

Charles Marsh. Woodruff

Professional Summary

September 20, 2020

Business address: The University of Texas at Austin
Bureau of Economic Geology
University Station, Box X
Austin, TX 78713-8924
Telephone: (512) 471-1912
E-mail address: chockw@swbell.net

Professional Preparation

Academic Background

B.A. with Honors, Geology, Vanderbilt University,
M.S., Geology, Vanderbilt University,
Ph.D., Geology, The University of Texas at Austin,

Professional Appointments

Present Position: Geologist, Bureau of Economic Geology, The University of Texas at Austin (January 2012 - Present).

Senior Lecturer, Department of Civil, Architectural and Environmental Engineering, The University of Texas at Austin (2001 - Present). Course assignment: Engineering Geology (graduate level).

Independent Consulting Geologist, Woodruff Geologic Consulting, Inc., Austin, Texas (1983 - Present). Projects include engineering geologic, geomorphic, environmental geologic, and hydrologic assessments; evaluations of rock/mineral resources; expert testimony.

GeoFORCE Academy Instructor, Jackson School of Geosciences, The University of Texas at Austin (2008 - 2011).

Lecturer, School of Architecture, The University of Texas at Austin (1987 - 1987). Course assignment: Techniques of Environmental Assessment.

Staff Hydrogeologist, Edwards Aquifer Research and Data Center, Southwest Texas State University (1985 - 1985). Research on airphoto lineaments and their effects on hydrologic properties of the Edwards Aquifer (part-time).

Lecturer, Department of Geological Sciences, The University of Texas at Austin (1976 - 1983). Course assignments: Physical Geology, Geologic Hazards.

Research Scientist, Edwards Bureau of Economic Geology, The University of Texas at Austin (1976 - 1983). Assessment of geothermal resources; basin analysis; regional hydrogeology; evaluation of satellite imagery.

Head, Resource Capability Section, Texas Coastal Management Program, General Land Office of Texas (1974 - 1976). Evaluation of coastal resources; application of natural resource data for public policy decisions; interagency/interdisciplinary coordination (on leave from Bureau of Economic Geology).

Research Scientist Associate, Bureau of Economic Geology, The University of Texas at Austin (1972 - 1974). Environmental geologic mapping/evaluation of land capability; review of environmental impact statements.

Geologist I, Tennessee Division of Geology (1968 - 1970). Areal geologic mapping; interagency coordination on environmental issues.

Professional Registrations and Certificates

State of Tennessee--Registered Professional Geologist No. 1208

State of Texas--Registered Professional Geologist No. 502

Theses

Limits of deformation of the Howell Structure, Lincoln County, Tennessee

Dissertations

Land-use limitations related to geology of the Lake Travis vicinity, Travis and Burnet Counties, Texas

Continuing Education Courses Taken

Water-Balance Covers: Design, Modeling, Construction, and Monitoring: University of Wisconsin and Desert Research Institute, Madison, Wisconsin, March 30-April 1 2010

Geoscience in the Courtroom: Gulf Coast Association of Geological Societies, Austin, Texas, October 1994

Surface Exploration for Oil and Gas--Advances of the Eighties, Applications for the Nineties: Society of Independent Professional Earth Scientists, San Antonio, Texas, June 1991

River Channels: Teton Science School, Kelly, Wyoming, July 26-28, 1989

Participant: Alliance for the Future: meeting sponsored by Phoenix Institute, San Diego, California, 1984

Calderas and Hydrothermal Systems: Yellowstone Institute, Yellowstone National Park, Wyoming, August 24-29, 1982

Participant: Natural Areas of Texas Workshop: sponsored by the Division of Natural Resources and Environment, The University of Texas at Austin, Winedale, Texas, 1976

Participant: Environmental Education Workshop: sponsored by Texas Education Agency, Abilene Christian College, Abilene, Texas, 1974

Participant: Environmental Education Workshop: sponsored by Texas Education Agency, East Texas State University, Commerce, Texas, 1973

Areas of Expertise

Areas of Expertise

Expert testimony

Geologic support of geotechnical investigations

Preparation and review of Environmental Impact Statements

Remote sensing in regional geologic and hydrologic assessments

Special expertise on the geology and hydrology along the Balcones Escarpment of Central Texas

Statewide experience in Texas

Surface and subsurface geologic mapping

Awards

Awards and Honorary Societies

Senior Fellow, Geological Society of America

Distinguished Service Award, Gulf Coast Association of Geological Societies, 2006

Elected to Honorary Membership, Austin Geological Society, 2001

Distinguished Service Award, City of Austin Community Collaboration Awards, 2000

Distinguished Service Award, Austin Geological Society, 1997

President, Austin Geological Society, 1980 - 1981

Service

External Committees Participation

Member, Environmental Advisory Committee, Hill Country Alliance, 2009 - present

Chairman, Field-Trip Committee, Austin Geological Society, 1995 - present

Testimony before Texas State Boards and Commissions.

Routine appearance before City of Austin Governing Boards and Commissions.

Chairman, Crisis Committee, Gulf Coast Association of Geological Societies, 52nd Annual Meeting Transactions October, 2002

Geologic Advisor, Land Stewardship Committee, St. Stephens School, Austin, Texas, 2000 - 2001

Chairman, Plenary Session, Limitations of the Earth, Revisited, Gulf Coast Association of Geological Societies Convention, Austin, Texas October, 1994

Associate Editor, v. 44, GCAGS Transactions, 1994

Expert Witness--250th Judicial District Court of Travis County, Texas (No. 490,473; Onion Creek Homeowners' Association, Inc., et al. v. City of Austin, Texas and Texas Disposal Systems Landfill, Inc.).

Expert Witness--201st Judicial District Court of Travis County, Texas (Cause No. 479,540; State of Texas v. Travis Country Utility District, Inc. and Glenn Neans).

Expert Witness--Federal District Court (Cause No. A 89 CA 719; Save Barton Creek, et al. v. Federal Highway Administration).

Member, Travis County Water Council, Lower Colorado River Authority, 1987 - 1990

Panelist, Challenge--Livable Cities, sponsored by the Austin Chapter of the American Institute of Architects in cooperation with the LBJ School of Public Affairs, The University of Texas at Austin School of Architecture and the Austin 150 Commission, 1989

Chairman, Field-Trip Committee, Austin Geological Society, 1987 - 1988

Member, City Regulatory and Planning Committee, Austin Chamber of Commerce, 1987 - 1988

Member, City Regulatory and Planning Committee, Austin Chamber of Commerce, 1987 - 1988

Member, AUSTINPLAN Environmental Task Group, City of Austin, 1986 - 1988

Chairman, Nominating Committee, Austin Geological Society, 1985

Panelist, Locational Factors (at) Affordable Housing Conference sponsored by the Austin Chamber of Commerce, the Austin American-Statesman, and the City of Austin, Austin, Texas, , 1985

Chairman, Field-Trip Committee, Austin Geological Society, 1984 - 1985

Member, Governor's Task Force on Hazardous Wastes
Resource-Assessment Teams, Texas, 1984

Session Chairman, Geothermal Energy, American Association of Petroleum Geologists National Meeting, San Antonio, Texas, 1984

Chairman, Publications Committee, Austin Geological Society, 1983 - 1984

Member, Environmental Board, City of Austin, 1982 - 1984

Chairman, Nominating Committee, Austin Geological Society, 1982

Chairman, Nominating Committee, Austin Geological Society, 1982

Coordinator for Texas, Hydrothermal/Geothermal Research; State-Coupled Programs Resource-Assessment Teams, U. S. Department of Energy, 1979 - 1982

Member, Geothermal Review Panel, Texas Energy and Natural Resources Advisory Council, 1981

Member, Parks and Recreation Department ad hoc Advisory Committee on Greenbelts, City of Austin, 1979 - 1980

Member, Geothermal Task Force, Texas Energy Advisory Council, 1978 - 1979

Chairman, Nominating Committee, Austin Geological Society, 1978

Co-Chairman, Natural Areas Advisory Committee, Capital Area Planning Council, 1977

Panel Moderator, Offshore Oil/Dialogues toward Understanding--A National Conference on the Effects of OCS Oil and Gas Development on Coastal States, General Land Office of Texas; Environment Policy Center, Inc.; American Petroleum Institute; and League of Women Voters of Texas, Galveston, Texas, 1977

Panelist, Natural Areas of Blanco County, Capital Area Planning Council and County Judge, Johnson City, Texas, 1977

Panelist, Natural Areas of Caldwell County, Capital Area Planning Council and County Judge, Lockhart, Texas, 1977

Panelist, Natural Areas of Fayette County, Capital Area Planning Council and County Judge, LaGrange, Texas, 1977

Resource Witness, 65th Texas Legislature, Texas House of Representatives: State Affairs Committee.

Resource Witness, 65th Texas Legislature, Texas Senate: Natural Resources Committee.

Penrose Conference Panelist, Natural Areas of Blanco County Implementation of Geological Information in Land-Use Planning, Geological Society of America, Austin, Texas, 1976

Member, Field-Trip Committee, Austin Geological Society, 1973 - 1974

Teaching and Advising

University Courses Taught

Exploration of deep time in Central Texas The Balcones Escarpment--a geocultural borderland: presented to Austin Founder Lions Club presented at The University of Texas at Austin, Bureau of Economic Geology Seminar, Austin, Texas, 2003.

Edwards Limestone--up close and personal: presented at The University of Texas at Austin, Bureau of Economic Geology Seminar, Austin, Texas, 2000.

Continuing Education Courses Taught

Hydrogeology of the Edwards Aquifer: presented to Texas Commission on Environmental Quality, Austin, Texas, March 14, 2004.

Vadose-Zone Hydrology: presented at Texas Natural Resources Conservation Commission

Training Academy, Austin, Texas, August 25, 26, 1997.

Introduction to Groundwater Hydrology: presented at Texas Natural Resources Conservation Commission Training Academy, Austin, Texas, August 13, 14, 1997.

Introduction to Groundwater Hydrology: presented at Texas Natural Resources Conservation Commission Training Academy, Austin, Texas, May 19, 20, 1997.

Field Trips Leadership

Field-Trip Co-Leader, American Association of Petroleum Geologists Annual Meeting, San Antonio, Texas, April 2008.

Field-Trip Co-Leader, American Association of Petroleum Geologists Trustee Associates Meeting, San Antonio, Texas, October 2006.

Field-Trip Co-Leader, Gulf Coast Association of Geological Societies, 52nd Annual Convention, Austin, Texas, October 2002.

Field-Trip Leader, The Central Texas Hill Country: Heartland Institute, Blanco, Texas, June 1994.

Field-Trip Leader, Texas Earth Science Teachers Association Conference, Austin, Texas, November 1993.

Field-Trip Co-Leader, Professional Soil Science Association of Texas, Austin, Texas, January 1993.

Field-Trip Leader, Texas Earth Science Teachers Association Conference, Austin, Texas, February 1990.

Field-Trip Leader, Geology of the Texas Hill Country: Texas Nature Conservancy Annual Meeting--25th Anniversary Meeting, Lago Vista, Texas, October 1989.

Field-Trip Co-Leader, American Association of Petroleum Geologists Annual Meeting, San Antonio, Texas, 1989.

Field-Trip Leader, American Planning Association, Texas Chapter Conference, Austin, Texas, October 15, 1987.

Participant, Geographic Features of the Jollyville Plateau Margin: City of Austin, Department of Environmental Protection, Austin, Texas, July 1987.

Field-Trip Co-Leader, Geological Society of America South-Central Sectional Meeting, Waco, Texas, 1987.

Field-Trip Leader, Gulf Coast Association of Geological Societies and Gulf Coast Section of Society of Economic Paleontologists and Mineralogists 37th Annual Convention, San Antonio, Texas, 1987.

Field-Trip Co-Leader, Geological Society of America National Meeting, San Antonio, Texas, 1986.

Participant, Tour of Edwards Aquifer in vicinity of San Marcos, Texas: Study Mission--delegation of hydrologists and geologists from Ministry of Geology and Mineral Resources, People's Republic of China, San Marcos, Texas, 1986.

: Gulf Coast Association of Geological Societies, 35th Annual Meeting, Austin, Texas,, Gulf Coast Association of Geological Societies 35th Annual Meeting, Austin, Texas, 1985.

Field-Trip Leader, Geology and Hydrology of the Edwards Aquifer in the San Marcos Area: 32nd Annual Conference for the Advancement of Science Teaching, San Marcos, Texas, 1985.

Field-Trip Leader, Geology of the Llano Uplift, Texas: American Petroleum Institute, Committee on Outer Continental Shelf/Coastal Zone Management, Austin, Texas, 1981.

Field-Trip Leader, Geology of the Llano Uplift, Texas: Cities Service Company, Continuing Education Program, Austin, Texas, 1981.

Field-Trip Leader, Surface Geology Related to Potential Uranium Mineralization--Austin and Seguin AMS sheets: Hydrogeochemical and Stream Sediment Field Collection Teams, Union Carbide Corporation, Nuclear Division, National Uranium Resource Evaluation Program, Austin, Texas, 1978.

Student Committee Participation

Member, M.S. Thesis Committee, Chun Ho Lee, Constructing test beds of clay with a specified profile of undrained shear strength versus depth: The University of Texas at Austin, Department of Civil, Architectural and Environmental Engineering, 2008

Member, M.S. Thesis Committee, Ian Vernon T. Johnson, Effects of cementation on the linear and nonlinear shear modulus and material damping of intact sand specimens: The University of Texas at Austin, Department of Civil, Architectural and Environmental Engineering, 2008

Member, Ph.D. Dissertation Committee, Heejung Youn, Effect of verification core hole on the point bearing capacity of drilled shafts: The University of Texas at Austin, Department of Civil, Architectural and Environmental Engineering, 2008

Member, Ph.D. Dissertation Committee, Mary Jennifer Cooke, Soil formation and erosion in Central Texas: Insights from relict soils and cave deposits: The University of Texas at Austin, Department of Geological Sciences, 2005

Member, Ph.D. Dissertation Committee, C. D. Frederick, Late Quaternary alluvial history and Post-Spanish modification of the Rio Laja Valley, Mexico: The University of Texas at Austin, Department of Geography, 1995

Member, M.S. Thesis Committee, S. Christopher Caran, Environmental geology of abandoned lignite and bituminous coal mines of Texas: The University of Texas at Austin, Department of Geological Sciences, 1984

Member, M.S. Thesis Committee, G. L. Macpherson, Low-temperature geothermal ground water in the Hosston/Cotton Valley hydrogeological unit, Falls County area, Texas: The University of Texas at Austin, Department of Geological Sciences, 1982

Presentations

Presentations

Building Awareness of Geoheritage in Texas: presented to Geological Society of America, presented at Annual Meeting, Phoenix, Arizona, September 23, 2019.

Giving geologic testimony--ethics, sound practice, and the common good: presented to Austin Geological Society, Austin, Texas, 2008.

Substrate, soils, and stair-step hills--Unexpected attributes of the Central Texas Hill Country: presented to Austin Gem and Mineral Society, Austin, Texas, 2008.

Balcones Escarpment of Central Texas--a geological/ecological borderland: presented to National Society of Consulting Soil Scientists, 20th Annual Conference, San Antonio, Texas, 2007.

What I wish someone had told me: presented to The University of Texas at Austin, Department of Geological Sciences Undergraduate Club, Austin, Texas, 2006.

Engaging the Earth--geology and the soul of place: presented at Seton Cove, Austin, Texas, 2005.

Engineering geology in the Austin area--some selected examples: presented at The University of Texas at Austin, Department of Geological Sciences Hydrogeology Brown-Bag Seminar, Austin, Texas, 2004.

Engineering geology in the Austin area--some selected examples: presented to Austin Geological Society, Austin, Texas, 2004.

Exploration of deep time in Central Texas: presented to Austin Founder Lions Club, Austin, Texas, 2004.

Geologic borderlands in Central Texas--a virtual overview: presented at Decision-Makers Field Conference, The University of Texas at Austin, Bureau of Economic Geology, Austin, Texas, 2004.

Geologic controls on groundwater, northern Edwards aquifer, Central Texas: presented at Georgetown Salamander Workshop, Round Rock, Texas, 2003.

The Balcones Escarpment--a view from the field: presented to Austin Area Master Naturalists, Austin, Texas, 2002.

Geologic evolution of the Edwards/Trinity Aquifer System: presented at Edwards/Trinity System Workshop, U.S. Geological Survey and The University of Texas at Austin Department of Geological Sciences, Austin, Texas, 2001.

The Balcones Escarpment--life along a geologic borderland: presented to Austin Area Master Naturalists/presented to Austin Paleontological Society, Austin, Texas, 2001.

The Balcones Escarpment--life along a geologic borderland: presented to Wimberley Lions Club, Wimberley, Texas, 2001.

Geology--meditations on deep time: presented to Seton Cove, Spirituality and Nature Luncheon Series, Austin, Texas, 2000.

Glen Rose Limestone revisited: presented at The University of Texas at Austin, Department of Geological Sciences, Soft Rock Seminar, Austin, Texas, 1999.

Hillslope hydrology on limestone terrains, Central Texas Hill Country: presented at Vanderbilt University, Willard B. Jewell Memorial Seminar Series, Nashville, Tennessee, 1999.

Sculpting the Edwards Plateau edge--a test study of the Blanco River watershed, Central Texas: presented at Soil Survey and Land Resource Workshop, College Station, Texas, 1999.

Evolution of stepped landforms in the Central Texas Hill Country: presented at Soil Survey and Land Resource Workshop, College Station, Texas, 1998.

Soil maps as tools for determining landscape evolution: presented at Soil Survey and Land Resource Workshop, College Station, Texas, 1997.

Hillslope hydrology of Glen Rose Limestone terranes, western Travis County, Texas: presented to U.S. Geological Survey, South-Central Texas Study Unit, National Water-Quality Assessment Program, Austin, Texas, 1996.

Hillslope hydrology of stepped landforms, Glen Rose Limestone, western Travis County, Texas: presented to The University of Texas at Austin, Department of Geological Sciences, Technical Sessions, Austin, Texas, 1995.

The Balcones Escarpment--borderland of the American West: presented to Scholia, The University of Texas at Austin, Austin, Texas, 1995.

The Balcones Escarpment: presented to Southwest Texas State University, Gamma Theta Upsilon (Geography Honor Society), San Marcos, Texas, 1994.

Integrating natural resource information for urban planning--overview and geology/geomorphology: presented at Soil Survey and Land Resource Workshop, College Station, Texas, 1993.

A consultant's use of soils and geomorphology in Central Texas: presented at Soil Survey and Land Resource Workshop, Texas Agricultural Extension Service, Texas Agricultural

Experiment Station, and U.S. Soil Conservation Service, College Station, Texas, 1987.

Geology, the Edwards aquifer, and landscape evolution of the Texas Hill Country: presented at Texas Outdoor Education Workshop, Leaky, Texas, 1987.

Remote sensing applied to surface water and groundwater hydrology: presented at Geographic Information Systems and Remote Sensing Workshop, Texas Natural Resources Information System, Austin, Texas, 1987.

Edwards aquifer, northern segment--geologic controls: presented at Edwards Aquifer North of the Colorado River Symposium, the City of Austin and The University of Texas at Austin, Austin, Texas, 1986.

Edwards aquifer, northern segment--geologic controls
Geology of the Jollyville Plateau region of the Edwards aquifer: presented at City of Austin Lecture Series--the Edwards aquifer north of the Colorado River, Austin, Texas, 1986.

Geologic development of the Edwards aquifer: presented at Edwards Aquifer Symposium, the City of Austin, and The University of Texas at Austin, Austin, Texas, 1985.

Geologic controls on the Edwards aquifer, Austin area: presented at Edwards Aquifer Symposium, the City of Austin, and The University of Texas at Austin, Austin, Texas, 1984.

Geologic constraints on septic tank systems: presented at On-Site Wastewater Treatment Seminar, City of Austin Office of Environmental Resources Management and Travis County Engineering Department, Austin, Texas, 1983.

Lineaments--some guidelines for interpretations, with examples from Central Texas: presented to Austin Geological Society, Austin, Texas, 1983.

Lineaments--some guidelines for interpretations, with examples from Central Texas: presented to Geology Department, Lamar University, Beaumont, Texas, 1983.

Stream erosion control: presented at American Public Works Association Workshop on Urban Erosion and Sedi-ment Control, Austin, Texas, 1983.

Geothermal gradient anomalies and remotely sensed lineaments along the Balcones/Ouachita Trend, Central Texas: presented to Corpus Christi Geological Society, Corpus Christi, Texas, 1982.

Lineaments on Landsat--applications to resource exploration: presented at Space and Society Symposium, The University of Texas at Austin, Department of Government, Austin, Texas, 1982.

Regional hydrodynamics of the Edwards aquifer--geothermal implications: presented at U.S. Department of Energy, Resource Assessment/Commercialization Planning Meeting, Seattle, Washington, 1981.

Beyond Barton Springs--geologic controls on the Edwards aquifer (and some unsolved problems): presented at Edwards Aquifer Symposium, sponsored by City of Austin and the LBJ School of Public Affairs, The University of Texas at Austin, Austin, Texas, 1980.

Geothermal resource potential along the margins of the Gulf Coastal Plain and the Mississippi Embayment: presented to Institute for Energy Analysis, Oak Ridge Associated Universities, Oak Ridge, Tennessee, 1980.

Hydrothermal/geothermal research in Texas: presented at U.S. Department of Energy, Resource Assessment/Commercialization Planning Meeting, Salt Lake City, Utah, 1980.

Low-temperature geothermal resources in Central Texas: presented at Randolph Air Force Base, San Antonio, Texas, 1980.

Low-temperature geothermal resources in Central Texas: presented to Austin Geological Society, Austin, Texas, 1980.

Protection of Austin watersheds--geologic factors: presented at First Annual Austin Neighborhood Issues Conference, Austin, Texas, 1980.

Drainage-basin evolution near the Balcones Fault Zone: presented to Baylor University, Department of Geology, Waco, Texas, 1979.

Geology applied to environmental planning: presented to University of Illinois, Department of Landscape Architecture, Urbana, Illinois, 1979.

Geothermal energy from ground water--a potential low-temperature resource along the margins of the Gulf Coastal Plain and the Mississippi Embayment: presented at Rural America: Energy Needs and Alternatives, American Association for the Advancement of Science Regional Energy Seminar, Arkadelphia, Arkansas, 1979.

Geomorphic mapping on the Llano Estacado: presented at Annual Soil Work/Planning Conference, Texas A&M University, College Station, Texas, 1978.

Stream piracy and the Edwards aquifer: presented to Austin Geological Society, Austin, Texas, 1978.

Stream piracy and the Edwards aquifer: presented to The University of Texas at Austin, Department of Geological Sciences, Austin, Texas, 1978.

Stream piracy and the Edwards aquifer: presented to Vanderbilt University Department of Geology, Nashville, Tennessee, 1978.

Geomorphic factors affecting archaeological surveys: presented at Archaeology Field Camp, The University of Texas at San Antonio, San Antonio, Texas, 1977.

Resource assessment and coastal management: presented to Texas Mid-Continent Oil and Gas Association, Sub-committee on Coastal Zone Management, Houston, Texas, 1976.

Planning for the future--environmental mapping: presented to Capitol Area Planning Council General Assembly, Austin, Texas, 1973.

Activities of a Professional Nature

Professional Societies

American Association for the Advancement of Science

Austin Geological Society

Geological Society of America

Geological Society of America, Engineering Geology Division

Geological Society of America, Hydrogeology Division

Geological Society of America, Quaternary Geology and Geomorphology Division

Sigma Gamma Epsilon--Honorary Geological Society

Sigma Xi, The Scientific Research Society

Activities of a Professional Nature

PRIVATE CONSULTING PRACTICE: Practice has included more than 650 projects for various clients, including State, County, and Local governmental entities, private corporations, and individuals; projects have involved detailed site work with geotechnical engineering firms; environmental assessments of impacts owing to land development; evaluations of site-specific water and mineral resources; regional assessments of groundwater, geology, and terrain features using satellite imagery and other types of remote sensing; expert witness in several Civil Court cases and in hearings before public entities; and preparation and evaluation of environmental impact statements

Funding

Research Support

PI: Geothermal Resource Assessment for the State of Texas, (Part 3), U.S. Department of Energy (1981 - 1983, \$249,756).

PI: Geothermal Resource Assessment for the State of Texas, (Part 2), U.S. Department of Energy (1980 - 1981, \$257,901).

PI: Geothermal Resource Assessment for the State of Texas, (Part 1), U.S. Department of Energy (1979 - 1980, \$363,939).

PI: Study of Late Quaternary Environments and Early Man along the Tombigbee River, Alabama and Mississippi, Benham-Blair and Affiliates, Inc. (under contract to U.S. Army Corps of Engineers) (1979 - 1980, \$12,000).

Publications

Peer Reviewed Journal Articles

Woodruff, C. M., Jr., and Wilding, L. P., 2008, Bedrock, soils, and hillslope hydrology in the Central Texas Hill Country, USA: implications on environmental management in a carbonate-rock terrain: *Environmental Geology*, v. 55, no. 3, p. 605-618.

Wilcox, B., Wilding, L. P., and Woodruff, C. M., Jr., 2007, Soil and topographic controls on runoff generation from stepped landforms in the Edwards Plateau of Central Texas: *Geophysical Research Letters*, v. 34.

Woodruff, C. M., Jr., Longley, W. L., and Reed, A. E., 1976, Mapping the physical environment in economic terms--comment: *Geology*, v. 4, no. 5, p. 260-261.

Wermund, E. G., Jr., Morton, R. A., Cannon, P. J., and Woodruff, C. M., Jr., 1974, Test of environmental geologic mapping, southern Edwards Plateau, southwest Texas: *Geological Society of America Bulletin*, v. 85, no. 3, p. 423-432.

Peer Reviewed Atlases and Maps

Woodruff, C. M., Jr., and Collins, E. W., 2019, *Geology of the Lower Lake Travis and Lake Austin Vicinity, Texas: The University of Texas at Austin, Bureau of Economic Geology Miscellaneous Map, no. 53, 1:50,000, 13 p., 1 sh.*

Woodruff, C. M., Jr., and Collins, E. W., 2016, *Geologic map of the upper Lake Travis area, Texas: The University of Texas at Austin, Bureau of Economic Geology, Miscellaneous Map, no. 52, 1:50,000, 1 sh.*

Non Peer Reviewed Authored Books

Woodruff, C. M., Jr., 1975, *Land capability in the Lake Travis vicinity, Texas--a practical guide for the use of geologic and engineering data: The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations, no. 84, 37 p.*

Non Peer Reviewed Journal Articles

Woodruff, C. M., Jr., 2011, "Stair-step hills" of the Glen Rose Limestone--is there a "marl" in this story? in Hunt, B. B., Wierman, D. A., Brown, A. S., Woodruff, C. M., Jr., and Fieseler, R. G., 2011, *Surface to subsurface Trinity lithostratigraphy: implications for groundwater availability in the Hill Country, eastern Blanco and northern Hays Counties, Texas: Austin Geological Society Guidebook 33, p. 24.*

Woodruff, C. M., Jr., 2009, *Sculpted Texas landforms*, in Laubach, S. E. and Tinker, S. W., *Earth's art--celebrating the centennial of the Bureau of Economic Geology 1909-2009: The University of Texas at Austin, Bureau of Economic Geology, p. 32-33.*

Woodruff, C. M., Jr., 2007, *Beyond outcrops and cores--bridging the gulf between geologists*

and civil engineers in Austin, Texas: Austin Geological Society Bulletin, v. 3, p. 48-53.

Woodruff, C. M., Jr., 2007, Westcave--a summary of geologic interpretations, in Hunt, B. B., Woodruff, C. M., Jr., and Collins, E. W., coordinators, Reimers Ranch and Westcave Preserve--landscapes, water, and Lower Cretaceous stratigraphy of the Pedernales watershed, western Travis County, Texas: Austin Geological Society Guidebook 28, p. 25-30.

Wilding, L. P., and Woodruff, C. M., Jr., 2005, Hydrological attributes of caliche soils pertinent to on-site wastewater treatment in Central Texas, in Proceedings, 13th Annual Texas On-Site Wastewater Treatment Research Council Conference, Waco, Texas, March 8-9.

Woodruff, Charles M., Jr., and Abbott, P. L., 2004, Coevolution of the Edwards aquifer and landscapes of the Edwards Plateau region, in Hovorka, S. D., ed., Edwards water resources in Central Texas: retrospective and prospective: Symposium Proceedings, co-hosted by South Texas Geological Society and Austin Geological Society, 23 papers and abstracts on CD, 16 p.

Woodruff, C. M., Jr., 2003, Lost landscapes of the Edwards Plateau, in Woodruff, C. M., Jr., and Collins, E. W., coordinators, Time, land, and Barton Creek--an excursion to Shield Ranch, Travis and Hays Counties, Texas: Austin Geological Society Guidebook 22, p. 25-30.

Woodruff, C. M., Jr., and Wilding, L. P., 2003, "Caliche soils" of Shield Ranch and Beyond, in Woodruff, C. M., Jr., and Collins, E. W., coordinators, Time, land, and Barton Creek--an excursion to Shield Ranch, Travis and Hays Counties, Texas: Austin Geological Society Guidebook 22, p. 37-40.

Collins, E. W., Woodruff, Charles M., Jr., and Tremblay, T. A., 2002, Geologic framework of the northern Edwards aquifer, central Texas: Gulf Coast Association of Geological Societies Transactions, v. 52, p. 135-137.

Wilding, L. P., and Woodruff, C. M., Jr., 2002, Caliche soils as a filter medium for treatment and disposal of wastewater, in 10th Annual Texas On-Site Wastewater Treatment Research Council: Texas Natural Resources Conservation Commission, p. 161-172.

Wilding, L. P., Woodruff, Charles M., Jr., and Gabriel, W., 1999, Caliche soil--what is it? in 7th Annual Texas On-Site Wastewater Treatment Research Council Conference: Texas Natural Resource Conservation Commission, February 15-17, p. 181-187.

Woodruff, C. M., Jr., 1999, East and west of the Forty Acres--a lesson in geography and geology, in Woodruff, C. M., Jr., and Kirkland, B. L., coordinators, Rocks, resources, and recollections, a geologic tour of the "Forty Acres"--The University of Texas at Austin campus: Austin Geological Society Guidebook 19, 62 p.

Woodruff, C. M., Jr., 1998, The Hill Country appellation, common ground between geology and wine in Central Texas, in Woodruff, C. M., Jr., Rose, P. R., and Sansom, J. W., Jr., 1998, The Hill Country appellation--a geologic tour of selected vineyards and wineries of Central Texas, Austin Geological Society Guidebook 18, p. 1-2.

Wilding, L. P., Drees, L. R., and Woodruff, C. M., Jr., 1997, Mineralogy and microfabrics of limestone soils on stepped landscapes in Central Texas, in Shoba, S., Gerasimova, M., and Miedema, R., eds., Soil micromorphology: studies on soil diversity diagnostics dynamics: Proceedings, 10th International Working Meeting on Soil Micromorphology, Moscow, Russia, July 8-13, 1996; Sub-Commission of Soil Micromorphology, International Society of Soil Science, Moscow-Wageningen, p. 204-218.

Woodruff, C. M., Jr., 1997, Edwards Plateau and Hill Country--what's in a name? What's on the map? in Woodruff, C. M., Jr., coordinator, Environment and land restoration in the Central Texas Hill Country: Austin Geological Society Guidebook 17, p. 33-39.

Woodruff, C. M., Jr., 1997, Selah--a pause in time and space in Woodruff, C. M., Jr., coordinator, Environment and land restoration in the Central Texas Hill Country: Austin Geological Society Guidebook 17, p. 1-5.

Woodruff, C. M., Jr., 1996, West Enfield/Tarrytown is a karst recharge area--Does anybody care? in Woodruff, C. M., Jr., and Sherrod, C. L., coordinators: Urban karst: Austin Geological Society Guidebook 16, 73 p. 1-3.

Woodruff, C. M., Jr., 1994, Atop Mount Bonnell, a view from the borderland in Johns, D.A., and Woodruff, C.M., Jr., Edwards aquifer--water quality and land development in the Austin area, Texas: Gulf Coast Association of Geological Societies, Field Trip Guidebook, p 10-17.

Woodruff, C. M., Jr., 1994, Balcones Fault Zone and Colorado River--dual controls on the Edwards aquifer near Austin, Texas, in Johns, D. A., and Woodruff, C. M., Jr., Edwards aquifer--water quality and land development in the Austin area, Texas: Gulf Coast Association of Geological Societies, Field Trip Guidebook, p. 1-9.

Woodruff, C. M., Jr., 1994, The Balcones Escarpment--bedrock, water, and human destiny: South Texas Geological Society Bulletin, v. 35, no. 4, p. 25-34.

Woodruff, C. M., Jr., Wilding, L. P., and Marsh, W. M., 1994, Bedrock, soils, and microtopography of a test area within the Barton Creek watershed, western Travis County, Texas, in Edwards aquifer: the Barton and San Marcos Springs area--a Field Trip Guide Book: AIH 1994 Annual Conference, unpaginated [121 p.] (reprinted in Johns, D. A., and Woodruff, C. M., Jr., Edwards aquifer--water quality and land development in the Austin area, Texas: Gulf Coast Association of Geological Societies, Field Trip Guidebook, p. 37-41).

Wilding, L. P., and Woodruff, C. M., Jr., 1993, Soils and landforms of the Central Texas Hill Country--implications for waste-water application, in Proceedings, On-Site Wastewater Treatment and Research Council Conference: Austin, Texas, On-Site Wastewater Treatment and Research Council, Session X, unpaginated [220 p.]; modified/reprint in On-Site Insights, v. 3, no. 1, Spring 1994, p. 4-5; and in Texas Environmental News, v. 4, no. 7, July 1994.

Woodruff, C. M., Jr., 1993, Balcones fault zone and the southern corridor geohydrologic system, in Anatomy of a growth corridor: geology, environment, and engineering along I-35 between Dallas and San Antonio: Association of Engineering Geologists, 36th Annual Meeting, p. 214-226.

Woodruff, C. M., Jr., 1993, Woodruff, C.M., Jr., 1993, Geology and physiography of Glen Rose Limestone terrains, Barton Creek watershed, Central Texas, in Woodruff, C.M., Jr., Marsh, W.M., and Wilding, L.P., Coordinators, 1993, Soils, landforms, hydrologic processes, and land-use issues--Glen Rose Limestone terrains, Barton Creek watershed, Travis County, Texas: Society of Independent Professional Earth Scientists, Field Report and Guidebook, December 5, 1992 (revised January 1993), p. 2-1-2-12.

Woodruff, C. M., Jr., and Marsh, W. M., 1993, Junipers, grassland, and historical land use change in the Hill Country uplands, Central Texas, in Woodruff, C. M., Jr., Marsh, W. M., and Wilding, L. P., coordinators, Soils, landforms, hydrologic processes, and land-use issues--Glen Rose Limestone terrains, Barton Creek watershed, Travis County, Texas: Society of Independent Professional Earth Scientists, Field Report and Guidebook, December 5, 1992 (revised January 1993), p. 5-1-5-12.

Woodruff, Charles M., Jr., Marsh, W. M., and Wilding, L. P., 1993, Research overview--multidisciplinary approach to terrain analysis with implications for environmental management in Woodruff, C. M., Jr., Marsh, W. M., and Wilding, L. P., coordinators, Soils, landforms, hydrologic processes, and land-use issues--Glen Rose Limestone terrains, Barton Creek watershed, Travis County, Texas: Society of Independent Professional Earth Scientists, Field Report and Guidebook, December 5, 1992 (revised January 1993), p. 1-1-1-6.

Kleeman, T., and Woodruff, C. M., Jr., 1989, Lineament identification and the Edwards aquifer of Central Texas, in Proceedings, IGARSS '89, 12th Canadian Symposium on Remote Sensing, Vancouver, v. 1, p. 105-107.

Woodruff, C. M., Jr., 1988, Geology, history, and the "look" of the city--an introduction to a

walking tour of Congress Avenue, in Woodruff, C. M., Jr., coordinator, Congress Avenue, Austin, Texas: Austin Geological Society Guidebook 12, p. 1-4.

Woodruff, C. M., Jr., 1987, Edwards Plateau versus Grand Prairie--a reassessment of the boundary between two natural provinces of Texas in Yelderman, J. C., Jr., Slade, R. M., Jr., Sharp, J. M., Jr., and Woodruff, C. M., Jr., co-leaders: Waco, Texas, South-Central Section, Geological Society of America, Field Trip Guidebook, p. 53-60 (reprinted in Austin Geological Society Guidebook 11, p. 19-25).

Foley, D., and Woodruff, C. M., Jr., 1986, Geothermal resources of Bexar County, Texas, in Abbott, P. L., and Woodruff, C. M., Jr., eds., The Balcones Escarpment: published for Geological Society of America Annual Meeting, San Antonio, Texas, p. 145-152.

Grimshaw, T. W., and Woodruff, C. M., Jr., 1986, Structural style in an en echelon fault system, Balcones fault zone, Central Texas--geomorphologic and hydrologic implications, in Abbott, P. L., and Woodruff, C. M., Jr., eds., The Balcones Escarpment: published for Geological Society of America Annual Meeting, San Antonio, Texas, p. 71-75.

Woodruff, C. M., Jr., 1986, Geology of Wild Basin--present and past: Wild Basin News, v. 8, no. 3, p. 1-2.

Woodruff, C. M., Jr., and Abbott, P. L., 1986, Stream piracy and evolution of the Edwards aquifer along the Balcones Escarpment, Central Texas, in Abbott, P. L., and Woodruff, C. M., Jr., eds., The Balcones Escarpment: published for Geological Society of America Annual Meeting, San Antonio, Texas, p. 77-89.

Woodruff, Charles M., Jr., and Longley, W. L., 1986, Maps and ecological systems diagrams--complementary tools for constructing a natural environmental baseline: Austin Geological Society Guidebook 9, p. 10-29.

Woodruff, C. M., Jr., 1985, Jollyville Plateau--geologic controls on aquifer development, in Austin Geological Society Guidebook 8, p. 4-9.

Woodruff, C. M., Jr., 1985, Structural features of the Austin Chalk, Travis and Williamson Counties, Texas, in Young, K., and Woodruff, C. M., Jr., Austin Chalk in its type area--stratigraphy and structure: Austin Geological Society Guidebook 7, p. 53-62.

Woodruff, C. M., Jr., and Foley, D., 1985, Thermal regimes of the Balcones/ Ouachita Trend, Central Texas: Gulf Coast Association of Geological Societies Transactions, v. 35, p. 287-292.

Woodruff, C. M., Jr., 1984, Geologic history and social development--examples from Bedford County, Tennessee: Bedford County Historical Quarterly, v. 10, no. 1, p. 1-5. Reprinted in Shelbyville [Tennessee] Times-Gazette, v. 113, no. 41, p. 3.

Woodruff, C. M., Jr., 1984, Stream piracy--possible controls on recharge/discharge geometry, Edwards aquifer, Barton Springs segment, in Woodruff, C. M., Jr., and Slade, R. M., Jr., Hydrogeology of the Edwards aquifer--Barton Springs segment, Travis and Hays Counties, Texas: Austin Geological Society Guidebook 6, p. 61-66.

Woodruff, C. M., Jr., and Caran, S. C., 1984, Lineaments of Texas--expressions of surface and subsurface features, in Technical Papers, American Congress on Surveying and Mapping/American Society of Photogrammetry Fall Convention, San Antonio, p. 741-749.

Woodruff, Charles M., Jr., 1984, Water budget analysis for the area contributing recharge to the Edwards aquifer, Barton Springs segment in Woodruff, C. M., Jr., and Slade, R. M., Jr., Hydrogeology of the Edwards aquifer--Barton Springs segment, Travis and Hays Counties, Texas: Austin Geological Society Guidebook 6, p. 36-42.

Caran, S. C., Woodruff, C. M., Jr., and Ewing, T. E., 1982, Lineament analysis as an exploration technique--examples from Central Texas: summaries: International Symposium on Remote Sensing of Environment, Second Thematic Conference, Remote Sensing for Exploration Geology, p. 112-113.

Woodruff, C. M., Jr., 1982, Geothermal anomalies in Central Texas--Darcy's Law versus the Heat-Flow Equation, in Ruscetta, C. A., ed., Geothermal Direct Heat Program, Roundup Technical Conference Proceedings, v. 1, Papers Presented: State-Coupled Resource Assessment Program, DOE/ID/12079-71, ESL-98, p. 228-239.

Caran, S. C., Woodruff, C. M., Jr., and Thompson, E. J., 1981, Lineament analysis and inference of geologic structure--examples from the Balcones/Ouachita trend of Texas: Gulf Coast Association of Geological Societies Transactions, v. 31, p. 59-69.

Hobday, D. K., Woodruff, Charles M., Jr., and McBride, M. W., 1981, Paleotopographic and structural controls on non-marine sedimentation of the Lower Cretaceous Antlers Formation and correlatives, north Texas and southeastern Oklahoma, in Ethridge, F. G., and Flores, R. M., eds., Nonmarine depositional environments: models for exploration: Society of Economic Paleontologists and Mineralogists Special Publication No. 31, p. 71-87.

Woodruff, C. M., Jr., and Caran, S. C., 1981, Lineaments perceived on Landsat imagery of Central Texas--applications to geothermal resource assessment, in Ruscetta, C. A., and Foley, D., eds., Geothermal Direct Heat Program, Glenwood Springs Technical Conference Proceedings, v. 1, Papers Presented: State Coupled Geothermal Resource Assessment Program, DOE/ID/12079-39, ESL 59, p. 258-270.

Woodruff, C. M., Jr., 1980, Hydrothermal/geothermal research in Texas--status of progress in Proceedings, Resource Assessment/Commercialization Planning Meeting: U.S. Department of Energy, DGE/DGRM, Salt Lake City, p. 136-140.

Woodruff, C. M., Jr., 1980, Regional tectonic features of the inner Gulf Coast Basin and the Mississippi Embayment--implications to potential low-temperature geothermal resources: Gulf Coast Association of Geological Societies Transactions, v. 30, p. 251-256. Reprinted as Regional tectonic features of inner Gulf Coast: Oil & Gas Journal, v. 78, no., 45, p. 264-275.

McBride, M. W., Woodruff, C. M., Jr., and Craig, L. E., 1979, Facies distribution within the Hosston Formation, Central Texas--implications to low temperature geothermal waters: Gulf Coast Association of Geological Societies Transactions, v. 29, p. 172-178.

Woodruff, C. M., Jr., 1979, Geothermal ground water in Central Texas--a potential energy resource: Texas Business Review, v. 53, no. 5, p. 153-157. Reprinted in Pluta, J. E., ed., 1980, The energy picture, problems and prospects: The University of Texas at Austin, Bureau of Business Research, 145 p.

Woodruff, C. M., Jr., Gustavson, T. C., and Finley, R. J., 1979, Playas and draws on the Llano Estacado--tentative findings based on geomorphic mapping of a test area in Texas: Texas Journal of Science, v. 31, no. 3, p. 213-223.

Woodruff, Charles M., Jr., Longley, W. L., and Reed, A. E., 1978, Inland boundary determinations for coastal management purposes--an ecological systems approach to requirements of the Federal Coastal Zone Management Act of 1972: Coastal Zone Management Journal, v. 4, no. 1/2, p. 189-211.

Wermund, E. G., Jr., and Woodruff, C. M., Jr., 1977, Land resource units for planning in carbonate terranes, in Tolson, J. S., and Doyle, F. L., eds., International Association of Hydrogeologists 12th International Congress, karst hydrogeology: The University of Alabama in Huntsville, Alabama, UAH Press, p. 339-353.

Woodruff, C. M., Jr., 1977, Stream piracy near the Balcones Fault Zone, Central Texas: Journal of Geology, v. 85, no. 4, p. 483-490.

Woodruff, C. M., Jr., 1974, Environmental geology and lakeshore development, in Wermund, E. G., ed., Approaches to environmental geology: The University of Texas at Austin, Bureau of Economic Geology Report of Investigations No. 81, p. 135-151.

Non Peer Reviewed Atlases and Maps

Woodruff, C. M., Jr., Costard, L., and Barnes, V. E., 2019, Geologic Map of the Pedernales Falls quadrangle, Blanco County, Texas: Bureau of Economic Geology, The University of Texas at Austin, Open-File Map, no. 243, 1:24000.

Woodruff, C. M., Jr., and Collins, E. W., 2018, Geologic map of the Mansfield Dam, Jollyville, Austin West, and Bee Cave quadrangles, Central Texas (Lower Lake Travis and Lake Austin vicinity): The University of Texas at Austin, Bureau of Economic Geology, Open-File Map, no. 237, 1:50,000.

Woodruff, C. M., Jr., and Collins, E. W., 2015, Geologic map of the Pace Bend quadrangle, Texas: The University of Texas at Austin, Bureau of Economic Geology, Open-File Map, no. 0221, 1:24,000.

Ewing, T. E., Budnik, R. T., Garrison, J. R., Jr, Goldstein, A. G., Henry, C. D., Jackson, M. P. A., Lovell, S. E., Muehlberger, W. R., Nicholas, R. L., Ruppel, S. C., Sandstrom, M. A., and Woodruff, C. M., Jr., 1990, Tectonic map of Texas: The University of Texas at Austin, Bureau of Economic Geology, scale 1:750,000.

Woodruff, Charles M., Jr., Snyder, F. F. C., De La Garza, L., and Ogden, A. E., 1987, Lineaments--Edwards aquifer, Barton Springs segment, Travis and Hays Counties, Texas: Southwest Texas State University, Edwards Aquifer Re-search and Data Center, scale 1:83,333.

Woodruff, Charles M., Jr., Gever, C., and Wuerch, D. R., 1984, Geothermal gradient map of Texas: The University of Texas at Austin, Bureau of Economic Geology, Open File Map, scale 1:1,000,000.

Woodruff, C. M., Jr., Dwyer, L. C., and Gever, C., 1982, Geothermal resources of Texas: National Geophysical Data Center, National Oceanic and Atmospheric Administration, prepared for the Geothermal and Hydropower Technologies Division, U.S. Department of Energy, scale 1:1,000,000.

Woodruff, C. M., Jr., Caran, S. C., and Thompson, E. J., 1981, Lineaments of Texas: The University of Texas at Austin, Bureau of Economic Geology Open File Map, scale 1:1,000,000.: The University of Texas at Austin, Bureau of Economic Geology, Open File Map, scale 1:1,000,000.

Woodruff, C. M., Jr., 1977, Land resources map of the Capital Area Planning Council region: The University of Texas at Austin, Bureau of Economic Geology, Map, scale 1:250,000.

Woodruff, C. M., Jr., and Gustavson, T. C., 1976, Land resources of Fayette County, Texas: The University of Texas at Austin, Bureau of Economic Geology, Open File Map, scale 1:125,000.

Woodruff, Charles M., Jr., Morton, R. A., and Wermund, E. G., Jr., 1976, Land resources of Kendall County, Texas: The University of Texas at Austin, Bureau of Economic Geology, Open File Map, scale 1:125,000.

Guidebooks

Woodruff, C. M., Jr., Paine, J. G., and Rose, P. R., 2018, In the footsteps of R. T. Hill: geologic forays around Austin, Texas: Austin Geological Society, AGS Field-Trip Guidebook 38, 55 p.

Hunt, B. B., Wierman, D. A., Brown, A. S., Woodruff, C. M., Jr., and Fieseler, R. G., 2011, Surface to subsurface Trinity lithostratigraphy: implications for groundwater availability in the Hill Country, eastern Blanco and northern Hays Counties, Texas: Austin Geological Society Guidebook 33, 24 p. + appendix.

Woodruff, C. M., Jr., and Slade, R. M., Jr., 2009, Urban hydrology of Austin, Texas--some Halloween tricks and treats: Austin Geological Society Guidebook 31, 87 p.

Rose, P. R., and Woodruff, C. M., Jr., 2008, Hill Country appellation, revisited--geology, frontier history, and selected wineries of the southern Edwards Plateau, Central Texas: Austin

Geological Society Guidebook 29, 89 p.

Valentine, S., Ward, W. C., Molineux, A., and Woodruff, C. M., Jr., 2008, Canyon Dam spillway gorge, Comal County, Texas--geologic and hydrologic issues: Austin Geological Society Guidebook 30, 61 p.

Hunt, B. B., Woodruff, C. M., Jr., and Collins, E. W., 2007, Reimers Ranch and Westcave Preserve: landscapes, water, and Lower Cretaceous stratigraphy of the Pedernales watershed, western Travis County, Texas: Austin Geological Society Guidebook 28, 130 p.

Rose, P. R., and Woodruff, C. M., Jr., 2005, Geology, frontier history, and selected wineries of the Hill Country appellation, Central Texas: Austin Geological Society Guidebook 25, 110 p.

Woodruff, C. M., Jr., and Collins, E. W., compilers, 2003, Time, land, and Barton Creek--an excursion to Shield Ranch, Travis and Hays Counties, Texas: Austin Geological Society Field Trip Guidebook, 71 p.

Woodruff, C. M., Jr., and Collins, E. W., 2001, Austin, Texas, and beyond--geology and environment: a field excursion in memory of L. Edwin Garner: Austin Geological Society Guidebook 21, 120 p.

Woodruff, C. M., Jr., and Kirkland, B. L., 1999, Rocks, resources, and recollections, a geologic tour of the "Forty Acres"--The University of Texas at Austin Campus: Austin Geological Society Guidebook 19, 62 p.

Woodruff, Charles M., Jr., Rose, P. R., and Sansom, J. W., Jr., 1998, The Hill Country appellation--a geologic tour of selected vineyards and wineries of Central Texas: Austin Geological Society Guidebook , 56 p.

Woodruff, Charles M., Jr., coordinator, 1997, Environment and land restoration in the Central Texas Hill Country--a geologic excursion to Selah, Bamberger Ranch, Blanco County, Texas: Austin Geological Society Guidebook 17, 114 p.

Woodruff, C. M., Jr., and Sherrod, C. L., coordinators, 1996, Urban karst: Austin Geological Society Guidebook 16, 73 p.

Johns, D. A., and Woodruff, C. M., Jr., 1994, Edwards aquifer--water quality and land development in the Austin area, Texas: Gulf Coast Association of Geological Societies Field Trip Guidebook, 66 p.

Woodruff, C. M., Jr., Marsh, W. M., and Wilding, L. P., 1993, Soils, landforms, hydrologic processes, and land-use issues--Glen Rose Limestone terrains, Barton Creek watershed, Travis County, Texas: Society of Independent Professional Earth Scientists Field Report and Guidebook, December 5, 1992,

Rose, P. R., and Woodruff, C. M., Jr., 1992, Wineries, geology, and frontier history of the Llano Uplift, Central Texas: Society of Independent Professional Earth Scientists, Austin, Texas, Chapter Field Trip Guidebook, 40 p.

Woodruff, C. M., Jr., 1989, Congress Avenue, Austin, Texas--lessons in economic geology, architecture, and history (modified from Field Trip Guidebook for American Planning Association, Texas Chapter Conference, October 15, 1987): Austin Geological Society Guidebook 12, 56 p.

Woodruff, Charles M., Jr., Young, K., and Ratcliff, D. C., 1988, Road log--Austin to Hamilton Pool, Hammetts Crossing, and the Spicewood vicinity, Texas: Austin Geological Society Fall Field Trip, 12 p.

Yelderman, J. C., Slade, R. M., Jr., Sharp, J. M., Jr., and Woodruff, C. M., Jr., 1987, Hydrogeology of the Edwards aquifer in the Northern Balcones and Washita Prairie segments: Geological Society of America South-Central Section Field-Trip Guidebook, 127 p.

Snyder, F., De La Garza, L., and Woodruff, C. M., Jr., 1986, The cityscape--construction

materials and the environment in Austin, Texas: Austin Geological Society Guidebook 9, 78 p.

Woodruff, C. M., Jr., Snyder, F., De La Garza, L., and Slade, R. M., Jr., 1985, Edwards aquifer--northern segment, Travis, Williamson, and Bell Counties, Texas: Austin Geological Society Guidebook 8, 104 p.

Young, K., and Woodruff, C. M., Jr., 1985, Austin Chalk in its type area--stratigraphy and structure: Austin Geological Society Guidebook 7, 88 p.

Woodruff, C. M., Jr., and Slade, R. M., Jr., 1984, Hydrogeology of the Edwards aquifer--Barton Springs segment, Travis and Hays Counties, Texas: Austin Geological Society Guidebook 6, 96 p.

Woodruff, C. M., Jr., 1983, Geologic road log--Austin to the southeastern Llano Uplift: Association of Engineering Geologists (Texas Section) Field Trip Guidebook, 12 p.

Woodruff, Charles M., Jr., and Deux, T. W., 1980, Central mineral region of Texas: 31st Annual Highway Geology Symposium Field Trip Guidebook, 31 p.

Garner, L. E., and Woodruff, C. M., Jr., 1979, Urban hydrology and other environmental aspects of the Austin area: Austin Geological Society Guidebook 4, 39 p.

Baker, V. R., Perdue, J., Sansom, J. W., Jr., and Woodruff, C. M., Jr., 1974, Geomorphic and hydrologic features of the Central Texas Hill Country: Austin Geological Society Guidebook 2, 21 p.

Contract Reports

Paine, J. G., Caudle, T., Elliott, B. A., Woodruff, C. M., Jr., and Costard, L., 2019, Texas STATEMAP program summary, FY18 (2018-2019): Bureau of Economic Geology, The University of Texas at Austin, Final Technical Report prepared for U.S. Geological Survey, under contract no. G18AC00195, 17 p.

Collins, E. W., and Woodruff, C. M., Jr., 2018, Project 2: Geologic mapping of the west Austin corridor, Central Texas (Mansfield Dam, Jollyville, Austin West, Bee Cave quadrangles, 1:50,000), in Collins, E. W., Paine, J. G., Elliott, B. A., Woodruff, C. M., Jr., and Costard, L., Texas STATEMAP Program FY17 (2017-2018): The University of Texas at Austin, Bureau of Economic Geology, Final Report prepared for U.S. Geological survey, under contract no. G17AC00253, 2017, 16-19 p.

Collins, E. W., and Woodruff, C. M., Jr., 2017, Project 2: Geologic mapping of the West Austin Corridor, Central Texas (Mansfield Dam quadrangle and Shingle Hills-Dripping Springs-Driftwood-Rough Hollow-Henly-Hammetts Crossing area), in Collins, E. W., Paine, J. G., Elliott, B. A., and Woodruff, C. M., Jr., Texas STATEMAP Program Final Report FY 16 (2016-2017): The University of Texas at Austin, Bureau of Economic Geology, Final Report prepared for U.S. Geological Survey, under contract no. G16AC00194, 2016, 12 p.

Woodruff, C. M., Jr., and Caran, S. C., 1984, Lineaments of Texas--possible surface expressions of deep-seated phenomena: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for U.S. Department of Energy, Division of Geothermal Energy, under contract no. DE-AS07-79ID12057, 68 p.

Woodruff, C. M., Jr., Macpherson, G. L., Gever, C., Caran, S. C., and El Shazly, A. G., 1984, Geothermal potential along the Balcones/Ouachita trend, Central Texas--ongoing assessment and selected case studies: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for U.S. Department of Energy, Division of Geothermal Energy, under contract no. DE-AS07-79ID12057, 75 p.

Woodruff, C. M., Jr., and Gever, C., 1983, Integration of geothermal data along the Balcones/Ouachita trend, Central Texas: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for U.S. Department of Energy, Division of Geothermal Energy, under contract no. DE-AS07-79ID12057, 21 p.

Woodruff, C. M., Jr., Caran, S. C., Gever, C., Henry, C. D., Macpherson, G. L., and McBride, M. W., 1982, Geo-thermal resource assessment for the State of Texas--status of progress, November 1980: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for the U.S. Department of Energy, Division of Geother-mal Energy, under contract no. DE-AS07-79ID12057, 248 p., 8 appendices.

Woodruff, C. M., Jr., and McBride, M. W., 1979, Regional assessment of geothermal potential along the Balcones and Luling-Mexia-Talco Fault Zones, Central Texas: The University of Texas at Austin, Bureau of Economic Geology, final report prepared for U.S. Department of Energy, under contract no. DE-AS05-78ET28375, 145 p., 1 appendix.

Woodruff, C. M., Jr., Garner, L. E., and Ratcliff, D. C., 1979, Late Quaternary environments of the Tennessee-Tombigbee project area (upper reaches): The University of Texas at Austin, Bureau of Economic Geology, final report prepared for Benham-Blair and Affiliates, Inc., and the U.S. Army Corps of Engineers, 71 p.

Published Reports

De La Garza, L., Woodruff, C. M., Jr., and Snyder, F. R., 1989, Lineaments and the Edwards aquifer--Barton Springs Segment, Travis and Hays Counties, Texas: Edwards Aquifer Research and Data Center, Southwest Texas State University, Report 45 p.

Abbott, P. L., and Woodruff, C. M., Jr., 1986, The Balcones Escarpment: The University of Texas at Austin: www.lib.utexas.edu/geo/balcones_escarpment/balconesescarpment.html, 200 p.

Caran, S. C., Woodruff, C. M., Jr., and Thompson, E. J., 1982, Lineament analysis and inference of geologic structure--examples from the Balcones/Ouachita trend of Texas: The University of Texas at Austin, Bureau of Economic Geology Geological Circular 82-1, 12 p.

Woodruff, C. M., Jr., 1979, Land resource overview of the Capital Area Planning Council region, Texas--a nontechnical guide: The University of Texas at Austin, Bureau of Economic Geology , 29 p.

Woodruff, C. M., Jr., Project Director, 1975, Resources of the Texas coastal region, the Coastal Management Program: General Land Office of Texas, 45 p. + 23 maps.

Published Abstracts

McCall, L., and Woodruff, C. M., Jr., 2019, Building awareness of geoh heritage in Texas (abs.): Geological Society of America Abstracts with Programs, v. 51, no. 5, 1 p., <http://doi.org/10.1130/abs/2019AM-340453>.

Collins, E. W., Paine, J. G., Elliott, B. A., Woodruff, C. M., Jr., and Costard, L., 2018, STATEMAP Program Geologic Mapping In Texas (abs.): Geological Society of America Abstracts with Programs, v. 50, no. 1, <http://doi.org/10.1130/abs/2018SC-309882>.

Woodruff, C. M., Jr., 2010, Engineering geologic problems near the Mt. Bonnell Faul--homage to W. R. Muehlberger and Richard H. Jahns (abs.), in Dickerson, P. W. and Cloos, M., convenors, From the Earth to the Moon, a research symposium honoring the scientific contributions of William R. Muehlberger, August 27-29, Jackson School of Geosciences, The University of Texas at Austin, p. 65.

Woodruff, C. M., Jr., 2004, Engineering geology in the Austin area--some selected examples (abs.): Austin Geological Society Newsletter, v. 39, no. 2, p. 1.

Collins, E. W., Woodruff, C. M., Jr., and Tremblay, T. A., 2002, Geologic framework of the northern Edwards aquifer, Central Texas (ext. abs.): Gulf Coast Association of Geological Societies Transactions, v. 52, p. 135-137.

Woodruff, C. M., Jr., 2001, Bedrock beneath Tom Miller Dam (abs): Austin Geological Society Newsletter, v. 36, no. 5, p. 10.

- Woodruff, C. M., Jr., Rose, P. R., and Abbott, P. L., 1998, The name game--parsimony and public communication (letter to editor): *GSA Today*, v. 8, no. 8, p. 24.
- Woodruff, C. M., Jr., Rose, P. R., and Abbott, P. L., 1997, Edwards Aquifer and Edwards Limestone--nomenclature and confusion (letter to editor): *GSA Today*, v. 7, no. 11, p. 15.
- Wilding, L. P., and Woodruff, C. M., Jr., 1996, Soils and microtopography of the Central Texas Hill Country: implications on vadose zone hydrology (abs.): *Geological Society of America, Abstracts with Programs*, v. 28, no. 1, p. 69.
- Woodruff, C. M., Jr., 1996, Environment, land development, politics, and the common weal along Barton Creek, Travis County, Texas (abs.), in *Soil Survey and Land Resource Workshop Abstracts: College Station, Texas, Texas Agricultural Extension Service, Texas Agricultural Experiment Station, Soil Conservation Service*, p. 13-14.
- Woodruff, C. M., Jr., and Thornhill, M. R., 1996, Geologic mapping scaled across five orders of magnitude (abs.): *Geological Society of America Abstracts with Programs*, v. 28, no. 1, p. 70.
- Woodruff, C. M., Jr., and Thornhill, M. R., 1996, Karst terrains assayed across incremental map scales--a case study in Williamson County, Texas (abs.): *Austin Geological Society Newsletter*, v. 30, no. 8, p. 1.
- Woodruff, C. M., Jr., 1994, Geology and geomorphology applied to land-use issues, Central Texas (abs.): *College Station, Texas, Soil Survey and Land Resource Workshop Abstracts, Texas Agricultural Extension Service, Texas Agricultural Experiment Station, Soil Conservation Service*.
- Wilding, L. P., Woodruff, C. M., Jr., and Marsh, W. M., 1993, Soils and landforms in the Hill Country of Central Texas (abs.): *Cincinnati, Ohio, Agronomy Abstracts, American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Annual Meeting*, p. 308.
- Woodruff, C. M., Jr., 1993, Stair-step hills, stony soils, and cedar stumps--evidence for environmental buffers on Hill Country uplands, western Travis County, Texas (abs.): *Austin Geological Society Newsletter*, v. 27, no. 9, p. 1-2.
- Woodruff, C. M., Jr., 1990, Jollyville Plateau, a relict landscape in Central Texas (abs.): *Geological Society of America Abstracts with Programs*, v. 22, no. 7, p. 152-153.
- Woodruff, C. M., Jr., 1990, Landscape evolution and the Edwards aquifer (abs.), in *93rd Annual Meeting, Texas Academy of Science Program, San Marcos, Texas*, p. 83.
- Woodruff, C. M., Jr., 1990, Lineaments--a summary of findings in the Barton Springs segment of the Edwards aquifer (abs.): *Austin Geological Society Newsletter*, v. 24, no. 6, p. 1-2.
- Abbott, P. L., and Woodruff, C. M., Jr., 1986, Geologic history of the Edwards aquifer (abs.): *Geological Society of America Abstracts with Programs*, v. 18, no. 6, p. 521.
- Woodruff, C. M., Jr., 1985, Thermal regimes of the Balcones/Ouachita Trend, Central Texas (abs.): *AAPG Bulletin* v. 69, no. 9, p. 1431.
- Woodruff, C. M., Jr., 1984, Geothermal gradients of Texas--a new look (abs.): *AAPG Bulletin*, v. 68, no. 4, p. 540-541.
- Woodruff, C. M., Jr., 1984, Geothermal resources of Balcones/Ouachita trend, Central Texas (abs.): *AAPG Bulletin*, v. 68, no. 4, p. 477.
- Ewing, T. E., Henry, C. D., Jackson, M. P. A., Woodruff, C. M., Jr., Goldstein, A. G., and Garrison, J. R., Jr, 1983, Tectonic map of Texas--a progress report (abs.): *American Association of Petroleum Geologists Bulletin*, v. 67, no. 3, p. 458.
- Caran, S. C., Woodruff, C. M., Jr., and Thompson, E. J., 1981, Lineaments--a critical appraisal (abs.): *Geological Society of America Abstracts with Programs*, v. 13, no. 5, p. 234-235.

Macpherson, G. L., and Woodruff, C. M., Jr., 1981, Regional hydrologic trends and their relation to sediment textures of Cretaceous aquifers, north-central Texas (abs.): Geological Society of America Abstracts with Programs, v. 13, no. 5, p. 263.

Thompson, E. J., Woodruff, Charles M., Jr., and Caran, S. C., 1981, Lineaments and correlative surface and subsurface features near Austin, Texas (abs.): Geological Society of America Abstracts with Programs, v. 13, no. 5, p. 263.

Woodruff, C. M., Jr., and Henry, C. D., 1981, Edwards aquifer "bad-water line" in Bexar County, Texas--lithic, geochemical, and geothermal attributes (abs.): Geological Society of America Abstracts with Programs, v. 13, no. 5, p. 265.

Woodruff, C. M., Jr., Caran, S. C., and Thompson, E. J., 1981, Lineaments in Texas perceived through Landsat imagery (abs.), in 84th Annual Meeting, Texas Academy of Science, p. 82.

Woodruff, Charles M., Jr., Henry, C. D., and Gever, C., 1981, Regional hydrodynamics within the Edwards Limestone, south-central Texas (abs.): supplement to Gulf Coast Association of Geological Societies Transactions, v. 31, p. 454-455.

Woodruff, C. M., Jr., 1980, Regional tectonic features of the inner Gulf Coast Basin and the Mississippi Embayment--implications to potential low-temperature geothermal resources (abs.): American Association of Petroleum Geologists Bulletin, v. 64, no. 9, p. 1569.

Woodruff, C. M., Jr., 1980, Woodbine sandstones as a geothermal resource (abs.), in Proceedings, Gulf Coast Section, Society of Economic Paleontologists and Mineralogists, First Annual Research Conference, p. 37-38.

McBride, M. W., Woodruff, C. M., Jr., and Craig, L. E., 1979, Facies distribution within the Hosston Formation, Central Texas--implications to low temperature geothermal waters (abs.): American Association of Petroleum Geologists Bulletin, v. 63, no. 9, p. 1607.

Woodruff, C. M., Jr., and McBride, M. W., 1979, Geothermal anomalies in Central Texas--regional tectonic implications (abs.): Geological Society of America Abstracts with Programs, v. 11, no. 7, p. 544.

Gustavson, T. C., Finley, R. J., and Woodruff, C. M., Jr., 1978, Geomorphic studies applied to the evaluation of potential nuclear waste isolation (abs.): Geological Society of America Abstracts with Programs, v. 10, no. 1, p. 6.

Woodruff, C. M., Jr., and Abbott, P. L., 1978, Cavern development, stream piracy, and aquifer evolution in the Edwards Limestone, south-central Texas (abs.): National Speleological Society Bulletin, v. 41, no. 4, p. 117.

Woodruff, C. M., Jr., and Longley, W. L., 1977, Statics and dynamics of natural systems--a genetic basis for assessing environmental impacts (abs.): Gulf Coast Association of Geological Societies Transactions, v. 27, p. 250. Also in American Association of Petroleum Geologists Bulletin, v. 61, no. 9, p. 1550.

Woodruff, C. M., Jr., 1975, Substrate and soils in San Antonio--environmental geologic mapping problems in an urban area (abs.): South Texas Geological Society Bulletin, v. 15, no. 9, p. 3.

Woodruff, Charles M., Jr., and Steed, D. L., 1975, The Texas Coastal Management Program--synthesizing data on resource capability for public policy decisions (abs.): Geological Society of America Abstracts with Programs, v. 7, no. 2, p. 246.

Woodruff, C. M., Jr., 1974, Evidence for stream piracy along the Balcones Escarpment, Central Texas (abs.): Geological Society of America Abstracts with Programs, v. 6, no. 7, p. 1010.

Woodruff, C. M., Jr., and Lentz, R. C., 1973, Geologic factors related to land use in a predominantly crystalline rock terrane (abs.): Geological Society of America Abstracts with Programs, v. 5, no. 7, p. 871.