

VITA

J. Richard Kyle

http://www.jsg.utexas.edu/researcher/richard_kyle/

Senior Geological Advisor, Bureau of Economic Geology
Emeritus Professor, Department of Geological Sciences
John A. and Katherine G. Jackson School of Geosciences
The University of Texas at Austin
Austin, TX 78712-1101

Phone: 512-471-4351; FAX 512-471-9425; E-mail: rkyle@jsg.utexas.edu

Licensed Professional Geoscientist, Texas

December 2022

EDUCATION:

Ph.D., Geology, 1977, University of Western Ontario, London, Canada
M.S., Geology, 1973, University of Tennessee, Knoxville, Tennessee
B.S., Earth Sciences, 1970, Tennessee Technological University, Cookeville, Tennessee

SIGNIFICANT PROFESSIONAL EXPERIENCE:

2003 to date Registered Professional Geoscientist, Texas
2000 to date Associate, Long Institute of Latin American Studies, University of Texas at Austin
1980 to date Consulting Geologist, various clients
2012 to 2022 Professor, Bureau of Economic Geology, University of Texas at Austin
2005 to 2010 Research Professor, Bureau of Economic Geology, University of Texas at Austin
1990 to 2022 Professor; Department of Geological Sciences, University of Texas at Austin
1984 to 1990 Associate Professor; Department of Geological Sciences, University of Texas
Spring, 1983 Research Associate, Bureau of Economic Geology; University of Texas at Austin
1978 to 1984 Assistant Professor; Dept of Geological Sciences, University of Texas at Austin
1976 to 1978 Exploration Geologist; Exxon Minerals Company, U.S.A; Rhinelander, WI

PROFESSIONAL HONORS AND AWARDS:

Society for Mining, Metallurgy, & Exploration, Mineral Industry Education Award (2023)
Society for Mining, Metallurgy, & Exploration, Hal W. Hardinge (Industrial Minerals) Award (2023)
Society for Mining, Metallurgy, & Exploration, Legion of Honor (2020)
Geological Society of America Energy Division Best Poster Award (2015)
Keynote, International Association on Genesis of Ore Deposits, Kunming, China (2014)
Society of Economic Geologists Thayer Lindsley Lecturer (2002)
Gulf Coast Association of Geological Societies Excellence of Presentation Award (2001)
Keynote, Mineral Deposits Studies Group, Geological Society of London (1988)
Society of Economic Paleontologists & Mineralogists Excellence of Presentation Award (1986)
Society of Economic Paleontologists & Mineralogists Gulf Coast Section Best Paper Award (1984)
Society of Mining Engineers Robert Peele Memorial (Best Paper) Award (1981)

UNIVERSITY AWARDS:

Third C. E. Yager Professor in Geological Sciences (1998 to 2022)
Shell Oil Company Teaching Fellow in Geological Sciences (1995 to 1998)
Getty Oil Company Centennial Teaching Fellow in Geological Sciences (1989 to 1995)
Geology Foundation Advisory Council Centennial Teaching Fellow (1985 to 1989)
Houston Oil and Minerals Faculty Excellence Award (1992)
Natural Sciences Council Teaching Excellence Award (1981)
Houston Oil and Minerals Faculty Excellence Award (1980)

RESEARCH INTERESTS:

Ore deposits geology, mineral resources and society, geology and supply chains of critical materials, minerals exploration and evaluation, industrial mineral resources, origin of ore-forming fluids in sedimentary basins, fluid inclusions, stable isotopes, salt dome cap rock formation, surficial processes and earth resource formation, high resolution X-ray computed tomography applications to petrology, adaptive reuse of mining and processing sites.

PROFESSIONAL SOCIETIES:

American Association of Petroleum Geologists (+Critical Minerals Division)
 Austin Geological Society
 Geological Association of Canada (Fellow)
 Geological Society of America (Fellow)
 International Association on the Genesis of Ore Deposits (+Working Group on Rare Earth Elements)
 Prospectors and Developers Association of Canada
 Society of Economic Geologists (Fellow)
 Society for Geology Applied to Mineral Deposits
 Society for Mining, Metallurgy, and Exploration (Legion of Honor)
 Society for Sedimentary Geology

PROFESSIONAL SERVICES:

Inaugural and continuing participant of the Society of Economic Geologists online mentoring program for students and others concerning the global minerals industry and mineral industry careers
 Convener of a session on Sediment-hosted Base Metal Deposits, at the 125th Anniversary (2013) Annual Meeting of Geological Society of America, Denver, CO
 Chair, Society of Economic Geologists session, Weathering of mineral deposits in semi-tropical to tropical climates: Annual meeting Geological Society of America (2012) Charlotte, NC
 Society of Economic Geologists Program Representative GSA annual meeting (2008) Houston, TX
 Chair, Economic Geology session, Annual Meeting Geological Society of America (2008)
 Chair, Supergene Processes and Regolith Characteristics & Skarns and Replacement Deposits, PACRIM2008 meeting (Gold Coast, Queensland, Australia)
 Society of Economic Geologists Distinguished Lecturer Committee 2004 to 2006, Chair 2006.
 Chair, Central Texas Section, Society for Mining, Metallurgy, and Exploration, 2000–2002.
 Secretary, Central Texas Section, Society for Mining, Metallurgy, and Exploration, 1999–2002.
 Editor-in-Chief of *Ore Geology Reviews* (Elsevier) 1990 to 2003.
 Scientific Correspondent, *Chronique de la Recherche Miniere*, BRGM, Orleans, France, 1994–2000
 Petrology and Geochemistry Panel, National Science Foundation (1998)
 Chair, Committee on Committees, Society of Economic Geologists, 1997–1998.
 Short Course Instructor, The Earth Resources Foundation, University of Sydney, Sydney, New South Wales, Australia: “Sedimentary Pb-Zn Deposits” (two-day short course)
 Research Committee, Society of Economic Geologists, 1992–1995.
 Board of Advisors, Dept. of Geological Sciences, University of Tennessee, Knoxville, 1993–1996.
 Field trip and core workshop leader to examine Gulf Coast salt dome cap rock geology and mineral resources, Society of Economic Geologists (1995)
 Field trip leader to examine salt dome cap rock geology of the North Louisiana Basin, American Association of Petroleum Geologists (1993)
 Field trip leader to examine salt dome cap rock and associated features in the North Louisiana Basin, New Orleans Geological Society (1992)
 Associate Editor, *Economic Geology*, 1990–1992
 Leader of a Society of Economic Geologists field trip to examine industrial mineral resources of the Delaware Basin for the 1990 Geological Society of America Annual Meeting, Dallas, Texas.
 Convener of a Society of Economic Paleontologists & Mineralogists Special Session on “Fluid-rock Interactions in the Salt Dome Environment”, 1987 Midyear Meeting, Austin, Texas.
 Program Policy Committee, Society of Economic Geologists, 1983 to 1986.
 Society of Economic Geologists Program Chair for 1986 GSA annual meeting, San Antonio, TX.

- Convener of Society of Economic Geologists Special Session on “Precious Metals in Carbonate Replacement & Skarn Environments”, Geological Society of America Annual Meeting, San Antonio.
- Reviewer of multiple manuscripts for *American Association of Petroleum Geologists Bulletin*, *Economic Geology*, *Geological Society of America Bulletin*, *Geology*, *International Geology Reviews*, *Journal of Geophysical Research*, *Journal of Petrology*, *Mineralium Deposita*, *Mining Engineering*, *Natural Resources Research*, *Ore Geology Reviews*, *Tectonics*, and *Terra Nova*.
- Reviewer of manuscripts for Special Publications of the American Association of Petroleum Geologists, Geological Association of Canada, Society for Mining, Metallurgy, and Exploration, Society for Sedimentary Geology, International Association on the Genesis of Ore Deposits, and Bureau of Economic Geology.
- Reviewer of professional accomplishments of economic geology faculty for tenure and/or promotion for universities in Australia, Canada, Saudi Arabia, and the United States (many).
- Reviewer of research proposals for the Petrogenesis and Mineral Resources, Petrology and Geochemistry, Surficial Processes, Special Projects, and Career Award divisions of the National Science Foundation, for the Petroleum Research Fund of the American Chemical Society, and for the U. S. Geological Survey.
- Reviewer of books for *Economic Geology*, *Journal of Geological Education*, *Journal of Sedimentary Petrology*, and *Ore Geology Reviews*, as well as book proposals for many international publishers.

ADMINISTRATIVE SERVICE TO THE UNIVERSITY, JACKSON SCHOOL OF GEOSCIENCES, DEPARTMENT OF GEOLOGICAL SCIENCES & BUREAU OF ECONOMIC GEOLOGY

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|--------------|---|
| 2009 to 2012 | Jackson School Representative, University Graduate Assembly: Academic Committee (2009-10), Administrative Committee (2010-11), Admissions Committee (2011-12) |
| 2016 to date | Graduate Advisor, Energy & Earth Resources Masters Program |
| 2008 to 2016 | Assistant Graduate Advisor, Energy & Earth Resources Program |
| 1998 to date | Member, Energy & Earth Resources Graduate Studies Committee (Petroleum & Geosystems Engineering; Jackson School of Geosciences) |
| 2022 – 2023 | Search Committee, Economic Geologist, Bureau of Economic Geology |
| 2013 to 2021 | Chair, Energy & Earth Resources Admissions Committee |
| 2005 to 2021 | Energy & Earth Resources Admissions Committee |
| 2020 | Search Committee, Economic Geologist, Bureau of Economic Geology |
| 2014 – 2015 | Jackson School of Geosciences, Writer in Residence, Search Committee |
| 2014 – 2016 | Solid Earth & Tectonics Representative, JSG Admissions & Support Committee |
| 2012 | Search Committee, Economic Geologist, Bureau of Economic Geology |
| 1996 – 1998 | College of Natural Sciences Committee on Admissions |
| 1995 – 1996 | Search Committee, CNS Director of Corporate Relations and Placement |
| 1992 – 1993 | College of Natural Sciences Staff Excellence Awards Committee |
| 1990 – 1995 | College of Natural Sciences Undergraduate Education Committee |
| 1982 – 1983 | College of Natural Sciences Course and Curriculum Committee |
| 1990 to 2022 | Department of Geological Sciences Budget Council |
| 1978 to 2022 | Member, DGS Graduate Studies Committee |
| 2007 – 2009 | Department of Geological Sciences, JSG Internal Reappointment Committee |
| 2007 – 2008 | Department of Geological Sciences Faculty (JG) Promotion Committee |
| 2007 – 2008 | Department of Geological Sciences BA Curriculum Review Committee |
| 2003 – 2006 | Assistant Graduate Advisor, Department of Geological Sciences |
| 2003 – 2005 | Department of Geological Sciences Post-tenure Review Committee |
| 2003 – 2005 | Department of Geological Sciences Research Scientist Review Committee |
| 2000 – 2003 | Graduate Advisor, Department of Geological Sciences |
| 2000 – 2003 | Chair, Department of Geological Sciences Graduate Studies Committee |

1998 – 2003	Chair, Dept of Geological Sciences Graduate Admissions & Support Committee
1999 – 2000	Search Committee, Carbonate Geology, Department of Geological Sciences
1992 – 1999	Department of Geological Sciences Gem & Mineral Collections Committee
1995 – 1998	Department of Geological Sciences Graduate Admissions & Support Committee
1992 – 1996	Department of Geological Sciences Library Resources Committee
1985 – 1995	Department of Geological Sciences Undergraduate Advisor
1986 – 1995	Chair, DGS Undergraduate Advising and Awards Committee
1985 – 1992	Chair, DGS Cartography Committee
1988 – 1991	Geology Foundation Faculty Review Committee
1986 – 1987	Department of Geological Sciences Research Scientist Review Committee
1980 – 1982	Department of Geological Sciences Executive Committee
1979 – 1980	Search Committee, Metamorphic Petrologist, Department of Geological Sciences

COURSES TAUGHT REGULARLY:

- (1) GEO 401 Physical Geology (summer)
- (2) GEO 335 Geology and Mineral Resources of Texas (Upper Division Elective)
- (3) GEO 341 Mineral Resources, Society, & the Environment (FLAG writing elective)
- (4) GEO 386E Economic Geology (Graduate)
- (5) GEO 381R Regional Studies in Mineral Resources Geology (Graduate)
- (6) GEO 386R/ EER 396 Geology of Earth Resources (Core course for Energy & Earth Resources Masters program of the Jackson School of Geosciences)

Additional Courses Taught (all with experiential activities):

- 1) GEO 330K Petroleum Geology: Basin and Trend Analysis (Upper Division Elective)
- 2) GEO 358K Volcanology (Upper Division Elective; Substantial Writing Component Course)
- 3) GEO 362K Geology of Metallic Ore Deposits (Upper Division Geology Elective)
- 4) GEO 362L Geology of Nonmetallic Ore Deposits (Upper Division Geology Elective)
- 5) GEO 368N Applied Geology of Energy Resources (Upper Division Service Course)
- 6) GEO 660 Field Geology (Geology Major Requirement)
- 7) GEO 391 Ore Deposits in Carbonate Rocks (Graduate)
- 8) GEO 391 Geological and Financial Analysis of Precious Metals Deposits (Graduate)
- 9) GEO 391 Principles of Minerals Exploration (Graduate)
- 10) GEO 391 Seminar on Fluid Inclusions: Theory and Practice (Graduate)
- 11) GEO 391G Ore Deposits in Volcanic Environments (Graduate)
- 12) GEO 391H Ore Deposits in Sedimentary Environments (Graduate)
- 13) GEO 298T Supervised Teaching for Graduate Students

SPECIAL STUDENT SERVICES

In addition to having served as the departmental Undergraduate Advisor from 1985 to 1995 and Graduate Advisor from 2000 to 2003 and EER Program Graduate Advisor from 2016 to date, I have served as an informal advisor for students at all levels for career opportunities in the mineral resource industries. I invite and host mineral resources geology speakers, including those from underrepresented groups to talk about economic geology research and careers. I also serve in the Faculty Contacts Program coordinated by the University Career Center. I have served as a judge for student research programs in the McCombs School of Business entrepreneur program and for the Texas Energy Research Challenge. I have enhanced my classroom teaching by organizing and leading more than 50 local, regional, and international field trips for students to examine mineral resources within their regional geologic setting and/or to attend major research symposia, thus providing opportunity for interaction with current applied and research activities.

- 2019 Exploration and mining geology of west Texas and New Mexico
- 2018 International research experience for under-represented undergraduates, Slovakia
- 2017 Energy & Earth Resources orientation field trip on Central Texas geology and resources
- 2016 International research experience for under-represented undergraduates, Slovakia

- 2015 Exploration and mining geology of Arizona
- 2014 Cenozoic geology of the Presidio Bolson, Trans-Pecos, Texas
Regional studies of the geology and mineral resources of Fennoscandia
- 2013 Mineral resource geology of West Texas and New Mexico
- 2012 Cenozoic volcanism and mineralization, Trans-Pecos Texas
- 2011 Geology and production of Texas lignite
- 2010 Geology and production of Texas lignite
Geology of Trans-Pecos Texas volcanic field
- 2009 Mineral resource geology of West Texas and New Mexico
Regional studies of the geology and mineral resources of the southern Canadian Shield and the Geological Association of Canada-AGU Spring meeting, Toronto, Ontario
- 2008 Cretaceous volcanism of central Texas
- 2007 Geology of the Llano Uplift.
Geology and production of Texas lignite.
- 2006 Geology of the Llano Uplift.
Geology and production of Texas lignite.
- 2005 Regional studies of the geology and mineral resources of the Great Basin and the Window on the World Geological Society of Nevada meeting, Reno, NV
Cenozoic volcanism and mineralization, Trans-Pecos Texas
Geology of the Austin area
- 2004 Geology of the Austin area; Geology of the Llano Uplift.
- 2003 Regional studies of the geology and mineral resources of Western Australia
- 2003 Diverse carbonate-hosted Zn-Pb-Ag deposits, Trans-Pecos Texas and Chihuahua, Mexico
Cretaceous volcanism of central Texas
- 2001 Regional studies of the geology and mineral resources of the Iberian Peninsula
- 2000 Regional studies of the geology and mineral resources of Peru
Tectonics, magmatism, sedimentation, and mineralization in west Texas & New Mexico
- 1999 Geology and mining of central Texas lignite deposits
Regional studies of the geology and mineral resources of the central Andes, Chile
- 1997 Regional studies of mineral resource geology of West Texas and New Mexico
- 1996 Regional studies of mineral resource geology of the Southwestern United States
- 1993 Tectonic, magmatic, sedimentation, and mineralization history of the southern Midcontinent
- 1992 Mineralization, magmatism, and tectonism in the Southwestern United States
- 1990 Geologic setting of intrusion- and skarn-hosted copper deposits of Arizona & New Mexico
- 1989 Regional geology and ore deposits in Oklahoma, Missouri, Kentucky, and Tennessee
- 1988 Geology and extraction of south Texas uranium deposits
- 1987 Regional geology and ore deposits in Missouri, Arkansas, and Oklahoma
Regional geology and ore deposits in Trans-Pecos Texas and New Mexico and the inaugural meeting of American Current Research on Fluid Inclusions, Socorro, NM
- 1985 Regional geology and mineral resources associated with salt domes in the Gulf Coast
- 1984 Regional geology and ore deposits in Durango, Zacatecas, San Luis Potosi, and Coahuila
- 1983 Regional geology and mineral deposits in the Delaware Basin in Texas and New Mexico
- 1982 International Conference on Mississippi Valley-type Lead-Zinc Deposits, Rolla, Missouri
Regional geology and ore deposits in Guanajuato, Durango, Zacatecas, San Luis Potosi, and Coahuila, Mexico
- 1981 Regional geology and ore deposits in Missouri, Arkansas, and Oklahoma
Regional geology and ore deposits in Trans-Pecos Texas and New Mexico, and the symposium on Relations of Tectonics to Ore Deposition in the Southern Cordillera, Tucson, AZ
- 1980 Regional tectonics and ore deposits in Alabama, North Carolina, Tennessee, & Arkansas
Regional geology and ore deposits in Trans-Pecos Texas, New Mexico, and Arizona
- 1979 Regional geology and ore deposits in Arkansas and Missouri
American Institute of Mining, Metallurgical, and Petroleum Engineers Annual Meeting, New Orleans, LA

Student outreach and other general educational activities

Served as career-long information source on mineral resources and mining, fielding questions from the public and press inquiries, as well as federal and state agencies, directed to the BEG, the DGS, the Jackson School of Geosciences, and the University.

Served as a judge for student projects in the McCombs School of Business entrepreneur program and for the Texas Energy Research Challenge, as well as providing guest lectures on Earth resources and sustainable energy challenges.

Contributing Author, *Using Material Resources*, in Holt Science and Technology California, Student Edition 6th grade SE textbook, ISBN: 0-03-042658-8, p. 138-143, 2007.

The Geologic History of Texas: The Making of Texas over the Past 1.5 Billion Years: Department of Geological Sciences, Outreach Lecture Series, v. 4, University of Texas at Austin, 2000
www.esi.utexas.edu/k-12-a-the-community/hot-science-cool-talks/lecture-archives/geologic-history-of-texas.

GRADUATE STUDENT SUPERVISION (with present or last known positions):

Maintained an environment that welcomed, supported, and mentored students from diverse backgrounds. Due to student privacy laws, DEI information on applicants and enrolled students are not readily available, with gender being the only criterion that generally is apparent. Since 1990, more than half of my graduate student advisees (n = 30) have been women. Several of my graduate and undergraduates mentees have been members of other underrepresented groups.

Ph. D. Dissertations Supervised

Lyons, James I., 2016, "Arc-related Mesozoic Basins of Northern Mexico: their Origin, Tectonic Inversion and Influence on Ore Localization" (co-supervisor T. Lawton)

Present Position: Independent minerals exploration geologist, El Paso, TX

Li, Ning, 1998, "Depositional controls and genesis of the Jinding sandstone-hosted Zn-Pb deposit, Yunnan province, southwest China".

Present Position: Exploration Data Management, Saudi Aramco, Dhahran, Saudi Arabia

Edgerton, David G., 1997, "Geologic models of sediment-buffered hydrothermal vents: a case study of the Red Dog Zn-Pb-Ag orebody, western Brooks Range, Alaska"

Present Position: Senior Hydrogeologist, U.S. Environmental Protection Agency, New York

Rubin, Jeffrey N., 1996, "Skarn formation and ore deposition at the Gunung Bijih Timur (Ertsberg East) Complex, Irian Jaya, Indonesia".

Present Position: Emergency Management Program Manager, Tualatin Valley Fire & Rescue, East Division, Oregon City, OR

Farr, Mark R., 1988, "Compositional variation of late dolomite cement as a guide to parent fluid flow directions in the Cambrian Bonnetterre Formation, southeast Missouri" (co-supervisor L. Land).

Present Position: Research Associate, Geology Department, University of Kansas, Lawrence, KS

M. S. Theses Supervised (42 completed 1980 to 2018):

Cappelen, Ulrik, in progress, "Analyzing rare earth element (REE) relationships in the Fen Mineral Complex (Norway) using statistical models: Can REE and other mineral products be extracted for the European energy transition supply chain?" (Co-supervisor Michael Pyrcz, Petroleum & Geosystems Engineering) Energy and Earth Resources Program

Ugurhan, Mert, 2018, "Characterization and timing of the Cave Peak porphyry molybdenum system, Culberson County, Texas" (Co-supervisor Brent Elliott, BEG)

Present Position: Geologist, General Directorate of Mineral Research and Exploration of Turkey

Wright, Kylie A., 2017, "Cu-Fe Sulfides and Au Mineralization in the Ertsberg-Grasberg District of Papua, Indonesia using Volumetric Analysis and Trace Element Geochemistry". (Co-supervisor Rich Ketcham)

Present Position: Sustainability Engineer, Southwestern Energy, Houston, TX

Williams, Nathan, 2017, "Prospectivity for metallic resources in basal Paleozoic strata in central Texas".

Present Position: Geoscientist, U.S. Army Corps of Engineers, Nashville, TN

Ledvina, Matt, 2017, "Relationship of pluton- and wall rock-hosted Cu-Au mineralization, Ertsberg East Complex, Ertsberg-Grasberg District, Papua, Indonesia."

- Present Position: Geologist, Hess Corp., Houston, TX
- Frelinger, Stefanie N., 2015, "Chronology of Laramide Magmatism and Stockwork Fracture Filling at the Red Hills Porphyry Mo-Cu Deposit, Presidio County, Texas" (Co-supervisor Brent Elliott, BEG)
 Present Position: Development Geologist, Cantium Oil & Energy, Covington, LA
- O'Neill, L. Christine, 2014, "REE-Be-U-F mineralization of the Round Top laccolith, Sierra Blanca Peaks, Trans-Pecos Texas"
 Present Position: Senior Geologist, AngloGold Ashanti, Reno, NV
- Pierre, Jon Paul, 2014, "Impacts of Above-ground Activities in the Eagle Ford Shale Play on Landscapes and Hydrologic Flows, La Salle County, Texas" (Co-supervisor Michael Young, BEG)
 Energy and Earth Resources Program.
 Present Position: Bureau of Economic Geology, University of Texas at Austin, Austin, TX
- Kallstrom, Michael, 2012, "Fluid and Metal Sourcing for the Native Silver Deposits in the Batopilas Mining District, Chihuahua, Mexico".
 Present Position: Manager, Nature's Treasures, Austin, TX
- Michaelides, Michael, 2011, "Depositional and Diagenetic Processes in the Formation of the Eocene Jackson Group Bentonites, Gonzales County, Texas"
 Present Position: Geoscientist, Tokyo Gas America, Houston, TX
- Gryger, Sean M., 2010, "Geologic Framework of the Sierra Mojada Mining District, Coahuila, Mexico: An Integrative Study of a Mesozoic Platform-Basin Margin"
 Present Position: Geologist, BMO Capital Markets, Houston, TX
- Ahn, Hyein, 2010, "Mineralogy and Geochemistry of the Non-sulfide Zinc Deposits in the Sierra Mojada District, Coahuila, Mexico"
 Present Position: SEM specialist, ConocoPhillips, Bartlesville, OK
- Baline, Lorraine, 2007, Hydrothermal Fluids and Cu-Au Mineralization of the Deep Grasberg Porphyry Deposit, Papua, Indonesia.
 Present Position: Lead Geologist, EOG Resources Inc., Fort Worth, TX
- Gandler, Laurel, 2006, "Calc-silicate alteration and Cu-Au mineralization of the Deep MLZ skarn, Ertsberg District, Papua, Indonesia".
 Present Position: Staff Geoscientist, W&T Offshore, Houston, TX
- Rambaud, Fabienne, 2005, "Nature and source of the mineralizing fluids at the Presidio mine, Shafter district, Presidio County, Texas".
 Present Position: Geoscientist, Texas Commission on Environmental Quality, Austin, TX
- Mote, Alison, 2004, "A kinematic investigation of the Cripple Creek District, central Colorado: Implications regarding structural controls influencing the location and distribution of gold ore zones".
 Present Position: Geoscience Course Manager, OnRamps program, Office of Strategy and Policy, University of Texas at Austin
- McGuire, James, 2003, "Geology and carbonate-replacement Zn-Pb-Ag mineralization in the Hecla area, southwestern Montana".
 Present Position: Regional Counsel, US Environmental Protection Agency, Dallas, TX
- Head, Jennifer, 2002, "Stratigraphic and structural controls of Permian carbonate-hosted silver (Pb-Zn) mineralization, Shafter Presidio County, Texas".
 Present Position: Staff Geologist, Conoco-Phillips Inc., Anchorage, AK
- Muzaffar, Asif, 2001, "Relations among sedimentation, diapirism, and cap rock formation at the Davis Hill salt dome, Liberty Co., Texas".
 Present Position: Geologist, Saudi Aramco, Dharan, Saudi Arabia
- Gilmer, Amy K., 2001, "Age and characterization of the Red Hills porphyry copper-molybdenum deposit and its relationship to the Chinati Mountains caldera, Presidio County, Texas".
 Present Position: Geologist, US Geological Survey, Denver, CO
- Harrison, Jeffrey, 1999, "Hydrothermal alteration and fluid evolution of the Grasberg porphyry Cu-Au deposit, Irian Jaya, Indonesia".
 Present Position: Geologist, Conoco-Phillips, Anchorage, AK
- Smith, Virginia, 1998, "Geology and geochemistry of hydrothermal alteration at the Tyrone porphyry copper deposit, New Mexico".
 Present Position: Geoscientist, Offshore Division, Chevron-Exxon, New Orleans, LA

- Smith, Jennifer S., 1996, "Origins of calcite and pyrite cements in the Carrizo Sandstone on the flank of Butler dome, East Texas Basin: Petrographic and isotopic evidence for fluid circulation near salt domes".
 Present Position: VP of Geoscience, Ensign Natural Resources, Houston, TX
- Mertig, Heidi J., 1995, "Origin of the Dom copper skarn deposit, Ertzberg district, Irian Jaya, Indonesia".
 Present Position: Engineering Geologist, Barrick Corp., Elko, NV
- Agee, William N., Jr., 1990, "Relation of metal sulfide mineralization to anhydrite cap rock formation, Hockley salt dome, Harris County, Texas".
 Present Position: VP Global Operations, Harvey Rock Physics, Sugar Land, Texas
- Coel, Becky J., 1990, "Biogeochemical cycling of gold in a placer deposit, Livengood, Alaska".
 Present Position: Los Alamos National Laboratory, Los Alamos, NM
- Prikryl, James P., 1989, "Origin of salt dome limestone cap rocks in the U.S. Gulf Coast".
 Present Position: Research Scientist, Southwest Research Institute, San Antonio, TX
- Chieruzzi, Gianni O., 1988, "Geochemical flow modeling of supergene alteration of porphyry copper deposits". (Co-supervised with L. Lake, Department of Petroleum Engineering).
 Present Position: Chester Engineers, Pittsburgh, PA
- Standen, Allan R., 1987, "Mineralization of the Scotia-Vanderbilt vein system, Silverton, Colorado".
 Present Position: Geologist, LBG-Guyton; Austin, TX
- Gutierrez, Gay N., 1987, "Controls on ore deposition in the Lamotte Sandstone, Goose Creek mine, Indian Creek subdistrict, southeast Missouri".
 Present Position: Project Hydrogeologist; OHM Corporation; Austin, TX
- Vasconcelos, Paulo, 1987, "Gold geochemistry in a semiarid weathering environment: a case study of the Fazenda Brasileiro deposit, Bahia, Brazil".
 Present Position: Professor, University of Queensland, Brisbane, Queensland, Australia.
- Rubin, Jeffrey N., 1986, "Mineralogy and ore genesis at the San Martin mine, Zacatecas, Mexico".
 Present Position: Emergency Management Program Manager, Tualatin Valley Fire & Rescue, East Division, Oregon City, OR
- Bobeck, Patricia A., 1985, "Igneous petrology and structural geology of Nine-Point Mesa, Brewster County, Texas". (co-supervised with D. Barker)
 Present Position: Geologist; Texas Natural Resources and Conservation Commission; Austin, TX
- Hardwick, James F., Jr., 1984, "Epithermal vein and carbonate replacement mineralization related to caldera development, Cunningham Gulch, Silverton, Colorado".
 Present Position: Consulting Geologist; Lafayette, LA
- Barrie, Tucker, 1984, "Geology of the Khayyam and Stumble-on Deposits, Prince of Wales Island, Alaska".
 Present Position: Research Scientist; Geological Survey of Canada; Ottawa, Ontario
- Johns, David A., 1983, "Geologic controls of massive sulfide mineralization in late Mesozoic metamorphic rocks, Tizapa, Estado de Mexico, Mexico".
 Present Position: Geologist, City of Austin Department of Environmental Protection, Austin, TX
- Logan, William S., 1983, "Geology of the Agalteca magnetite skarn deposit, central Honduras".
 Present Position: Director, International Center for Integrated Water Resources Management (UNESCO), Alexandria, VA
- Herwig, Jonathan C., 1982, "Stratigraphy, structure, and massive sulfide potential of late Mesozoic metamorphic rocks near El Cirian, Estado de Mexico, Mexico".
 Present Position: Technical Director; Ogden Consultants; Honolulu, HI
- Craig, Lisa E., 1982, "Silicification and porosity development in upper Knox Group carbonate rocks, Burkesville, Kentucky".
 Present Position: Geologist; Environmental consulting group; New Orleans, LA
- Allie, Adrienne D., 1981, "Stratigraphic controls of carbonate-hosted sulfide mineralization, Iron Rock Creek area, Blanco and Gillespie Counties, Texas".
 Present Position: Senior Geologist; Shell Offshore, Inc.; New Orleans, LA
- Immitt, James P., 1981, "Skarn and epithermal vein mineralization in the San Carlos caldera region, northeastern Chihuahua, Mexico".

Present Position: Independent Geologist and Financial Analyst, Houston, TX

Masterson, W. Dallam, 1981, "Hydrothermal alteration and mineralization, Velvet district, Nevada".

Present Position: Manager, North Slope Satellite Exploration, Phillips Alaska, Anchorage, AK
 Fredericks, Paul E., 1980, "Volcanic lithofacies and massive sulfide mineralization, East Shasta, California"

Present Position: Principal; MineraLogic; Missoula, MT

I have served on supervisory committees of more than 20 Ph.D. candidates and more than 40 Master's candidates in the Department of Geological Sciences. I have served on supervisory committees of one Ph.D. and three Master's candidates in the Department of Petroleum Engineering. I have served on the supervisory committees of more than 10 Master's students in the Energy and Earth Resources program.

I served as External Examiner for Ph.D. dissertations at the University of North Carolina (H. Posey, 1986), Dalhousie University (C. Ravenhurst, 1987; N. Wilson, 1998), University of Queensland (S. Andrews, 1998), and University of Western Australia (R. Kempton, 1999).

Undergraduate Honors and Jackson Scholars Students

Hoffman, Collin, in progress, "Critical mineral resource assessment using Leapfrog modeling, Cave Peak porphyry system, Culberson County, Texas"

Quintero, Thomas, 2020, "Cementation of Solution-Collapse Breccias in the Lower Ordovician Upper Knox Group, Central Tennessee"

Present Position: Assistant Project Manager & GIS Technician, Public Management Inc., Houston

Mills, Stephanie, 2009, "Relation of calcite chemistry and fluorescence in silver-rich veins, Batopilas, Mexico".

Present Position: Senior Geologist - Metals Mining, Utah Geological Survey, Salt Lake City, UT

Undergraduate Visiting Student

Ferraz da Costa, Marilia, 2019, "Orogenic gold ores in three-dimensions: A case study of distinct mineralization styles at the world-class Cuiabá deposit, Brazil, using high-resolution X-ray computed tomography on gold particles". (awarded first prize for the 2020 Society of Economic Geologists' Student Research Showcase, in competition with graduate students – see <https://www.jsg.utexas.edu/dgs/2020/12/undergraduate-images-gold-to-win-gold/>) (study published in *Ore Geology Reviews* doi.org/10.1016/j.oregeorev.2021.104584)

POST-DOCTORAL AND VISITING SCIENTISTS:

Huan-Zhang Lu, Professor, Université du Québec à Chicoutimi, Chicoutimi, Québec, Canada, 1998
 Stay in Austin, Research on porphyry ore formation and on bacteriogenic calcite formation; funding from the Université du Québec à Chicoutimi (sabbatical).

Eric James, Research Scientist, University of Texas at Austin, 1995-97, Research on isotopic character of Ertsberg district Cu-Au deposits, Irian Jaya, Indonesia; Funding from Freeport-McMoRan.

Youn-Ho Jang, Associate Professor, Samchock Technical College, Kangwon-do, Korea, 1989-90 Stay in Austin, Research on Samhwa skarn iron deposits, Korea (co-sponsored with D. Barker); funding from Korean federal science agency.

Aroldo Misi, Professor, Federal University of Bahia, Salvador, Bahia, Brazil, 1988-90 Stay in Austin, Research on phosphate and metal sulfide deposits in Late Proterozoic carbonate strata, Irece, Bahia; funding from CNPQ (Brazilian federal science agency).

Harry H. Posey, 1987-88 Stay in Austin, Research on salt dome cap rock geochemistry; funding from National Science Foundation grant EAR-8709319.

MAJOR RESEARCH SUPPORT:

- 2022-25 National Science Foundation, Petrology & Geochemistry (\$372,876): “Constraining 500 million years of fluid-rock interactions, Lower Ordovician Knox Group, Tennessee-Kentucky” (PI E. Ukar; Co-PI R. Kyle) (in review)
- 2021-23 Department of Energy, NETL Carbon Ore, Rare Earth and Critical Mineral (CORE-CM) Initiative for U.S. Basins: “Assessment of rare earth elements and critical minerals in coal and coal ash in the U.S. Gulf Coast” (Total award, \$1.5 million; PI B. Scanlon, BEG)
- 2015-21 National Science Foundation, International Research Experiences for Underrepresented Undergraduate Students (\$250,000): “Closing Oceans: Assessing the dynamics of Turkish suture zones” (PI E. Catlos; Co-PI R. Kyle, B. Elliott)
- 2015-18 Designated Fellowship, Studies of Gold Mineralization in Switzerland: Swiss Gold (\$7,500)
- 2014 JSG Solid Earth Theme Seed Grant (\$15,230), Source Terranes in Southern Laurentia during the Drowning of the Great Unconformity: Detrital Zircon Geochronology of the Cambrian Hickory Sandstone in Central Texas (Co-PI Stockli, Elliott, and McBride)
JSG Surface & Hydrologic Processes Theme Seed Grant (\$11,325), Integration of the Modern Rio Grande from west Texas to the Gulf of Mexico: Magnetostratigraphy of the Presidio Bolson, Trans-Pecos, Texas (Co-PI Jack Holt)
- 2011-18 PT Freeport Indonesia Research Grant (\$500,000): “Ertsberg District Ore Studies”
- 2009-10 PT Freeport Indonesia Research Grant (\$60,000): “Ertsberg District Ore Studies”
- 2008-09 PT Freeport Indonesia Research Grant (\$20,000): “Ertsberg District Ore Studies”
- 2007-08 PT Freeport Indonesia Research Grant (\$40,000): “Ertsberg District Ore Studies”
- 2006-07 PT Freeport Indonesia Research Grant (\$40,000): “Ertsberg District Ore Studies”
- 2005-06 Geology Foundation Seed Grant (\$20,000): HRXCT Investigations of Fluid Inclusions” (Kyle and Ketcham)
- 2005-06 PT Freeport Indonesia Research Grant (\$40,000): “Ertsberg District Ore Studies”
- 2005-06 National Science Foundation Equipment Grant (\$107,400): “Acquisition of a Fourier Transform Infrared (FTIR) Spectroscopy System: Measuring Volatiles in Magmatic and Ore-Forming Systems” (Co-PI J. Gardner and J. Lassiter).
- 2004-05 PT Freeport Indonesia Research Grant (\$40,000): “Use of High Resolution X-ray Computed Tomography in Ore Mineralogy”.
- 1997-00 American Chemical Society Petroleum Research Fund Grant PRF#32557-AC8 (\$50,000): “Bacterial Processes in Sedimentary Environments: Origin of “Bacteriogenic” Calcite-Sulfur Concentrations in the Delaware Basin, West Texas”.
- 1994-00 Freeport Indonesia Ertsberg (Gunung Bijih) District Research Grant (\$355,000): “Tectonics and Mineral Deposits of Irian Jaya, Indonesia: Phase II Ore Studies”.
- 1995-98 National Science Foundation Research Grant EAR-9405546 (\$110,000): “Genesis of Metallic Mineralization in Continental Rift Basins: A Study of Sandstone-hosted Pb-Zn-Sr Deposits in a Tertiary Rift Basin, Yunnan, China”.
- 1989-93 Freeport Indonesia Ertsberg (Gunung Bijih) District Research Grant (\$662,000): “Tectonics and Mineral Deposits of Irian Jaya, Indonesia” (M. Cloos Co-PI).
- 1987-89 National Science Foundation Research Grant EAR-8709319 (\$105,730): “Petrologic, Geochemical, and Isotopic Investigation of Gulf Coast Salt Dome Cap Rocks”.
- 1987-89 American Chemical Society Petroleum Research Fund Grant PRF#19624-AC2 (\$32,595): “Paleomagnetic Investigation of Salt Dome Growth Rates” (W. Gose Co-PI).

1985-87 National Science Foundation Research Grant EAR-8407736 (\$117,000): "Nature and Origin of Sulfide Deposits in Gulf Coast Salt Dome Cap Rocks".

More than 30 other companies have provided in-kind and local logistical support for student research projects totaling several million dollars, exclusive of invaluable proprietary data. In addition, cooperative research agreements have been established at various times with federal agencies in the United States (U. S. Geological Survey), Canada (Geological Survey of Canada), China (Institute for Geosciences), Mexico (Centro de Geociencias, Consejo de Recursos Minerales), Honduras (Instituto Geografico Nacional), and Brazil (CNPQ). These agencies provided logistical, per diem, and analytical support for research projects in their countries. The University Research Institute has contributed funding in support of minor research activities, typically as seed money acquired through competitive awards to stimulate the development of external grant proposals.

INVITED LECTURES (Last 25 Years):

- 2023 "Critical minerals under our feet?", OLLI Program, University of Texas at Austin
- 2022 "Minerals exploration: discovery and evaluation of future mineral resources", GEO 386R Geology of Earth Resources, University of Texas at Austin
 "Geology of precious and critical metals deposits", GEO 386R Geology of Earth Resources, University of Texas at Austin
 "The role of industrial minerals in the low-carbon energy future": 58th Forum on the Geology of Industrial Minerals
 "Gas analysis from domal salt: Implications for subsurface energy storage": GEOH2 Workshop, Bureau of Economic Geology (w/ Moscardelli and Zhang)
- 2021 "Waste not, want not: Potential contributions to U.S. critical minerals supply from expatriated bauxite residue" GeoGulf 2021, Critical elements for renewable energy and storage, Austin.
- 2020 "Earth resources and sustainable energy challenges", BDP 101 Environmental Change and Sustainability, University of Texas at Austin
- 2018 "Giant Pliocene porphyry-skarn Cu-Au deposits, Ertsberg-Grasberg District, Papua, Indonesia: Exploration, production, and research in a challenging environment" and "Application of high resolution X-ray computed tomography in the geosciences": Earth Sciences Department, Tennessee Technological University, Cookeville, TN
- 2016 "High resolution X-ray computed tomography applications in petrology": Geology Department, Comenius University, Bratislava, Slovakia
- "High resolution X-ray computed tomography applications in the geosciences: Geology Department, University of Nebraska Omaha, Omaha, NE.
- "Texas Industrial Mineral and Metal Resources – An Extended Permian Basin Perspective": Permian Basin Section – SEPM, Midland, TX
- 2014 "Stratigraphic inheritance controls of skarn-hosted metal concentrations: Ore controls for Ertsberg-Grasberg District Cu-Au skarns, Papua, Indonesia" (Keynote presentation) International Association on the Genesis of Ore Deposits, Kunming, China
- "Giant Pliocene porphyry-skarn Cu-Au deposits, Ertsberg-Grasberg District, Papua, Indonesia: Exploration, production, and research in a challenging environment", and "High resolution X-ray computed tomography studies of geological materials: Contributions to gold ore genesis and processing": Geology Department, University of Barcelona, Spain.

- 2013 “Lone Star Silver rides again: The reopening of the Shafter silver mine”: Austin Geological Society
- “Geology and mineralogy of the Shafter silver deposit, Presidio County, Texas”: Austin Gem & Mineral Society
- “Giant Pliocene porphyry-skarn Cu-Au deposits, Ertzberg-Grasberg District, Papua, Indonesia: Exploration, production, and research in a challenging environment”, and “High resolution X-ray computed tomography studies of geological materials: Emphasis on Contributions to Gold Ore Genesis and Processing”: Geology Department, Dokuz Eylül University, Izmir, Turkey
- 2012 “Sierra Mojada Ag-Pb-Zn District, Coahuila: An Endmember Carbonate Replacement Mineralization System?” Cordilleran Section, Geological Society of America, Ore Deposits of the Cordillera Session.
- 2010 “The Central Texas Lead District: Geologic, geochemical, and genetic comparisons to the supergiant MVT deposits of southeast Missouri”: Geological Society of America, North Central–South Central Sectional Meeting, Ore Deposits of the Central U.S. Symposium
- 2009 “Stratigraphic controls of calc-silicate alteration and Cu-Au mineralization in the Deep MLZ skarn, Ertzberg District, Papua, Indonesia” 2009 Joint Assembly, American Geophysical Union and Geological Association of Canada, Toronto, Ontario, Canada
- 2008 “Geology of Texas Industrial Minerals”: 44th Forum on the Geology of Industrial Minerals, Oklahoma City, OK
- “Regional Geology of Texas and Oklahoma”: Transportable Array Earthquake Recording Station Reconnaissance Workshop (IRIS), Jackson School of Geosciences, The University of Texas at Austin
- 2007 “High Resolution X-ray Computed Tomography Studies of Geological Materials: Emphasis on Contributions to Gold Ore Genesis and Processing”: Department of Earth Sciences, The University of Hong Kong.
- “Application of high resolution X-ray computed tomography to fluid inclusion studies of opaque minerals”: International Conference on Geofluids and Fluid Inclusions (Guangzhou, China)
- 2006 “High Resolution X-ray Computed Tomography Studies for Geological Materials: Emphasis on Contributions to Gold Ore Genesis and Processing”: Seminario de Geociencias, Centro de Geociencias, UNAM, Queretaro, Mexico
- 2005 “Texas Energy Resources”: UT Forum Adult Enrichment Program, University of Texas at Austin Continuing Education Program, Austin, TX
- 2004 “Geology of Texas Dimension Stone”, Association for Preservation Technology Texas Chapter and the Building Industry Council of Preservation, 2004 Preservation Day Seminar, Austin, TX
- 2003 “Historical Silver Mining in Central Texas: Myth vs. Reality”, Society for Mining, Metallurgy, and Exploration, Central Texas Section, Austin, TX.
- 2002 “The Economic Geology of Microbes: Relation between Mineral Resources and Bacterial Processes”, and “Giant Pliocene porphyry-skarn Cu-Au deposits, Ertzberg District, Papua, Indonesia: Exploration, production and research in a challenging environment”: Society of

Economic Geologists Thayer Lindsley Lecture Tour (*17 presentations at 12 sites in U.S., Canada, & Mexico*)

2001 “Origin of the Tertiary sandstone-hosted Jinding Zn-Pb-Ag deposit, Yunnan, China” Society of Economic Geologists’ Symposium on Sediment-Hosted Lead-Zinc Deposits, Geological Society of America Annual Meeting, Boston, MA.

2000 “Formation of giant Pliocene porphyry-skarn Cu-Au deposits, Ertzberg District, Irian Jaya, Indonesia”, and “Dynamic interaction of salt tectonics, depositional and diagenetic systems, and mineralization in the Gulf of Mexico Basin”, Institute for Science and Technology, Xian, China.

“Formation of giant Pliocene porphyry-skarn Cu-Au deposits, Ertzberg District, Irian Jaya, Indonesia”, and “Dynamic interaction of salt tectonics, depositional and diagenetic systems, and mineralization in the Gulf of Mexico Basin”, Xinjiang Bureau of Geology and Mineral Resources, Urumqi, China.

“Origin of the Tertiary sandstone-hosted Jinding Zn-Pb-Ag deposit, Yunnan, China”, Society of Economic Geologists’ Symposium on New Silver Deposits, Society for Mining, Metallurgy, and Exploration, Salt Lake City, UT.

“Relation of energy and mineral resources in the Gulf of Mexico Basin to the dynamic interaction of salt tectonics, depositional systems, and formation waters”, Department of Geosciences, The University of Tulsa, Tulsa, OK

“The Geologic History of Texas: The Making of Texas over the Past 1.5 Billion Years”, Outreach Lecture Series, Department of Geological Sciences, University of Texas at Austin www.esi.utexas.edu/k-12-a-the-community/hot-science-cool-talks/lecture-archives/geologic-history-of-texas

1999 “A Century of Fire and Brimstone: The Rise and Fall of the Gulf Coast Frasch Sulfur Industry”, Austin Geological Society, Austin, TX

“Delaware Basin sulfur deposits: Genetic relations among evaporites, petroleum, bacteria, formation waters, and tectonics”, New Mexico Bureau of Mines and Mineral Resources, Socorro, NM

“Formation of the supergiant Grasberg porphyry Cu-Au deposit, Irian Jaya, Indonesia”, Department of Geology, University of Chile, Santiago, Chile.

“Metallogeny of Zn-Pb-Ag deposits in sedimentary basins: characteristics and genesis of the Tertiary sandstone-hosted Jinding Zn-Pb deposit, Yunnan, China”, Denver Regional Exploration Geologists Society, Denver, CO.

“A century of fire and brimstone: The rise and fall of the Gulf Coast Frasch sulfur industry”, Society for Mining, Metallurgy, and Exploration, Central Texas Section, San Marcos, TX.

1998 “Formation of giant porphyry-skarn Cu-Au deposits associated with Pliocene intrusions into a continental margin, Ertzberg District, Irian Jaya, Indonesia”, Department of Earth Science, Dalhousie University, Halifax, Nova Scotia, Canada.

“Dynamic interaction of salt tectonics, depositional and diagenetic systems, and mineralization in the Gulf of Mexico Basin”, Centre for Petroleum Geology and Geophysics, University of Adelaide, South Australia, Australia.

- “Exploration and production of mineral resources in a challenging environment, Ertsberg Cu-Au District, Irian Jaya, Indonesia”, and “Dynamic interaction of salt tectonics, depositional and diagenetic systems, and mineralization in the Gulf of Mexico Basin”, Geological Society of Australia, Broken Hill Section, New South Wales, Australia
- “Sedimentary Pb-Zn Deposits” (two-day short course), The Earth Resources Foundation, University of Sydney, Sydney, New South Wales, Australia
- “Dynamic interaction of salt tectonics, depositional and diagenetic systems, and mineralization in sedimentary basins: The Gulf of Mexico Basin example” (Turner Lecture), and “Exploration and production of mineral resources in a challenging environment, Ertsberg Cu-Au District, Irian Jaya, Indonesia”, Dept. of Geological Sciences, University of Michigan, Ann Arbor, MI
- 1997 “Formation of giant porphyry-skarn Cu-Au deposits associated with Pliocene intrusions into a continental margin, Ertsberg District, Irian Jaya, Indonesia”, Mackay School of Mines, University of Nevada, Reno, NV
- “Challenges in exploration and production of mineral resources in a dynamic environment, Ertsberg Cu-Au District, Irian Jaya, Indonesia”, Society for Mining, Metallurgy, and Exploration, Central Texas Section, San Antonio, TX.
- 1996 “Magmatic-hydrothermal – epithermal transition in the Ertsberg district, Irian Jaya, Indonesia”, Society of Economic Geologists symposium on the magmatic-hydrothermal – epithermal transition, Geological Society of America Annual Meeting, Denver, CO
- “Bacterial processes in salt dome cap rock formation, Gulf Coast Basin, southern North America”, Symposium on Geomicrobiology, Geological Association of Canada, Winnipeg
- “Pliocene porphyry-skarn Cu-Au deposits of the Ertsberg district, Irian Jaya, Indonesia”, Department of Geological Sciences, University of Tennessee, Knoxville, TN
- 1995 “Development of giant copper-gold deposits associated with Pliocene intrusions into a continental margin, Ertsberg district, Irian Jaya, Indonesia”, Economic Geology Division, Geological Society of South Africa - Kalahari Branch, Kuruman, South Africa.
- “Metallic deposits in the Gulf Coast Basin of southern North America: Diverse mineralization styles in a young sedimentary basin”, Society of Economic Geologists, International Field Conference on Carbonate-hosted Lead-Zinc Deposits, St. Louis, MO.
- “The origin of zinc-barite-fluorite deposits in Lower Ordovician carbonates, Tennessee”, Irish Association for Economic Geology Weekend Course, Models for Carbonate-hosted Base Metal Deposits, Killarney, Ireland.
- “Metallic deposits in the Gulf Coast Basin of southern North America: Diverse mineralization styles in a young sedimentary basin”, Irish Association for Economic Geology Weekend Course, Models for Carbonate-hosted Base Metal Deposits, Killarney, Ireland.
- “Diverse styles of sediment-hosted mineralization in the Gulf Coast Basin”, Symposium on The Impact of New Ideas in Southeastern Geology on Ore Depositional Models, Geological Society of America Southeastern Section, Knoxville, TN.
- “Pliocene porphyry-skarn Cu-Au deposits of the Ertsberg district, Irian Jaya, Indonesia”, Department of Geological Sciences, University of Texas at El Paso, El Paso, TX

"Pliocene porphyry-skarn Cu-Au deposits of the Ertsberg district, Irian Jaya, Indonesia",
Department of Geological Sciences, New Mexico State University, Las Cruces, NM.

"Pliocene porphyry-skarn Cu-Au deposits of the Ertsberg district, Irian Jaya, Indonesia",
Department of Earth Sciences, Tennessee Technological University, Cookeville, TN.

PUBLICATIONS

BOOKS:

- Nicot, J-P., Hebel, A.K., Ritter, S.M., Walden, S., Baier, R., Galusky, P., Beach, J., Kyle, R., Symank, L., and Breton, C., 2011, Current and projected water use in the Texas mining and oil and gas industry: Texas Water Development Board Contract No. 0904830939, Univ. Texas, Bur. Econ. Geol., 344 p.
- Kyle, J.R., Editor-in-Chief, 1990 to 2003, *Ore Geology Reviews*: v. 6 - 23.
- Kyle, J.R., ed., 2000, *Geology and historical mining, Llano Uplift region, central Texas*: Austin Geological Society, Guidebook 20, 111 p.
- Kyle, J.R., ed., 2000, *Exploration geochemistry: Ore Geology Reviews (Special Issue)*, v. 16, no. 3-4, p. 107-204.
- Kyle, J.R., ed., 1995, *Mineral resources of the Gulf Coast salt dome province*: Soc. Econ. Geol., Guidebook Series, v. 24, 126 p.
- Kyle, J.R., 1994, *The barite industry and resources of Texas*: Univ. Texas, Bur. Econ. Geol., Austin, Mineral Resources Circular No. 85, 86 p.
- Kyle, J.R., and Ulrich, M.R., 1993, *A tour of salt dome cap rock features, WinnRock quarry, Winn Parish, Louisiana: Fossil analog of modern petroleum seeps associated with salt structures in the offshore Gulf*: Am. Assoc. Petrol. Geol. field trip guidebook, New Orleans Geol. Soc., 48 p.
- Coel, R.J., Crock, J.G., and Kyle, J.R., 1991, *Biogeochemical studies of gold in a placer deposit, Livengood, Alaska*: Open-File Report 91-142, U. S. Geol. Surv., 51 p.
- Kyle, J.R., ed., 1990, *Industrial mineral resources of the Delaware Basin, Texas and New Mexico*: Soc. Econ. Geol., Guidebook Series, v. 8, 203 p.
- Posey, H.H., and Kyle, J.R., eds., 1988, *Fluid-rock interactions in the salt dome environment*: Chem. Geol. (Special Issue), v. 74, No.1/2, 188 p.
- Seni, S.J., and Kyle, J.R., eds., 1986, *Comparison of cap rocks, mineral resources, and surface features of salt domes in the Houston diapir province*: Guidebook, Annual Meeting, Geol. Soc. Amer., 260 p.

OTHER MAJOR PUBLICATIONS:

- Williams, N.D., Kyle, J.R., *A predictive exploration model for MVT Pb-Zn mineralization in Central Texas: Insights from the Southeast Missouri Lead District (in preparation)*.
- Kyle, J.R., Gilg, H.A., Appold, M., *Geochemistry of an active giant non-sulfide zinc system, Jinding, China: Relations between tectonics, climate, and supergene metal remobilization (in preparation)*
- Kyle, J.R., Holt, J.W., Galloway, W., *Dating the integration of the Rio Grande from the southern Rocky Mountains to the Gulf of Mexico: Geology (in revision, after review)*
- Kyle B.J., Kyle J.R., *Lithium mining and political institutions in Argentina, Bolivia, and Chile, in Hyles, J., ed., The Americas Reach Out—Exchanges of Culture, Policy, and Goods from 1492 to the Future, Proceedings, Eugene Scassa Mock Organization of American States Conference: Cambridge Scholars Press (in review)*
- Kyle, J.R., Quintero, T.R., Ukar, E., Miller, N.R., Elliott, S.J., Colbert, M., 2023, *Dolomite cement microstratigraphy: a record of brine evolution and ore precipitation mechanisms, upper Knox Group, Tennessee-Kentucky, USA: Geology*, v. 51. doi.org/10.1130/G50689.1
- Callahan, O.A, Eichhubl, P., Kyle, J.R., 2023, *Factors influencing rock strength and fluid flow at the basement-sediment interface from field and core-based observations, Llano Uplift, Texas, in Callahan, O.A, and Eichhubl, P., eds., The geologic basement of Texas: A volume in honor of Peter Flawn: Bureau of Economic Geology, University of Texas at Austin, Report of Investigations 286, ch. 8. doi:10.23867/RI0286C8*
- Catlos, E.J., Broska, I., Kohút, M., Etzel, T.M., Kyle, J.R., Stockli, D.F., Miggins, D.P., Campos, D., 2023, *Geochronology, geochemistry, and geodynamic evolution of Tatric granites from crystallization to exhumation (Tatra Mountains, Western Carpathians): Geologica Carpathica*, v. 73, p. 517-544. doi.org/10.31577/GeolCarp.73.6.1

- Kyle, J.R., Stockli, D.F., McBride, E.F., Elliott, B.A., 2023, Covering the Great Unconformity in southern Laurentia: Detrital zircon studies of provenance evolution during Cambrian marine transgression (Llano Uplift, Texas): *Geological Society of America Bulletin*, v. 134, doi.org/10.1130/B36389.1.
- Ferraz da Costa, M., Kyle, J.R., Lobato, L.M., Ketcham, R.A., Figueiredo e Silva, R.M., Fernandes, R.C., 2022, Orogenic gold ores in three-dimensions: A case study of distinct mineralization styles at the world-class Cuiabá deposit, Brazil, using high-resolution X-ray computed tomography on gold particles: *Ore Geology Reviews*, v. 140. doi.org/10.1016/j.oregeorev.2021.104584
- Kyle, J.R., Elliott, B.A., 2021, Texas mineral resources within or affected by Proterozoic basement architecture, *in* Callahan, O.A, and Eichhubl, P., eds., *The geologic basement of Texas: A volume in honor of Peter Flawn*: Bureau of Economic Geology, University of Texas at Austin, Report of Investigations 286, ch. 4. doi:10.23867/RI0286C4
- Villaseñor, G., Catlos, E.J., Broska, I., Kohút, M., Hraško, L., Aguilera, K., Etzel, T.M., Kyle, J.R., Stockli, D.F., 2021, Western Carpathian mid-Permian magmatism: Petrographic, geochemical, and geochronological data: *Data in Brief*, v. 36, #107026, 17 p. doi.org/10.1016/j.dib.2021.107026
- Villaseñor, G., Catlos, E.J., Broska, I., Kohút, M., Hraško, M., Aguilera, K., Etzel, T.M., Kyle, J.R., Stockli, D., 2021, Evidence for widespread mid-Permian magmatic activity related to rifting following the Variscan orogeny (Western Carpathians): *Lithos*, v. 390-391, #106083, 16 p.. doi.org/10.1016/j.lithos.2021.106083
- Magnall, J.M., Gleeson, S.A., Creaser, R.A., Paradis, S., Glodny, J., Kyle, J.R., 2020, A sub-seafloor barite replacement model at Macmillan Pass (Yukon, Canada) – Implications for the deposit footprint of clastic-dominant (CD-type) Zn-Pb±Ba systems: *Economic Geology*, v. 115, p. 961–979. doi.org/10.5382/econgeo.4730
- Williams, N.D., Elliott, B.A., Kyle, J.R., 2020, A predictive geospatial exploration model for Mississippi Valley type Pb-Zn mineralization in the Southeast Missouri Lead District: *Natural Resources Research*, v. 29, p. 285-310. doi:10.1007/s11053-020-09618-2
- Leys, C., Schwarz, A., Cloos, M., Widodo, S., Kyle, J.R., Sirait, J., 2020, Grasberg Cu-Au-(Mo) deposit: product of two overlapping porphyry systems, *in* Sillitoe, R.H., and others, eds., *Geology of the World's Major Gold Deposits and Provinces*: Society of Economic Geologists, Spec. Publ., Vol. 23, ch. 29, p. 599-620. doi:10.5382/SP.23.29
- Piccione, G., Rasbury, E.T., Elliott, B.A., Kyle, J.R., Jaret, S.J., Acerbo, A.S., Lanzirotti, A., Northrup, P., Wooton, K., Parrish, R.R., 2019, Vein fluorite U-Pb dating demonstrates post-6.2 Ma rare earth element mobilization associated with Rio Grande rifting: *Geosphere*, v. 15, p. 1958–1972. doi.org/10.1130/GES02139.1.
- Caesar, K.H, Kyle, J.R., Lyons, T.W., Tripathi, A., Loyd, S.J., 2019, Salt dome cap rock calcite formation by the anaerobic oxidation of methane: *Nature Communications*, v. 10, article 808. doi.org/10.1038/s41467-019-08687-z
- Kyle, J.R., Elliott, B.A., 2019, Past, present, and future of Texas industrial minerals: *Mining, Metallurgy & Exploration*, v. 36, p. 475–486. doi.org/10.1007/s42461-019-0050-1
- Kyle, J.R., 2018, *Industrial Minerals of Texas*: University of Texas at Austin, Bur. Econ. Geol., State Map Series, SM0011. <https://store.beg.utexas.edu/state-maps/2146-sm0011.html>
- Wafforn, S., Seman, S., Kyle, J.R., Stockli, D., Leys, C., Sonbait, D., Cloos, M., 2018, Andradite garnet U/Pb geochronology of the Big Gossan Skarn, Ertsberg-Grasberg Mining District, Indonesia: *Economic Geology*, v. 113, p. 769-778. doi: 10.5382/econgeo.2018.4569
- Kubač, A., Chovan, M., Koděra, P., Kyle, J.R., Žitňan, P., Lexa, J., Vojtko, R., 2018, Mineralogy of the epithermal precious and base metal deposit Banská Hodruša at the Rozália Mine (Slovakia): *Mineralogy and Petrology*, v. 112, p. 705-731. doi.org/10.1007/s00710-018-0558-y
- Kyle, J.R., Ahn, H., Gilg, H.A., 2018, Nature and origin of the nonsulfide Zn deposits in the Sierra Mojada district, Coahuila, Mexico: Constraints from regional geology, petrography, and isotope analyses: *Mineralium Deposita*, v. 53, p. 1095-1116. doi.org/10.1007/s00126-018-0797-1
- O'Neill, L.C., Elliott, B.A., Kyle, J.R., 2017, Mineralogy and crystallization history of a highly differentiated REE-enriched hypabyssal rhyolite: Round Top laccolith, Trans-Pecos, Texas: *Mineralogy and Petrology*, v. 111, p. 569-592. doi:10.1007/s00710-017-0511-5

- Elliott, B.A., Verma, R., Kyle, J.R., 2016, Prospectivity modeling for Cambrian-Ordovician hydraulic fracturing sand resources around the Llano Uplift, central Texas: *Natural Resources Research*, v. 25, p. 389-415. doi: 10.1007/s11053-016-9291-6
- Frelinger, S.N., Ledvina, M.D., Kyle, J.R., Zhao, D., 2015, Scanning electron microscopy cathodoluminescence of quartz: principles, techniques and applications in ore geology: *Ore Geology Reviews*, v. 65, p. 840-852. doi: org/10.1016/j.oregeorev.2014.10.008
- Kyle, J.R., Ketcham, R.A., 2015, Application of high resolution X-ray computed tomography to mineral deposit origin, evaluation, and processing: *Ore Geology Reviews*, v. 65, p. 821-839. doi: org/10.1016/j.oregeorev.2014.09.034
- Kyle, J.R., McBride, E.F., 2014, Geology of the Voca frac sand district, western Llano Uplift, Texas, *in* Conway, F.M., ed., *Proceedings, 48th Annual Forum on the Geology of Industrial Minerals: Arizona Geological Survey Special Paper 9, Chapter 2*, p. 1-13.
http://repository.azgs.gov/uri_gin/azgs/dlio/1563
- Kyle, J.R., 2011, *Geology of Texas Industrial Minerals*, *in* Hunt, B. ed., *Austin Geological Society Bulletin*, v. 7, p. 29-43
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