

Lewis Land

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PRIMARY RESEARCH INTERESTS

- Karst hydrology, geomorphology and geohazards
- Patterns of regional groundwater circulation
- Brackish water resources
- Hydrogeophysics
- Freshwater-saline water relationships in coastal aquifers and intermontane basins

PROFESSIONAL EXPERIENCE

2002-present: Cave and Karst Hydrologist: National Cave and Karst Research Institute and New Mexico Bureau of Geology and Mineral Resources, Carlsbad, NM

Dr. Land works for the National Cave and Karst Research Institute in Carlsbad, New Mexico, and as the Institute's liaison and adjunct with the New Mexico Bureau of Geology and Mineral Resources. He is also an adjunct faculty member with the New Mexico Tech Department of Earth and Environmental Sciences. His work at the Institute involves conducting regional investigations of karstic limestone aquifers that are the principal or sole source of water for irrigation and municipal water supply in the lower Pecos region of southeastern New Mexico. He also serves as the Institute's karst geophysicist and in that capacity has conducted electrical resistivity and microgravity surveys of sinkholes and other karstic geohazards, both naturally occurring and of human origin.

2000-2002: Hydrogeologist, Ground Water Branch: North Carolina Division of Water Resources, Raleigh, NC

1998: Summer intern, West Africa Group, offshore Angola: Exxon Exploration Co, Houston, TX

1997: Staff geologist, Low-Level Radioactive Waste Disposal Project: Harding-Lawson Assoc., Morrisville, NC

1991: Summer intern, New Ventures Group, North Africa: Exxon Co. International, Houston, TX

1982-1989: Exploration Geologist, Mid-Continent, Rocky Mountain regions: Oxy USA (Cities Service Oil Co.), Oklahoma City, OK

EDUCATION

Ph.D., Geology, 1999, University of North Carolina at Chapel Hill

Dissertation: *"Processes & Manifestations of Fluid Exchange within Passive Continental Margins"*

M.S., Geology, 1993, University of Oklahoma

Thesis: *"3-D Characterization of Basement Faults & Forced Folds, NE Uncompahgre Plateau, Western Colorado"*

B.S., Geology, 1981, University of Oklahoma

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- American Association of Petroleum Geologists (AAPG)
- American Geophysical Union (AGU)
- Geological Society of America (GSA)
- National Groundwater Association (NGWA)
- New Mexico Geological Society
- Roswell Geological Society

SELECTED PUBLICATIONS

- Land L, Timmons S.** 2016. Evaluation of groundwater residence time in a high mountain aquifer system (Sacramento Mountains, USA): Insights gained from use of multiple environmental tracers. *Hydrogeology Journal* 24 (4): 787-804.
- Land L.** 2016. Overview of fresh and brackish water quality in New Mexico. New Mexico Bureau of Geology and Mineral Resources, Open-File Report 583.
- McCraw D, Land L.** 2016. Sinkholes: A hidden, real New Mexico geohazard. *Earth Matters*. Winter, 2016.
- Land L, Asanidze L.** 2015. Rollalong resistivity surveys reveal karstic paleotopography developed on near-surface gypsum bedrock. In: Doctor DH, Land L, Stephenson JB, editors. *Proceedings of the Fourteenth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impact of Karst*, Rochester, Minnesota. National Cave and Karst Research Institute Symposium 5. Carlsbad (NM): National Cave and Karst Research Institute: 365-370.
- Land L.** 2013. Evaporite karst in the Permian Basin region of west Texas and southeastern New Mexico: The human impact. In: Land L, Doctor DH, Stephenson JB, editors. *Proceedings of the Thirteenth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impact of Karst*, Carlsbad, New Mexico. National Cave and Karst Research Institute Symposium 2. Carlsbad (NM): National Cave and Karst Research Institute: 113-121.
- Land L, Veni G.** 2012. Electrical resistivity surveys of anthropogenic karst phenomena, southeastern New Mexico. *New Mexico Geology* 34 (4): 117-125.
- Land L.** 2012. Geophysical prospecting for new cave passages: Fort Stanton Cave, New Mexico, USA. *Carbonates and Evaporites* 27 (2): 97-102.
- Land L, Huff GF.** 2010. Multi-tracer investigation of groundwater residence time in a karstic aquifer: Bitter Lakes National Wildlife Refuge, New Mexico, USA. *Hydrogeology Journal* 18: 455-472; *also available as New Mexico Bureau of Geology and Mineral Resources Open-File Report no. 521.*
- Land L.** 2009. Anthropogenic sinkholes in the Delaware Basin Region: West Texas and southeastern New Mexico. *West Texas Geological Society Bulletin* 48: 10-22.
- Land L.** 2009. The impact of hypogenic processes on water resources in the arid southwest: Examples from the lower Pecos region of New Mexico, USA. In: Stafford KW, Land L, Veni G, editors. *Advances in Hypogene Karst Studies*. National Cave & Karst Research Institute Symposium no.1: 149-156.
- Land L, Burger P.** 2008. Rapid recharge events in a karstic aquifer: An example from Lake of the White Roses, Lechuguilla Cave, NM. In: *Proceedings of the Eleventh Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst*, Tallahassee, Florida: ASCE Geotechnical Special Publication no. 183: 396-403.

- Stafford K, Land L, Klimchouk A. 2008. Hypogenic speleogenesis within Seven Rivers evaporites: Coffee Cave, Eddy County, New Mexico. *Journal of Cave and Karst Studies* 70: 47-61.
- Land L, Newton BT. 2008. Seasonal and long-term variations in hydraulic head in a karstic aquifer: Roswell Artesian Basin, New Mexico. *Journal of the American Water Resources Association* 44: 175-191; *also available as New Mexico Bureau of Geology and Mineral Resources Open-File Report no. 503.*
- Land L, Lueth V, Raatz B, Boston P, Love D, editors. 2006. *Caves and Karst of Southeastern New Mexico*: New Mexico Geological Society Guidebook 57, 344 p.
- Land L. 2005. Evaluation of groundwater residence time in a karstic aquifer using environmental tracers: Roswell Artesian Basin, New Mexico. In: *Proceedings of the Tenth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst*, San Antonio, Texas, 2005. ASCE Geotechnical Special Publication no. 144: 432-440.
- Land L, Lautier J, Wilson N, Chianese G, Webb S. 2004. Geophysical Monitoring and Evaluation of Coastal Plain Aquifers. *Ground Water* 42: 59-67.
- Land L. 2003. Evaporite karst and regional ground water circulation in the lower Pecos Valley. In: Johnson KS, Neal JT, editors. *Evaporite Karst and Engineering/Environmental Problems in the United States*. Oklahoma Geological Survey Circular 109: 227-232.
- Land L, Paull CK. 2001. Thermal gradients as a tool for estimating ground water advective rates in a coastal estuary: White Oak River, North Carolina, USA. *Journal of Hydrology* 248: 198-215.
- Land L, Paull CK. 2000. Submarine karst belt rimming the continental slope in the Straits of Florida. *Geo-Marine Letters* 20: 123-132.
- Land L, Paull CK, Spiess F. 1999. Abyssal erosion and scarp retreat: Deep Tow observations of the Blake Escarpment and Blake Spur. *Marine Geology* 160: 63-83.
- Land L, Paull CK, Hobson B. 1995. Genesis of a submarine sinkhole without subaerial exposure: Straits of Florida. *Geology* 23: 949-951