Do conservative solutes migrate at average pore-water velocity? *Ground Water*, v. 43 (1), pp. 52-62.
- Balco, G., C.W. Rovey II, and J.O.H. Stone (2005). The first glacial maximum in North America. *Science*, v. 307, p. 222.

Rovey, C.W. II and J.P. Tandarich, 2006. Lithostratigraphy of glacial sediments in north-central Missouri. *Kansas State Geological Survey Series 21- Guidebook for Field Trips of the American Quaternary Association*, Compiled by Rolfe D. Mandel, pp. 3-A-1 – 3-A-12.

Rovey, C.W. II, W.F. Kean and L. Atkinson, 2006. Paleomagnetism of sediments associated with the Atlanta Formation, north-central Missouri, USA. *Kansas State Geological Survey Series 21- Guidebook for Field Trips of the American Quaternary Association*, Compiled by Rolfe D. Mandel, pp. 3-B-1 – 3-B-12.

Miller, J.F., K.E. Evans, W.I. Ausich, S.E. Bolyard, G.H. Davis, R.L. Ethington, C.W. Rovey II, C.A. Sandberg, T.L. Thompson, and J. Waters, 2008. Mixed-age echinoderms, conodonts, and other fossils used to date a meteorite impact, and implications for missing strata in the Type Osagean (Mississippian) in Missouri, USA. *In Echinoderm Paleobiology* (W. Ausich and G. Webster (eds.)), Indiana University Press, pp. 247-288.

Niemann, W.L., and C.W. Rovey II, 2008. A systematic field-based testing program of hydraulic conductivity and dispersivity over a range in scale. *Hydrogeology Journal*. DOI 10.1007/s 10040-008-0365-3

Balco, G. and C.W. Rovey II, 2008. An isochron method for cosmogenic-nuclide dating of buried soils and sediments. *American Journal of Science*. V. 308, p. 1083-1114.

Rovey, C.W. II, and G. Balco, 2010. Periglacial climate at the 2.5 Ma onset of Northern Hemisphere glaciations inferred from the Whippoorwill formation Gelsol, northern Missouri, USA. *Quaternary Research*, V. 73, p. 151-161.

Rovey, C.W. II, M. Forir, G. Balco, and D. Gaunt, 2010. Geomorphology and paleontology of Riverbluff Cave, Springfield, Missouri. *In From Precambrian Rift Volcanoes to the Mississippian Shelf Margin: Geological Field Excursions in the Ozark Mountains* (K.R. Evans and J.S. Aber eds.) Geological Society of America Field Guide 17, p. 31-38.

Balco, G. and C.W. Rovey II, 2010. Absolute chronology for major Pleistocene advances of the Laurentide Ice Sheet. *Geology*, v. 38 (9), p. 795-798.

Rovey, C.W. II and G. Balco (2011). Summary of Early and Middle Pleistocene glaciations in northern Missouri, USA. *In Quaternary Glaciations – Extent and Chronology* (J. Ehlers ed.). *Developments in Quaternary Sciences*, v. 15, p. 553-561.

## OTHER SIGNIFICANT PUBLICATIONS

Rovey, C.W., and Plymate T.G. (with 8 others), 1998. Laboratory Coursepack: GLG 110 Principles of Geology.

Rovey, C.W. II, 2003. The scaling properties of geological media with respect to groundwater flow and transport. *In: Special Issues in Groundwater* (Luis Silveira, Ed.), *UNESCO Encyclopedia of Life Support Systems*. [<http://www.eolss.net/>] (Invited article)

Evans, K.R., C.W. Rovey, II, K.L. Mickus, J.F. Miller, T.G. Plymate, and K.C. Thomson, 2003. Weaubleau-Osceola structure, Missouri: deformation, event stratification, and shock metamorphism of a mid-Carboniferous impact site. Third International Conference on Large Meteorite Impacts, Nördlingen, Germany, August 5-7, 2003, [<http://www.lpi.usra.edu/meetings/largeimpacts2003/pdf/4111.pdf>].

Evans, K.R., K.L. Mickus, C.W. Rovey II, and G.H. Davis, 2004, Weaubleau-Osceola structure: Evidence of a Mississippian meteorite impact in southwestern Missouri, *In: Plymate, T.G. (ed.), Field Trip Guidebook of the Association of Missouri Geologists 50<sup>th</sup> Annual Meeting, Springfield, Missouri, September 26-27, 2003*. Missouri Department of Natural Resources, Geological Survey and Assessment Division, Report of Investigation No. 75 (Guidebook No. 26), pp 1-30.

Plymate, T.G., K.R. Evans, K.C. Thomson, J.F. Miller, C.W. Rovey II, G.H. Davis, and J. Cutler, 2004. Ordovician and Mississippian stratigraphy and structural geology of the Springfield-Branson area southwestern Missouri, In: Plymate, T.G. (ed.), *Field Trip Guidebook of the Association of Missouri Geologists 50<sup>th</sup> Annual Meeting, Springfield, Missouri, September 26-27, 2003*. Missouri Department of Natural Resources, Geological Survey and Assessment Division, Report of Investigation No. 75 (Guidebook No. 26), pp 43-62.

Rovey, C.W., E.A. Bettis, G. Balco, and W.F. Kean, 2010. A paleomagnetic reversal within the pre-Illinoian Alburnett Formation, eastern Iowa. In: Marshall, T. & Fields, C.L. (eds.), *The Geology of Klein and Conklin Quarries, Johnson County, Iowa*. Geological Society of Iowa Guidebook 87, p. 161- 172.

## **PUBLISHED ABSTRACTS**

Cherkauer, D.S., D.J. Bues and C.W. Rovey II, 1983. The role of lake bed hydraulic properties in induced recharge. *EOS, Trans. Am. Geophys. Union*, v. 64 (18), p. 226.

Rovey, C.W. II and M.K. Borucki, 1988. Re-examination of Quaternary stratigraphy, Milwaukee, WI. *GSA Abstracts with Programs*, v. 20, p. 386.

Rovey, C.W. II, 1989. The Shorewood Till problem of Illinois and Wisconsin. *GSA Abstracts with Programs*, v. 21, p. A-46.

Borucki, M.J. and C.W. Rovey II, 1989. A new southern margin for the Ozaukee Till, southeast WI. *GSA Abstracts with Programs*, v. 21, p. A-5.

Rovey, C.W. II, 1989. A Llandoveryan to Ludlovian barrier reef complex in southeast Wisconsin. *A.A.P.G. Bull.*, v. 73, p. 1038.

Rovey, C.W. II, 1989. Is flow in carbonate aquifers always fracture/karst dominated? *GSA Abstracts with Programs*, v. 21, p. A-193.

Rovey, C.W. II, and D.S. Cherkauer, 1990. Porous media flow through carbonate aquifers. *GSA Abstracts with Programs*, v. 22, p. A-124.

Rovey, C.W. II, 1992. Bluff formation and long-term recession rates, southwestern Lake Michigan. *GSA Abstracts with Programs*, v. 24, p. A-123.

Rovey, C.W. II, 1993. Relationship between spatial correlation structure and scale effects in hydraulic conductivity and dispersivity. *GSA Abstracts with Programs*, v. 25.

Rovey, C.W. II, 1994. Pre-Illinoian glacial sequence in north-central Missouri. *GSA Abstracts with Programs*, v. 26.

Rovey, C.W. II and W.F. Kean, 1997. Magnetostratigraphy of early pre-Illinoian tills. *GSA Abstracts with Programs*, v. 29, p. 69.

Cherkauer, D.S., D.A. Carlson, D. Schulze-Makuch, and C.W. Rovey II, 1997. The distribution of hydraulic conductivity within the dolomite aquifer of southern Wisconsin and its relation to system sedimentology. *A.A.P.G. Bull.* v. 81(9), pp. 1546-1547.

Niemann, W.L. and C.W. Rovey II, 1999. Scale effects in hydraulic conductivity measured in a glacial outwash aquifer: A case study. *GSA Abstracts with Programs*, v. 31, p. A-213.

Atkinson, L.A.R., W.F. Kean, and C.W. Rovey II, 2001. Remanent magnetism of pre-Illinoian tills and sediments from northern Missouri. *GSA Abstracts with Programs*, v. 33, p. A-4

- Rovey, C.W.II, E.A. Bettis III, and W.F. Kean, 2002. Position of the Matuyama-Brunhes paleomagnetic datum within the pre-Illinoian Alburnett Formation, eastern Iowa, USA. *GSA Abstracts with Programs*, v. 34.
- Rovey, C.W.,II, K.R. Evans, K.L. Mickus, J.F. Miller, T.G. Plymate, and K.C. Thomson, 2003. Impact origin of the Weaubleau-Osceola structure southwestern Missouri. *GSA Abstracts with Programs*, v. 35 (6), p. 339.
- Rovey, C.W. II, 2005. Pre-Illinoian till sequence in northern Missouri and the global climate record. *GSA Abstracts with Programs*, v. 37.
- Balco, G.,C.W. Rovey II, C.E. Jennings, J.A. Mason, and J.O. Stone, J.O., 2005. Numerical ages for Plio-Pleistocene till-paleosol sequences by cosmogenic-nuclide dating. *GSA Abstracts with Programs*, v. 37.
- Balco, G. and C.W. Rovey II, 2007. Be-10/Al-26 isochron ages for Early and Middle Pleistocene advances of the Laurentide ice sheet into Missouri. *GSA Abstracts with Programs*, v. 39.
- Balco, G. and C.W. Rovey II, 2007. Be-10/Al-26 burial ages for the Missouri till sequence. *GSA Abstracts with Programs*, v. 39.
- Rovey, C.W. II, and G. Balco, 2008. Origin of the preglacial Whippoorwill formation, northern Missouri. *GSA Abstracts with Programs*, v. 40 (5), p. 21.
- Rovey, C.W., Balco, G., and Bettis, E.A., 2009. Cosmogenic isotope burial dates for tills at Conklin Quarry, Eastern Iowa. *GSA Abstracts with Programs*, v. 41 (4), p.59.
- Balco, G., and C.W. Rovey, C.W., 2010. Cosmogenic-nuclide burial dating of early and middle Pleistocene glacial sediments. *GSA Abstracts with Programs*, v. 42(2), p. 68.
- Rovey, C.W., and Balco, G., 2010. Lithology and stratigraphic sequence of pre-Illinoian tills in Nebraska and western Iowa. *GSA Abstracts with Programs*, v. 42(2), p. 69.
- Mitchell, B., and C.W. Rovey, 2010. Hydrologic assessment of the Ozark aquifer in southwestern Missouri. *GSA Abstracts with Programs*, v. 42(2), p. 42.

## GRANTS

- Center for Great Lake's Studies, Milwaukee, Wisconsin, 1987. Seismic reflection and coring program in Lake Michigan's near-offshore (with M.K. Borucki) \$2560.
- Center for Great Lake's Studies, Milwaukee, Wisconsin, 1988. Seismic reflection and sampling survey – phase II (with M.K. Borucki) \$1300.
- University of Wisconsin Sea Grant College Program, 1989. Development of a hydrostratigraphic model for the interaction of ground water with Lake Michigan (under faculty advisor D.S. Cherkauer, with D.G. Mikulic) \$106,000.
- Southwest Missouri State University Faculty Grant, 1991. Construction of scale models to illustrate ground-water flow, \$1,833.
- Southwest Missouri State University Research Grant, 1992. Drilling and sampling of glacial sediments in northeast Missouri, \$4179.
- National Science Foundation, 1993. Purchase of a new scintag XDS 2000 x-ray diffractive system, \$60,000. (T.G. Plymate, C.W. Rovey, D.A. Castillon, T.D. Moeglin, H.R. James, B.S. Ross, V.J. Thielman, and R.A. Mayanovic)

Southwest Missouri State University Research Grant, 1995. Paleomagnetic measurements of Missouri's oldest glacial deposit, \$2425.

Southwest Missouri State University Research Grant, 1997. Empirical test of the correlation between dispersivity and hydraulic conductivity, \$2738.

Southwest Missouri State University Faculty Grant, 2000. Installation of a monitoring-well network at the Bull Shoals Field Station, \$7500.

Southwest Missouri State University Research Grant, 2003. Preliminary investigation of a possible meteorite-impact site in southwest Missouri, \$6800.

Prairie Fork Conservation Area Trust, 2006. Cosmogenic-isotope dating of glacial sediments and opal phytolith analysis of paleo-vegetation at the Prairie Fork Conservation Area, \$7500.

National Science Foundation, 2006. Collaborative Research: An Absolute Chronology of the Southernmost Advances of the Laurentide Ice Sheet (with J.O. Stone), \$126,500.

Provost's Incentive Fund (Missouri State University), 2007. X-ray Characterization and Analysis Facility (R.A. Mayanovic; Ghosh, K.; Dong, L; Huang, S., Kahol, P.K.; Craig, M.M.; Bosch, E., Gerasimchuk, N.N., Rovey, C.W.; Plymate, T.G., and Toom, P.M.) \$150,000.

U.S. Department of Energy/Springfield City Utilities, 2008. Carbon sequestration feasibility study. (D. Gouzie, T. Plymate, M. Gutierrez, C. Rovey, K. Mickus, and E. Mantei), \$366,000.

Missouri State University Faculty Research Grant, 2008. Field and laboratory investigation of glacial tills in northwest Missouri, \$6000.

Department of Energy, 2009. Monitoring and Numerical Modeling of Shallow CO<sub>2</sub> Injection, Greene County, Missouri, \$293,117.

U.S. Department of Energy/Springfield City Utilities, 2011. Carbon Sequestration Phase 2. (D. Gouzie, C. Rovey, T. Plymate), \$88,000.