

VITAE

L. Paul Knauth

B.A. 1966 University of Chicago
Ph.D. 1973 California Institute of Technology

POSITIONS HELD

2015-Present. Professor Emeritus, School of Earth and Space Exploration, Arizona State University
2006-2015 Professor, School of Earth and Space Exploration, Arizona State University
1982 - 2006 Professor, Department of Geology, Arizona State University
1982-1986 Chairman, Department of Geology, Arizona State University
1981-1994 Director, Arizona State University Summer Field Camp
1979-82 Associate Professor, Department of Geology, Arizona State University
1977-79 Associate Professor, Department of Geology, Louisiana State University
1972-77 Assistant Professor, Department of Geology, Louisiana State University

COURSES TAUGHT

(Underlined courses taught regularly or more than once)

Arizona State University (1979 - present)

Introduction to Geology General Geology Seminar in Isotope Geochemistry of Sedimentary Rocks
Physical Geology Isotope Geochemistry Advanced Geomorphology seminar
Sedimentology Geology Colloquium Environmental Aqueous Geochemistry seminar
Advanced Field Geology Summer Field Camp Seminar in Stable Isotope Geochemistry
Historical Geology Geology of the Grand Canyon Advanced Sedimentology
Co-Founder/Co-Director, ASU Summer Field Camp, 1980-1996
Astrobiology; Seminar in Astrobiology

Louisiana State University (1972-1979)

Introduction Physical Geology
Introduction Historical Geology
Mineralogy I
Mineralogy II
Physical Chemistry of Petrologic Systems
Isotope Geochemistry
Seminars in Isotope Geochemistry, Cherts, and Precambrian Sedimentation

THESIS AND DISSERTATIONS DIRECTED

Arizona State University

Marshall Haimson, M.S.	Ron Matheney, Ph.D.	Tracey Carpenter, M.S.
Mark Feldman, M.S.	Ray Kenny, Ph.D.	Gerald Pollack, M.S.
Mark Beeunas, M.S.	Bryce Winter, Ph.D.	Steve Skotnicki, Ph.D.
Joel Hennessy, M.S.	Donna Benson, M.S.	Blair Lindford, M.S.
Tracy Thorliefson, M.S.	Karen Katrinak, M.S.	Kathleen McFadden, M.S.
Jennifer Abrahams, M.S.	Paul Clemens, M.S.	Angela Bond, M.S.
Sarah Roberts, M.S.	Mary Doppler, M.S.	Michael Sheehan, M.S.
Bryce Winter, M.S.	Katrien van der Hoeven, M.S.	
Anthony Guerrea M.S.	Kerrie Neet, M.S.	
Courtney Brand, M.S.	Merry Wilson Nowicki, M.S.	

Louisiana State University
John Klasik, Ph.D.
Allen Ambuehl, M.S.
Daphne Jones, M.S.

LABORATORIES CONSTRUCTED

(Hands-on, including most of the glassblowing, metal vacuum line fabrication, mass spectrometer reconstruction, and electronic wiring)

(1979-2015) Stable Isotope Laboratory, Arizona State University: 4 Isotope Ratio Mass Spectrometers, ion chromatograph, 6 extraction lines.

(1972-1979) Stable Isotope Laboratory, Louisiana State University: Isotope Ratio Mass Spectrometer, 2 extraction lines.

EDITORIAL POSITIONS

Associate Editor, Bulletin of Geologic Society of America. 1994-2001.

Associate Editor, Journal of Sedimentary Petrology, 1989-1992.

Associate Editor, Geology, 1983-1984.

Guest Editor, Proceedings National Academy of Sciences

TEACHING AWARDS FROM ASU STUDENTS

(Thank you, students!)

FROM ASU GEOLOGY STUDENTS (Presented at Annual Banquet):

TEACHER OF THE YEAR (Also called "Outstanding Professor" or "Student Appreciation Award"):

1990, 1994, 1995, 1997, 1998, 2008

BEST FIELD TRIP

1999, 2000

FROM ASU STUDENTS AT LARGE:

2002 "[Last Lecture](#)" (No, not an invitation to leave, but an honor to be 1 of 3 selected annually to present an evening lecture as if it were the last lecture you would ever give. Mine was "What is Nature Doing? Campfire Reflections on the History of Life in the Cosmos". April 24, 2002.

Leader For [Geology Department Public Field Trips Outreach Program](#)

1989-present

1-4 public field trips each year including annual raft trip down Grand Canyon. Also, Death Valley, Superstition Mountains, Western Arizona, Mogollon Rim area, and Yosemite/High Sierras

Elected Administrative Positions

Dean's Faculty Advisory Council, College of Liberal Arts and Sciences, Arizona State University, 1987-1989; 2005-2007; Chair, 2007.

Invited Seminar Speaker (Partial List)

Lamont-Doherty Geological Observatory
Phillips Petroleum Company Research Center
Chevron Oil Field Research Company (3 times)
University of Texas
University of Oklahoma (3 times)
Scripps Institute of Oceanography (2 times)
San Diego State University
Stanford University
Pennzoil Exploration Research
ARCO Exploration and Production Research (2 times)
AMOCO Production Company Research Laboratory (3 times)
U.S. Geological Survey, Flagstaff
University of Alberta
Battelle Memorial Institute
University of New Mexico (2 times)
Pennsylvania State University (3 times)
University of Arizona (3 times)
NASA Ames Research Center seminar series
California Institute of Technology (3 times)
Tulane University
University of California at Santa Cruz
University of Nevada, Las Vegas (2 times)
University of North Dakota
University of Texas at El Paso
Northern Illinois University
University of Chicago
University of Montana
UCLA (2 times)
University of Illinois (Walgreen Lecture, 2 times)
Yale University
Indiana University
New York Center for Studies on the Origin of Life (Rensselaer/SUNY Albany) (see/hear it:
<http://www.origins.rpi.edu/seminar.html> (10/23/00)
Lunar and Planetary Institute
University of California at Riverside (3 times)
Jet Propulsion Laboratory
Tellus World of Science, Edmonton, Alberta
Local: Arizona Hydrological Society (3 times)
Salt River Project Utility Company
U.S. Dept. Of Agriculture Water Conservation Lab
State of Arizona Dept. of Environmental Quality
Numerous talks to local astronomy clubs, citizen clubs, and associations

ARTICLES

Journal Listing: Science (3), Nature (4), Geology (4), Journal of Geophysical Research (2), Earth and Planetary Science Letters (2), Geochimica et Cosmochimica Acta (6) Journal of Geology (1), Journal of Sedimentary Petrology (5), American Mineralogist (1), Journal of Hydrology (1), Bulletin of the Geological Society of America (4), Economic Geology (1), Applied Geochemistry (1), Chemical Geology (1), Precambrian Research (2), Reviews in Mineralogy (1), Geochemical Society Special Papers (1), Nuclear and Chemical Waste Management (1), Icarus (1), Paleogeography, Paleoclimatology, Paleoecology (1), EOS, (1), Journal of Volcanology and Geothermal Research (1), Naturwissenschaften (1), Astrobiology (1), other (4).

Knauth, L.P. and S. Epstein, 1975, Hydrogen and Oxygen Isotope Ratios in Silica from the JOIDES Deep Sea Drilling Project: Earth and Planetary Science Letters 25 p. 1-10. (Reprinted in Benchmark Papers in Geology, Diagenesis of Deep-Sea Biogenic Sediments, G.J. Van der Lingen, ed., Dowden, Hutchison and Rose, Inc., 1977).

Knauth, L.P. and S. Epstein, 1976, Oxygen and Hydrogen isotope ratios in nodular and bedded cherts: Geochimica et Cosmochimica Acta 40, p. 1095-1108.

Lowe, D.R. and L.P. Knauth, 1977, Sedimentology of the Onverwacht Group (3.4 billion years), Transvaal, South Africa, and its Bearing on the Characteristics and Evolution of the Early Earth: Journal of Geology 85, p. 699-723.

Lowe, D.R. and L.P. Knauth, 1978, The oldest marine carbonate ooids reinterpreted as volcanic accretionary lapilli, Onverwacht Group, South Africa: Journal of Sedimentary Petrology 48, p. 709-722.

Knauth, L.P. and D.R. Lowe, 1978, Oxygen Isotope Geochemistry of Cherts from the Onverwacht Group (3.4 billion years), Transvaal, South Africa with Implications for secular variations in the isotopic compositions of cherts: Earth and Planetary Science Letters 41, p. 209-222.

Jones, D.R. and L.P. Knauth, 1979, Oxygen isotopic and petrographic evidence relevant to the origin of the Arkansas Novaculite (Devonian-Mississippian) of Arkansas and Oklahoma: Journal of Sedimentary Petrology 49, p. 581-598.

Knauth, L.P., 1979, A model for the origin of Chert in Limestone: Geology 7, p. 274-277.

Lowe, D.R. and L.P. Knauth, 1979, Reply to discussion on the oldest marine carbonate ooids reinterprets as volcanic accretionary lapilli, Onverwacht Group, South Africa: Journal of Sedimentary Petrology 49, p. 581-598.

Knauth, L.P., M.B. Kumar and J.D. Martinez, 1980, Isotope Geochemistry of Water in Gulf Coast Salt Domes: Journal of Geophysical Research 89, p. 4863-4871.

Knauth, L.P. and M. B. Kumar, 1981, Trace Water Content in Louisiana Salt Domes: Science, 213, p. 1005-1007.

Knauth, L.P. and S. Epstein, 1982, Nature of water in authigenic silica: American Mineralogist: 67, p. 510-520.

Knauth, L.P. and M.B. Kumar, 1983, Oxygen and Hydrogen Isotopic Character of Brine Leaks in the Avery Island Salt Mine, South Louisiana, U.S.A., Journal of Hydrology 66, p. 343-350.

Haimson, M. and L.P. Knauth, 1983, Stepwise Fluorination, A new approach for the isotopic analysis of hydrous minerals, Geochimica et Cosmochimica Acta 47, p. 1589-1595.

Hennessy, J. and L.P. Knauth, 1985, Isotopic variation in dolomite concretions from the Monterey Formation, California, Journal of Sed. Pet., v. 55, p. 120-130.

Beeunas, M. and L.P. Knauth, 1985, Preserved stable isotopic signature of subaerial diagenesis in the 1.2 B.Y., Mescal Limestone, Central Arizona: Implications for the timing and development of a vegetative land cover. Bull. Geol. Soc. Amer. 96, p. 737-745.

Force, E.R., B. Back, E.C. Spiker, and L.P. Knauth, 1986, A ground-water mixing model for the origin of the Imini manganese deposit (Cretaceous) of Morocco, Econ. Geol., 81, p. 65-79.

Knauth, L.P. and M. Beeunas, 1986, Isotope Geochemistry of fluid inclusions in Permian Halite with implications for the isotopic history of ocean water and the origin of saline formation waters. Geochimica et Cosmochimica Acta 50, p. 419-433.

Knauth, L.P. and M. Beeunas, 1987, Preserved stable isotope signature of subaerial diagenesis in the Mescal Limestone, Central Arizona: Reply to a discussion by Vahrenkamp and Rossinsky. Bull. Geol. Soc. Amer., v. 99, p. 596-597.

Knauth, L.P., 1988, Origin and Mixing History of Brines: Palo Duro Basin, U.S.A., Journal of Applied Geochemistry, v. 3, p. 455-474.

Werner, M.L., M. Feldman, and L.P. Knauth, 1988, Petrography and Geochemistry of Richton Dome, MS., Carock, Chemical Geology, v. 74, p. 113-135.

Tesoriero, A.J. and L.P. Knauth, 1988, The Distribution of Trace Water Around Brine Leaks in the Avery Island

Salt Mine: Implications for the Natural Migration of Water Salt, Nuclear and Chemical Waste Management; Radioactive Waste Management; v. 8, p. 189-197.

Matheney, R.K. and L.P. Knauth, 1989, Investigation of Oxygen Isotope Fractionation between Marine Biogenic Silica and Seawater, *Geochimica et Cosmochimica Acta* 53, p. 3207-3214.

Knauth, L.P. and S.K. Roberts, 1991, The Hydrogen and Oxygen Isotopic history of the Silurian-Permian hydrosphere as determined by direct measurement of Fossil Water. *Geochemical Society Special Publication No. 3*, p. 91-104.

Winter, B.L. and L.P. Knauth, 1992, Isotope Geochemistry of Carbonate Fracture Fills in the Monterey Formation, Calif. *Journal of Sedimentary Petrology*, 62, p. 208-219.

Winter, B.L. and L.P. Knauth, 1992, Isotope Geochemistry of Early Proterozoic Carbonate Concentrations in the Animikie Group of the Lake Superior Region: Evidence for anaerobic bacterial processes. *Precambrian Research* 54, p. 131-151.

Kenny, Ray and L.P. Knauth, 1992, Continental Paleoclimates from δD and $\delta^{18}O$ of Secondary Silica in Paleokarst Chert lags. *Geology*, v. 20, p. 219-222.

Knauth, L.P., 1992, Origin and diagenesis of cherts: An isotopic perspective in isotopic signatures and sedimentary records, N. Clauer and S. Chaudhuri (Eds.): *Lecture Notes in Earth Sciences #43*, Springer-Verlag, p. 123-152.

Winter, Bryce and L.P. Knauth, 1992, Stable isotope geochemistry of cherts and carbonates from the 2.0 Ga Gunflint Iron Formation: Implications for the depositional setting and the effects of diagenesis and metamorphism, *Precambrian Research*, v. 59, p. 283-313.

Knauth, L.P., 1993, Ancient Sea Water. (News and Views), *Nature*, v. 362, p. 290-291.

Hovorka, Susan D., L.P. Knauth, R. Stephen Fisher, and Guoqiu Gao, 1993, Marine to Non-Marine facies transition in Permian Evaporites of the Palo Duro Basin, Texas; *Geochemical Response. Bull. Geol. Soc. Amer.* 105, p. 1119-1134.

Matheney, R.K. and L.P. Knauth, 1993, New isotopic temperature estimates for early silica diagenesis, *Geology* 21, p. 519-522.

Horodyski, R.J. and L.P. Knauth, 1994, Life on Land in the Precambrian, *Science*, 263, p. 494-498.

Knauth, L.P. 1994 Petrogenesis of Cherts; in *Reviews in Mineralogy*, Vol. 29, Silica: Physical Behavior, Geochemistry, and Materials Applications, P.J. Heaney, C.T. Prewitt, G.V. Gibbs, Eds. *Mineralogical Soc. Amer.* 233-258.

Knauth, L.P. 1994, Life on land in the Precambrian - The Arizona connection; in *Fossils of Arizona*, Vol. II, D.Boaz, M. Dornan, S. Bolander, Eds. Mesa SouthWest Museum, Mesa Arizona, ISBN 0-935810-55-2, pp. 23-32.

Guerrera, A., Peacock, S., and Knauth, L.P. (1997) Large ^{18}O and ^{13}C depletions in greenschist facies carbonate rocks, western Arizona, *Geology*, 25, 943-946.

Knauth, L.P. (1998) Salinity history of the Earth's early ocean, *Nature*, 395, 554-555.

Eastoe, C.J., Long, A., and L.P. Knauth (1999) Stable chlorine isotopes in the Palo Duro Basin, Texas: Evidence for preservation of Permian evaporite brines. *Geochim. Cosmochim. Acta*, v.63, 1375-1382.

Knauth, L.P., Klonowski, S., Burt, D (2000) Ideas about the surface runoff features on Mars (letter). *Science*, 290, 711-712.

Kenny, R. and L.P. Knauth (2001) Stable isotope variations in the Neoproterozoic Beck Spring and Mesoproterozoic Mescal paleokarst: Implications for life on land in the Precambrian. *Bulletin Geologic Society of America*, 113, 650-658.

Knauth, L.P. and Burt, D.M. (2002) Eutectic brines on Mars: Origin and possible relation to young seepage features. (*Icarus*, v. 158, 267-271).

Knauth, L.P. (2003) Siliceous Sediments. *Encyclopedia of Sediments and sedimentary rocks*. G.V. Middleton, Ed. Kluwer Academic Publishers. Boston. Pp. 660-665.

Burt, D.R. and Knauth, L.P. (2003) Electrically conducting, Ca-Rich Brines, rather than water, expected in the Martian Subsurface. *Journal of Geophysical Research*, 108 (E4) 8026, doi:10.1029/2002JE001862, 2003.

Knauth, L.P. and D.R. Lowe (2003) Archean climatic temperature inferred from oxygen isotope geochemistry of cherts in the 3.5 Ga Swaziland Supergroup, South Africa. *Geological Society of America Bulletin*. 115, 566-580.

Knauth, L.P., Brilli, M., and Klonowski, S. (2003) Isotope geochemistry of caliche on basalt. *Geochimica et Cosmochimica Acta*, 67, 185-195. (Selected for inclusion in *Virtual Journal of Geobiology*, <http://earth.elsevier.com/geobiology>)

Knauth, L.P. (2005) Temperature and salinity history of the Precambrian ocean: Implications for the course of microbial evolution. *Paleogeography, Paleoclimatology, Paleoecology*, 219, 53-69.

Knauth, L.P., Burt, D.M., and Wohletz, K.H. (2005) Impact origin of sediments at the Opportunity landing site on

- Mars. *Nature*, 438, 1123-1128.
- Burt, D.M., Wohletz, K.H., and Knauth, L.P. (2006) Mars and Mine Dumps. *EOS, Transactions, American geophysical Union*, 87, no. 49, 549-552.
- Knauth, L.P. (2006) Signature Required. *Nature (News and Views)*, 442, 873-874.
- Skotnicki, S.J. and L.P. Knauth (2007) The middle Proterozoic Mescal Paleokarst, central Arizona, U.S.A.: karst development, silicification, and cave deposits. *Journal of Sedimentary Research*, 77, 1046-1062.
- Burt, D.M., Knauth, L.P., Wohletz, K.H., and Sheridan, M.F. (2008) Surge deposit misidentification at Spor Mountain, Utah and elsewhere: A cautionary message for Mars. *Journal of Volcanology and Geothermal Research*. 177, 755-759.
- Garvie, L., Knauth, L.P., Bungartz, F., Klonowski, S., Nash III, T., (2008) Life in extreme environments: survival strategy of the endolithic desert lichen *Verrucaria rubrocincta*. *Naturwissenschaften*, 95, 705-712.
- Ohmoto, H., Runnegar, B., Kump, L.R., Fogel, M.L., Kamber B., Anbar, A.D., Knauth, L.P., Lowe, D.R., Sumner, D.Y., Watanabe, Y. (2008) Biosignatures in Ancient Rocks: A Summary of Discussions at a Field Workshop on Biosignatures in Ancient Rocks. *Astrobiology*. 8, 883-895.
- Knauth, L.P. and Kennedy, M.J. (2009) The Late Precambrian Greening of the Earth. *Nature*. 460, 728-732.

TECHNICAL REPORTS

- Knauth, L.P. (1979) Isotopic Studies of Waters in Salt Mines, in an investigation of the utility of Gulf Coast salt domes for the storage or disposal of radioactive wastes, J.D. Martinez, ed., p. 197-219, LSU Institute for Environmental Studies E511-02511-A-1.
- Knauth, L.P. (1980) Trace Water Analysis of Salt and Isotopic Studies, in Report of the LSU Institute for Environmental Studies, E511-02500-Q-4, p. 20-27.
- Knauth, L.P. and M. Beeunas (1985) Origin of fluid inclusion water in bedded salt deposits, Palo Duro Basin, Texas, Office of Nuclear Waste Isolation Technical Report #569, Battelle Memorial Institute, 60 p
- Knauth, L.P. (1981) Light Element Isotopic Geochemical Analysis, Technical Report, ONWI-9(81-4), p. 90-92, Battelle Memorial Institute, Columbus, Ohio.
- Knauth, L.P. (1982) Light Element Isotopic Geochemical Analysis, 1982, Technical Report, 1982, ONWI-9(83-3), p. 72-74, Battelle Memorial Institute, Columbus, Ohio.
- Knauth, L.P. (1982) Light Element Isotopic Geochemical Analysis, 1982, Technical Report, ONWI-9(82-4), p. 80-82, Battelle Memorial Institute, Columbus, Ohio.
- Knauth, L.P. (1982) Light Element Isotopic Geochemical Analysis, 1982, Technical Report, ONWI-9(83-1), p. 47-49, Battelle Memorial Institute, Columbus, Ohio.
- Kreitler, C.W., J.B. Chapman, and L.P. Knauth (1984) Chemical and isotopic composition of waters from the Salina Ometepc. Baja California, Texas Bureau of Economic Geology, OF-WTWI-1984-41, 30 p.
- Knauth, L.P. (1985) ASU testing of water in salt, Proceedings of Salt Respiratory Projects' Workshop on Brine Migration, ONWI Technical Report, Battelle Memorial Institute; P.C.910, C.101.
- Knauth, L.P. (1987) Stable isotope constraints on the origin of brine in the Weeks Island Strategic Petroleum Reserve. 24 pp. For U.S. Dept. Energy Strategic Petroleum Reserve.
- Knauth, L.P. (1989) Stable isotope constraints on the origin of brine in the Weeks Island Strategic Petroleum Reserve. Update following analyses of samples taken in 1989, 16 pp., For U.S. Dept. Energy Strategic Petroleum Reserve.
- Knauth, L.P. (1990) Stable isotope constraints on the origin of brine in the Weeks Island Strategic Petroleum Reserve; Update following analyses of samples taken in 1990, 9 pp., For U.S. Dept. Energy Strategic Petroleum Reserve.
- Knauth, L.P. (1993) Stable isotope studies at the Coronado Generating Station, 22 pp., For Salt River Project, Phoenix, AZ.
- Knauth, L.P. and Greenbie, M. (1997) Stable isotope investigation of Ground water-Surface water interactions in the Verde River Headwaters Area. Report for Arizona Groundwater Protection Fund, award #95-001. 52 pp + appendices.
- Knauth, L.P. and Tracey Carpenter (2000) Stable isotope investigation of Salt River Project Ground Water Recharge Facility, 17pp., For Salt River Project, Phoenix, AZ.

THESIS AND DISSERTATION TITLES

AT ARIZONA STATE UNIVERSITY (1979-present):

MS:

- Haimson, Marshall, 1982, "Oxygen Isotope Studies of Silica in the Monterey Formation, California", 77 p.
- Hennessy, Joel, 1983, "Isotopic Variation in Dolomite Concretions from the Monterey Formation, California", 50 p.
- Beeunas, Mark Anthony, 1984, "Preserved Stable Isotopic Signature of Subaerial Diagenesis in the 1.2 b.y. Mescal Limestone, Central Arizona: Implications for the Timing and Development of a Terrestrial Plant Cover", 91 p.
- Feldman, Mark David, 1984, "Hydrogen Isotope Geochemistry of Trace Water in Sedimentary Dolomite", 64 p.
- Thorleifson, James Tracy, 1984, "A Modified Stepwise Fluorination Procedure for the Oxygen Isotopic Analysis of Hydrous Silica", 71 p.
- Tesoriero, Anthony John, 1985, "Distribution of trace water around brine leaks in the Avery Island Salt mine: Implications for natural migration of water in salt. 102 p.
- Abrahams, Jennifer Anne, 1986, "Isotopic Investigation of Coastal Paleozoic Carbonate Diagenesis Adjacent to Crystalline Rock Highlands", 92 p.
- Katrinak, Karen Ann, 1987, "Stable Isotope Studies of Cherts From the Archean Swaziland Supergroup of South Africa:", 100 p.
- Winter, Bryce, 1987, "Isotopic Investigation of Carbonate Fracture fills in the Monterey Formation, California", 141 p.
- Neet, Kerrie Elise, 1988, "A Stable Isotopic Investigation of the Mazatzal Peak Quartzite: Implications for Source Terranes", 109 p
- Roberts, Sarah Kealy, 1990, "Stable Isotope Systematics of Dolomite Concretions and Beds from the Miocene Monterey Formation, California", 68 p.
- Brand, Courtney 1995, " Evolution Of Surface Water In Central And Southern Arizona, Using Hydrogen And Oxygen Isotopic Analysis". 126p.
- Guerrera Jr., Antonio 1996, "Stable Isotope Variations During Progressive Metamorphism and Deformation of the Kaibab and Martin Formations". 104 p. (co-advisor: S. Peacock).
- Clemens, Paul Leslie 1996, "A modified procedure for the oxygen isotopic analysis of water and brines" 65 P (Department of Chemistry) MS
- Benson, Donna 1996, "The Effect Of Stratigraphic Unconformities On The Development Of Fractures In Layered Sedimentary Rocks". 83 p.
- Knadel, Gwen 1997, "A Stable Isotope Study Of The Secondary Silica Of The Superstition Mountains Of Central Arizona". 59p.
- Doppler, Mary 1998, "Diagenetic features of chert as a guide to sourcing chert artifacts of the east-central Mogollon rim Region of Arizona. 86p.
- Van der Hoeven, Kaatje, 1999 "Proterozoic chrysotile skarn deposits in the salt River Canyon, Arizona" (co-advisor: D. Burt).
- Nowicki, Meredith J., 2000, "d13C and d18O variations in the Thunder Springs Member of the Redwall Limestone, Arizona" 52 p.
- Carpenter, Tracey, 2001, "The origin of isotopically anomalous waters of the Mogollon Rim Region of Arizona", 107p.
- Pollack, Gerald, 2001, The origin of secondary silica in volcanic rocks, Superstition Mountains, Arizona, 55p.
- Lindford, Blair, 2001, Isotope chemostratigraphy of the Beck Spring Dolomite, Southeastern California.
- McFadden, Kathleen, 2004, End-Permian Karst Stratigraphy and geochemistry at the Kaibab-MoenKooopi contact and its relationship to the Permian-Triassic boundary for Northern Arizona, 94p.
- Bond, Angela, 2007 in progress: Isotope hydrology of the Phoenix Basin.

PhD:

- Matheney, Ronald Kenneth, 1989, "Oxygen Isotopic Investigations in Stepwise Fluorination of Hydrous Silica And Other Geologic Materials", 136 p.
- Kenny, Ray, 1991, "Stable Isotopes on Chert and Carbonate from Continental, and Lowland Subaerial Exposure Surfaces: southwestern U.S.", 204 p.
- Winter, Bryce L., 1991, "Stable Isotope Geochemistry of Early Proterozoic Sedimentary Rocks in the Lake Superior Region, North America", 193 p.

Skotnicki, Steven J., 2001, "Timing of silicification of the Middle Proterozoic Mescal Paleokarst and the transition from the Mescal to Troy Quartzite, Central Arizona, 293 p.+map.

AT LOUISIANA STATE UNIVERSITY (1972-1979):

PhD:

Klasik, John Arthur 1976 "The silicification of Eocene Deep-Sea Sediments in the Atlantic Ocean" 201 p.

MS:

Jones, Daphne L. 1978 "Oxygen isotopic and petrographic evidence relevant to the origin of the Arkansas Novaculite (Devonian-Mississippian) of Arkansas and Oklahoma" 90 p.

Ambuehl, Alan Wayne 1979 "Surficial Tertiary authigenic silica of the Gulf Coastal Plain" 177p.

PUBLISHED ABSTRACTS

Knauth, L.P. and S. Epstein (1971) Oxygen and hydrogen isotope relationships in cherts and implications regarding the isotopic history of the hydrosphere, *Geol. Soc. America Abstracts with Programs* 3(7), p. 624

Knauth, L.P. and S. Epstein (1973) Hydrogen and oxygen isotope ratios in cherts from the JOIDES Deep Sea Drilling Project, *Geol. Soc. America Abstracts with Programs* 5(7), p.694.

Knauth, L.P. and S. Epstein (1973) Implications of the isotopic composition of cherts for the climatic temperature history of the Earth, *Geol. Soc. America Abstracts with Programs* 5(7), p. 695.

Jendrzejewski, J. and L.P. Knauth (1973) SEM observations of quartz in cherts: etched vs. unetched surfaces, Abstract in *Proc. Electron Microscopy Soc. America, 31st Annual Meeting*.

Knauth, L.P. (1974) Relationship of the isotopic composition of cherts to the depositional environments of carbonates, *Geol. Soc. America Abstracts with Programs* 6(7), p. 828.

Lowe, D.R. and L.P. Knauth (1976) Sedimentology of the cherts of the Overwacht Group (3.4. B.Y.), South Africa, *Geol. Soc. America Abstracts with Programs* 8(6), p. 987.

Jones, D.R. and L.P. Knauth (1978) Oxygen isotopic evidence relevant to the origin of the Arkansas Novaculite, *Geol. Soc. America Abstracts with Programs* 10(7), p. 430.

Knauth, L.P. and D.R. Lowe (1978) Oxygen isotopic compositions of cherts from the Overwacht Group (3.4. B.Y.), South Africa, *Geol. Soc. America Abstracts with Programs* 10(7), p. 436.

Knauth, L.P. and C.H. Moore (1979) Isotope Geochemistry of subsurface Jurassic Smackover carbonates, 1979, *Geol. Soc. America Abstracts with Programs*.

Lowe, D.R. and L.P. Knauth (1979) Petrology of Archean carbonate rocks in the Overwacht and Fig Tree Groups, South Africa, *Geological Association of Canada. Program with Abstracts* 4, p. 64.

Knauth, L.P. and M.B. Kumar (1980) Trace water content of Gulf Coast Salt Domes, *Geol. Soc. America Abstracts with Programs*.

Sykes, M.L., G.H. Heiken, J.R. Smyth, and L.P. Knauth (1980) Zeolites in silicic tuffs of the Nevada test site 1980. *Geol. Soc. America Abstracts with Programs*.

Knauth, L.P. (1982) The Origin of Water in Salt, *Geol. Soc. America Abstracts with Programs*, v. 14, No. 7, p. 532.

Knauth, L.P. (1982) Isotopic Analysis of Upper Proterozoic Cherts with Possible Implications for Upper Precambrian Climates and the Phanerozoic Explosion of Life. *Geol. Soc. America Abstracts with Programs*, v. 14, No. 7, p. 532.

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Knauth, L.P. (2008) The Late Precambrian Greening of the Earth. Astrobiology v. 8, no. 2 Session 38, # 38-07-P

GRANTS

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1. National Science Foundation. 06/01/73-09/01/73
2. National Science Foundation. 12/01/73-05/31/76.
3. Shell Development Company-6 inch isotope ratio mass spectrometer and accessories plus spare parts. 1974.
4. Louisiana State University Council on Research. 1975.
5. Summer Research Award, Louisiana State University Council on Research. 1976.
6. National Science Foundation. 06/01/76-11/30/77.
7. Louisiana State University Applied Carbonate Research Program. 05/15/78-06/15/78.
8. National Science Foundation. 06/15/77-08/14/79.
9. Department of Energy. 10/01/78-10/01/79. (Principle Investigator, J.D. Martinez. L.S.U. Institute for Environmental Studies,).
10. Exxon Production Research Company-6 inch isotope ratio mass spectrometer and accessories plus spare parts, 1979.
11. Water in Zeolites. Department of Energy (Los Almos).
12. National Science Foundation. 01/01/80-06/30/81.
13. Department of Energy via Battelle Memorial Institute (Office of Nuclear Waste Isolation. 06/01/81-09/30/81.
14. Amoco Production Company. 01/82-indefinite.

15. Chevron Oil Field Research Company. 08/82-indefinite.
16. Department of Energy via Battelle Memorial Institute (Office of Nuclear Waste Isolation. 10/01/82-09/30/82.
17. Amoco Production Research. 01/83-indefinite. Isotopic Investigations of Authigenic Silica.
18. Department of Energy via Battelle Memorial Institute (Office of Nuclear Waste Isolation. 10/01/82-09/30/83.
19. U.S. Department of Agriculture, Water Resources Laboratory. 06/01/83-09/30/83.
20. Atlantic Richfield Company-\$5,000. Isotopic Investigations of Authigenic Silica. 09/15/83-indefinite.
21. Amoco Production Research-\$6,000. Isotope Studies, Authigenic Silica. 01/84-indefinite.
22. National Science Foundation-\$77,182. Isotope Studies of Hydrous Silica and Isotopic History of Sea Water, 02/84-12/86.
23. Chevron Oil Field Research Company. Isotopic Studies of Hydrogen, 07/01/84-12/30/84.
24. Department of Energy via Battelle Memorial Institute. Brines in Salt and Isotope Hydrology, 10/01/83-09/31/86.
25. Department of Energy via Battelle Memorial Institute. Brines in Salt and Isotope Hydrology, 10/01/86-09/30/87.
26. Shell Development Company: Mattach-Herzog Double Focusing Analytical Mass Spectrometer plus accessories and spare parts, 1986.
27. National Science Foundation. Isotopic Studies of Hydrous Silica and the Isotopic History of Sea Water,.
28. Department of Energy via Stone & Webster Engineering Corporation. 10/01/87-03/31/88, Isotope Studies in brines and salt.
29. Chevron Oil Field Research Company-VG Micromass 602 C isotope ratio mass spectrometer, 1988.
30. National Science Foundation. Isotopic Studies of Precambrian Silicified Erosion Surfaces, 07/01/89-12/31/91.
31. National Science Foundation-Origin or silt-sized quartz in shales. (ASU component of grant to H. Blatt, University of Oklahoma. Subcontract with Oklahoma University, 03/15/91-12/31/91.
32. National Science Foundation-Geochemistry and Paleontology of Precambrian Silicified Erosion Surfaces. 07/01/91-06/30/94.
33. Chevron Oil Field Research Company: Automated MAT-250 Isotope Ratio Mass Spectrometer, 1992.
34. Stable Isotope studies of the Coronado Generating Station, Salt River Project, 7/1/92 - 7/1/93.
35. Geochemistry and Paleontology of Precambrian silicified erosion surfaces. National Science Foundation (joint proposal with R. Horodyski, Tulane University). (7/1/91 - 6/30/94).
36. Climatic temperature record of cherts. National Science Foundation 1/1/95 - 1/31/97.
37. Stable isotope hydrology of Verde River headwaters. Arizona Water Protection Fund, , 3/6/96-7/31/97.
38. Salt River Project 8/15/98 - 8/15/99 (co PI with P. Westerhoff in C.E.)
39. NASA Astrobiology Institute 7/1/98 - 6/30/99 (year 1 of 5),.
40. Fossil Record of life on land in the Precambrian. NASA Exobiology 6/1/97 - 5/31/00.
41. NASA Astrobiology Institute 7/1/99 - 6/30/00 (year 2 of 5),.
42. NASA Astrobiology Institute 7/1/00 - 6/30/00, (year 3 of 5),.
43. NASA Astrobiology Institute 7/1/01 - 6/30/02, (year 4 of 5),
44. NASA Astrobiology Institute 7/1/02- 10/31/03 (year 5 of 5),
44. Environments of early evolution and the search for an extraterrestrial fossil record: NASA Exobiology 6/1/00-5/31/03,.
45. Exploring the record of early life on land with applications to the search for past life on Mars, NASA Exobiology and Evolutionary Biology, 6/1/03 - 5/31/05,.
46. Isotopic Paleotemperatures at key times in the early history of life, NASA Exobiology and Evolutionary Biology, 5/01/04-4/30/07.
47. Climatic Temperature History of the Earth, NASA Exobiology and Evolutionary Biology, 6/15/08-6/15/09.
48. Search for Earliest Metazoans, NSF Geology and Paleobiology, 5/15/09-5/15/10.

Participation in Special Scientific Meetings, Service on Working Groups (Partial list)

- Invited speaker at Conference on Archean Granites, and Exogenic Processes. Mont. Ste. Marie, Quebec, 1977.
- Invited speaker, Penrose Conference on Siliceous Deposits, Vancouver, British Columbia, 1978.
- NASA Workshop on Early Evolution of the Earth's Crust, Houston, Texas 1980.
- Invited speaker, SEPM Conference on 'Stable Isotopes in Sedimentological Research', Aspen, Colorado, 1981.

Invited speaker, SEPM Conference on 'Fluid Inclusions in Sedimentary Rock', Lost Valley Ranch, Colorado, 1984.
Invited speaker, American Chemical Society Symposium on origin and evolution of subsurface brines, Los Angeles, 1986.
Nuclear Waste Isolation Workshop on Isotope Hydrology, Tucson, Arizona, 1981.
Member International Geological Correlation Program (IGCP) Project No. 160: Precambrian Exogenic Processes.
Member, Surface Processes Working Group, NASA program on Early Evolution of the Earth's Crust.
Member, International Geological Correlation Program (IGCP) Project No. 115: Siliceous Deposits in the Pacific Region.
Attended and gave invited presentation at NASA workshop on preservation of microorganisms in ancient salt deposits, Fairfax, Va., 8/19 - 8/21, 1994.
Taught 3-day Short Course on "Cherts and other forms of authigenic silica", ARCO Oil, 1984.
Speaker, Inaugural Meeting "American Current Research on Fluid Inclusion", Socorro, New Mexico, 1987.
Keynote Speaker, Penrose Conference on "Geochemistry of Oil Field Brines", Oxnard, California, 1987.
Speaker, Epstein Symposium, on Stable Isotope Geochemistry, California Institute of Technology, 1989.
Taught Short Course on Isotopic Hydrogeology, Salt River Project Utility Company, Phoenix, 1981.
Speaker: Karst Waters Symposium: Breakthroughs in Karst Geomicrobiology and Redox Geochemistry, Colorado Springs, Colorado, 1994.
Review Panel for Department of Energy High-Level Nuclear Waste Repository Site Characterization Documents (Argonne National Labs, 1986-1994).
Member, Risk Abatement Panel; Department of Energy Strategic Petroleum Reserve, Weeks Island, LA, 1987.
Expert Witness before Texas Water Commission regarding application of Hunter Industries to put toxic waste in Dayton Salt Dome, August 1992.
Review Panel member, NASA Exobiology Program 1997, 1998
Member, NASA Astrobiology Institute 1999-present
Invited speaker, Gordon Research Conference on "Origin of Life", 2000, Plymouth, New Hampshire
Invited speaker, Hudnall Symposium in Honor of Robert N. Clayton, June 7-8, 2001. University of Chicago. "Isotopic biosignature in calcite formed during weathering of basalt: implications for past life on Mars, early life on land, and ALH84001"
Plenary Speaker, Second Astrobiology Science Conference, April 10-12, 2002, Carnegie Inst. of Washington, Washington, DC.
Plenary Speaker, Astrobiology Science Conference, April 7-11, 2002, NASA Ames Research Center.
Participant and speaker: NASA Astrobiology Institute Field Conference on Archean Surface Processes, 2003, Barberton, S. Africa.
Participant and speaker: NASA Astrobiology Institute Field Conference, (2005) Life in the Pilbara and the search for life on Mars, Perth, Western Australia.
Participant: Pale Blue Dot III, Searching for life on distant worlds. Adler Planetarium, Chicago, IL. Sept. 17-20, 2006
Senior Lecturer: NASA Astrobiology Institute Field Workshop Biosignatures in Ancient Rocks, September 16-27, 2007. Sudbury to Thunder Bay, Ontario, Canada
2008 Participant, Variable Atmospheric Laboratory Workshop. 2/23-2/24. Arizona State University