Curriculum Vitae
Thomas L. Holzer
November 1, 2017

PROFESSIONAL EXPERTISE

- Engineering Geology
- Geotechnical Engineering (liquefaction, soft soils)
- Surficial Geology
- Earthquake Hazard and Risk Assessment
- Hydrology

EDUCATION

School	Major	Dates	Degree	Year
Stanford University	Geology	9/66-6/70	Ph.D.	1970
Stanford University	Hydrology	9/65-9/66	M.S.	1966
Princeton University	Geological Engineering	9/61-6/65	B.S.E.	1965

PROFESSIONAL LICENSES

Professional Geologist no. 3685, California (by exam), 1981-present
Certified Engineering Geologist no. 1129, California (by exam), 1981-present

EMPLOYMENT HISTORY (Retired from USGS and Stanford University, January 2016)

U.S. Geological Survey

From	To	Description
1993	2016	*Task Leader, Liquefaction Research* (Earthquake Science Center, Menlo Park, California): Led a research group to: (1) improve regional mapping of liquefaction hazard, (2) increase understanding of earthquake-induced liquefaction, and (3) estimate ground motion for prehistoric earthquakes based on paleoliquefaction.
1993	2007	*Project Officer, ATC-35:* Program-level cooperative agreement with Applied Technology Council to transfer research results from the USGS earthquake hazards program into engineering practice through workshops, technical publications, and seminars.
1989	1993	*Chief, Branch of Engineering Seismology and Geology* (Menlo Park, California): Supervised research by ~100 seismologists, geologists, and engineers.
1984	1989	*Chief, Liquefaction Research Project* (Menlo Park, California): Conducted research to predict liquefaction potential and to develop

techniques for regional liquefaction hazard assessment. Performed post-earthquake investigations.

1982 1984 *Deputy Assistant Director for Research,* Reston, Virginia. Coordinated of Bureau-wide research.

1975 1982 *Chief, Fissuring-subsidence Research Project* (Menlo Park, California): Conducted research on mechanisms of ground failure caused by groundwater level declines in unconsolidated sediments and developed methods to predict ground failure.

Stanford University

1994 2016 *Consulting Professor, Joint appointment, Departments of Geological and Environmental Sciences and Civil and Environmental Engineering*: Taught GES 115/CEE 196, *Engineering Geology and Global Change*

University of Connecticut

1970 1975 *Assistant Professor, Storrs, Connecticut:* Taught hydrogeology and engineering and environmental geology. Conducted research on groundwater contamination.

RECENT RESEARCH ACCOMPLISHMENTS

Research emphasis: (1) developed methods for probabilistic liquefaction hazard mapping; (2) documented case histories of earthquake-induced liquefaction; (3) estimated ground motion from paleoliquefaction; and (4) predicted global earthquake fatalities.

Hazard mapping: My group developed a probabilistic methodology to map regional liquefaction hazard. The methodology is dependent on a spatial soil parameter, the liquefaction potential index (LPI), that we compute from seismic cone penetration test (SCPT) soundings. We use statistical distributions of LPI to estimate liquefaction probability curves for surficial geologic units. We calibrated LPI with USGS post-earthquake case histories of liquefaction (see publication no. 92). Then, we used the calibration to map probabilistic liquefaction hazard in Oakland, Alameda, Berkeley, Emeryville, and Piedmont as part of the USGS contribution to FEMA's Project Impact. Prototype maps were published in 2002 (publication nos. 87 and 106). We subsequently refined the methodology to predict the response of East Bay artificial fills to a repeat of the 1906 San Francisco **M**7.8 earthquake (publication no. 104). With further refinement, we mapped liquefaction hazard in the northern Santa Clara Valley (publication nos. 112 and 114). **Impact:** Publication no. 124, which describes our liquefaction probability curves, was named the Best Paper in 2011 by the Association of Environmental and Engineering Geologists. The calibration of LPI (publication no. 92) is frequently cited in domestic and international journals. It has been incorporated into Thomas Blake's commercial liquefaction analysis program and has been used by the California Geological Survey (CGS) as part of its liquefaction potential assessments when producing hazard zone maps. The mapping methodology used in our Project Impact

hazard maps was adopted by Georgia Tech Professor Glenn J. Rix, Purdue University Professor Jennifer Haase, and University of Missouri Professor J. David Rogers, respectively, to produce USGS liquefaction hazard maps for Memphis, Tennessee, Evansville, Indiana, and St. Louis, Missouri. Researchers at Clemson University have also published maps for Charleston, South Carolina, based on our research. The Nuclear Regulatory Commission funded us to apply the methodology and develop liquefaction probability curves for surficial geologic units of relevance to reactor sites (publication no. 122). The research has attracted invitations to lecture at major research universities and at domestic and international conferences (e.g., see publication no. 112).

A collateral benefit of the USGS SCPT field investigations is the routine measurement of shear-wave velocity. With these data, we demonstrated the improved resolution in site amplification maps from using shallow 3-D velocity structure (publication no. 99). The maps differ substantially from previous CGS and USGS maps, which were based on surficial geology and regional shear-wave velocity measurements (publication no. 99). Another benefit is the public availability of CPT data. **Impact:** The database (http://earthquake.usgs.gov/research/cpt/) has been praised by CPT Guru Peter K. Robinson and the data are frequently downloaded by private consultants and academicians. The database alone increased the published number of borings or soundings with shear-wave velocities in Holocene/Pleistocene geologic units in California by ~50% (publication no. 98).

Liquefaction case histories: Both regional mapping of liquefaction hazard and site-specific liquefaction potential assessments require well documented case histories of liquefaction. The Liquefaction Project/Task has conducted many such investigations formerly under T.L. Youd's (<1984) and presently under my leadership (see publication no. 109 for a partial synthesis and history). Our most recent case history is the 2009 Olancha **M**5.2 earthquake (publication no. 118). This is the most comprehensive investigation of liquefaction caused by a small (**M**≤5.2) earthquake; it provides insight to the lower limit to which liquefaction hazard assessments should be performed. **Impact:** Our case histories are the principal American entries in the database that supports the Seed-Idriss simplified procedure for liquefaction potential analysis. This procedure is used worldwide by geotechnical engineers and engineering geologists to evaluate site-specific liquefaction hazard. Some of the case histories that we developed fortuitously are near the boundary curve for liquefaction triggering in the simplified procedure and have assumed increased significance during a recent debate about the position of the boundary curve. The USGS case histories also demonstrate the importance of geologic controls in determining physical boundaries of lateral spreads (publication no. 109 is cited in the 2008 EERI Monograph 12, *Soil Liquefaction during Earthquakes*). In 2012-2014. I provided considerable assistance to Ross Boulanger and Ed Idriss in their revision of the Seed-Idriss simplified procedure.

Ground motion from paleoliquefaction: As part of the 2003 San Simeon post-earthquake investigation, I used LPI to infer ground motion at Oceano, California because the main shock was not instrumentally recorded. The estimate agreed with independent estimates based on both analysis of an aftershock deployment and "Did you feel it?" reports. This agreement indicated LPI could be applied to paleoliquefaction sites to estimate prehistorical (or preinstrumental) ground motion. We were funded by the Nuclear Regulatory Commission to apply the methodology to infer strong ground motion

from liquefaction during 1811-1812 New Madrid earthquakes. Results are described in publication no. 128. **Impact:** R.T. Cox (University of Memphis) invited me to apply the methodology to estimate ground motion at paleoliquefaction sites in southern Arkansas. The estimates for Cox et al. (publication no. 108) indicated that the New Madrid Seismic Zone (NMSZ) was an unlikely cause of liquefaction in southern Arkansas, which provides additional support for the concept that other active seismic sources than NMSZ exist in the upper Mississippi River Valley. The estimates of 1811-1812 ground motion also can be used for partial validation of ground motion prediction equations under development by the PEER NGA (New Ground Motion Attenuation) East project.

Global earthquake fatalities: A talk by Brian Tucker in 2010 piqued my curiosity about the relation between global earthquake fatalities and world population. The increased number of catastrophic earthquakes (death tolls > 50,000) during the first decade of the 21st century hinted that world population growth was contributing to increases in earthquake fatalities. The relation, however, was poorly understood. I began to compile statistics and study the problem and then invited a colleague, James Savage, to assist with the statistical analysis. We showed how catastrophic earthquakes had increased since 1500, and we proposed that the frequency of catastrophic earthquakes from 1500-2010 could be modeled with a nonstationary Poisson distribution with the rate proportional to world population. On the basis of UN projections of world population, we predicted that (1) the number of catastrophic earthquakes will increase from 7 to 21, and (2) total global fatalities will increase from 1.5 million to 3.5 million, respectively, in the 20th and 21st centuries. (publication no. 124). **Impact:** Publication no. 124 has already been cited in two "Perspectives" in *Science*. The news media showed considerable interest in our findings, including a feature by noted science reporter, David Pearlman. Because of the implied future increased need for foreign disaster assistance, I was invited by USAID to present findings at their Washington, D.C., headquarters.

EARLIER RESEARCH ACCOMPLISHMENTS

Loma Prieta earthquake: From 1992 to 1999, I was the lead editor for *Loma Prieta Earthquake Professional Papers 1550-1553*, which fulfilled the reporting requirement of the 1989 Loma Prieta earthquake Congressional $2M budget supplemental to document the earthquake. The 19 volumes cover topics ranging from mechanics of the earthquake source to community response. More than 2,640 pages were printed. I was responsible for organizing and overseeing this publication series. This included goading authors and volume and chapter editors, finding replacements for editors who ignored commitments, and developing and monitoring publication capitalization plans for each chapter. I coordinated Papers 1551 and 1552 and edited chapters 1551-B and 1552-D. I wrote a $66K NSF proposal to fund publication of Professional Paper 1552. **Impact:** Professional Papers 1550-1553 are some of the most comprehensive documentation of an earthquake ever published. They provide both geologic and social science as well as engineering legacies that will be useful to future generations of scientists and engineers. In 2006, I arranged for their scanning and initiated making these volumes available on the web: http://earthquake.usgs.gov/regional/nca/1989/papers.php.

Okalahoma City bombing: The April 19, 1995, bombing of the Alfred P. Murrah Federal Building in Oklahoma City was the second worst terrorist attack on American

soil in U.S. history. I organized and led a multidisciplinary team of Earthquake Hazards Team scientists that explained the complex waveforms generated by the bomb blast that were recorded at a nearby seismograph. The seismogram became a source of controversy. My involvement was prompted by discussions with the Oklahoma State Geologist and subsequent interviews by the FBI investigators. The USGS team effort included a deployment of portable instruments that recorded the May 23rd demolition of the bomb-ravaged Federal Building. Analysis of the demolition seismograms demonstrated that the controversial seismogram was caused by a path effect and not by a complex source. **Impact:** Briefings of the FBI, delivering a televised public lecture in Oklahoma City, and formal publication of our results discouraged attorneys for terrorists McVey and Nichols from presenting a conspiracy defense that would have sought to embarrass the U.S. government. Our forensic seismology enabled the press to dismiss the arguments of government-conspiracy advocates and deterred public controversy (publication no. 64).

Ground failure and groundwater withdrawal: From 1975 to 1982, I conducted extensive field and theoretical investigations both to understand the mechanisms of ground failure caused by groundwater level declines in unconsolidated sedimentary aquifer systems and to develop methods for predicting its occurrence. Earth fissures and reactivated faults were occurring with increasing frequency as groundwater pumping caused large water-level declines in unconsolidated sedimentary basins in arid areas of the western United States. The ground failure was poorly understood and unpredictable. In fact, many faults prior to my work were not even recognized to have been reactivated by fluid withdrawal, including one that figured prominently in the site investigation for a proposed Southern San Joaquin Valley nuclear reactor. I conducted major field investigations in Arizona, California, Nevada, and Texas. **Impact:** My field investigations identified the mechanism that caused these failures and I developed theoretical methodologies to predict locations and time of occurrence of ground failure given a groundwater pumping scenario, which are now used by consultants. I also demonstrated that modern surface faulting in the Houston-Galveston, Texas, region was caused by groundwater pumping, and had stopped in areas where water-levels recovered. My research in Las Vegas, Nevada, prompted the USGS to issue an official hazard warning regarding potential fault reactivation in Las Vegas Valley. This led to long-term geodetic monitoring across preexisting fault scarps in Las Vegas Valley by the Nevada Department of Transportation.

Land subsidence: In conjunction with the investigations of ground failure associated with groundwater production from unconsolidated sediments, I also conducted research on the mechanism of land subsidence. A significant finding was the documentation that most natural aquifer systems are naturally preconsolidated and will not permanently compact until water levels are lowered 30 to 60 m (publication no. 24). This generalization is useful for predicting land subsidence caused by groundwater development in previously unexploited unconsolidated sedimentary basins and is now used worldwide as a screening tool. I also documented elastic expansion of the lithosphere beneath the central Arizona subsidence area caused by the mining of groundwater (publication no. 16). This observation implies that large subsidence areas may undergo isostatic rebound long after subsidence has stopped. **Impact:** The documentation of widespread natural preconsolidation of aquifer systems in subsidence

areas has led to universal recognition that there is usually a threshold water-level decline, which if not exceeded, will preclude subsidence and ground failure problems.

Groundwater Research: **A**t the University of Connecticut From 1970-75, I conducted research on groundwater quality problems. I developed one of the first models of the migration of an immiscible fluid in an unconfined aquifer (publication no. 7). I developed an approach to characterize the carrying capacity for residential developments in New England that must rely on groundwater from crystalline-bedrock/glacial-till aquifers (publication no. 6). **Impact:** The concept of carrying capacity for residential development based on water supply is now widely adopted in land-use planning practice in New England.

SCIENTIFIC LEADERSHIP

NEHRP agency post-earthquake coordination: From 2001 to 2003, at the request of the USGS Earth Hazards Reduction Program Coordinator (John Filson), I chaired an external 7-member committee that developed the plan to coordinate the post-earthquake investigation activities of the NEHRP agencies. The USGS was mandated by Congress to formulate the plan as part of its 2000 NEHRP Strategic Plan. My responsibility included organizing an invitational workshop, coordinating with EERI, providing briefings and seminars, and organizing the writing and review of the plan (see publication no. 91). Upon completion, I worked with Charles Scawthorn to implement the plan in 3 table-top exercises that involved senior representatives from each of the NEHRP agencies and appropriate regional agencies (see publication no. 103). The Plan is followed by the NEHRP agencies. I have received numerous requests for the Circular from states and foreign governments, and I was invited to present our findings as the 2008 keynote speaker at the annual meeting of the New Zealand Society for Earthquake Engineering. In 2013, I participated in a 5-person NIST committee that developed a framework to update the plan. I wrote sections of framework, which was published as NIST GRC 14-917-29 (publication no. 125)

Insurance industry liaison: From 1992 to 2002, I served an informal liaison function between the USGS and the insurance industry and earthquake loss modeling community. The private sector has developed sophisticated computer models, which rely heavily on NEHRP data and knowledge, to estimate losses from future earthquakes. The models are used to set premiums for earthquake insurance. I analyzed the sensitivity of these models to input parameters, and lectured on the FEMA-funded loss model HAZUS™ that standardizes public loss modeling throughout the United States. I chaired an *ad hoc* EHZ Team group that provided advice to the EHZ Chief Scientist; chaired a session at the 1998 WSSPC Insurance Summit, which brought together more than 200 insurance, loss modelers, and government officials; advised the California Department of Insurance in the hearing room during the first rate application based on loss modeling; advised California Division of Mines and Geology during its review of the EQECAT™ model used by the California Earthquake Authority (CEA); briefed CEA on the implications of new USGS research; lectured at the 1999 meeting of the New York Consortium on Earthquake Loss Modeling; and assisted R. Wesson in organizing the June 5-6, 2000, USGS workshop with the loss modeling community. I continue to receive

invitations to lecture at insurance industry meetings; most recently Cat Modeling 2013, a loss modeling conference sponsored by the Reinsurance Association of America.

Branch Chief, ESG: From 1989 to 1993, I was the *Chief of the Branch of Engineering Seismology and Geology*. The branch developed methodologies for estimating strong ground motion, collected and distributed strong ground motion recordings, conducted paleoseismological investigations of active faults, and performed post-earthquake field investigations. During my tenure, the branch conducted seven post-earthquake field investigations including Armenia, Loma Prieta, 1990 Philippines, Erzincan (Turkey), Joshua Tree, Petrolia, and Landers/Big Bear earthquakes. The October 17, 1989, Loma Prieta post-earthquake required approximately 4 months of sustained effort involving more than 100 scientists and repeated contacts with the national and local news media. I facilitated the timely publication (by December 1989) of USGS Circular 1045 on the earthquake; oversaw publication by March 1990 of Open-file Report 90-253 (publication no. 48) that was used by the Office of the City Engineer of San Francisco for decisions about rehabilitation of the Marina District; and initiated the first USGS CD-ROM compilation of aftershock recordings.

USGS Director's Office: From 1982 to 1984, I was the *Deputy Assistant Director for Research* in the Director's Office in Reston, VA. I (1) was responsible for a management effort to obtain a systematic approach to coordinate and improve the effectiveness of research activities within the USGS by drafting a research agenda as part of a USGS strategic planning effort; (2) had primary responsibility for planning and editing the USGS Annual Report; and (3) assisted the Programs Office in evaluating and ranking Division proposals.

TECHNOLOGY AND INFORMATION TRANSFER AND DISSEMINATION

"Living with Unstable Ground" (2009): Publication no. 119 summarizes my career long fascination with all of the different ways the ground can move. The publication is part of the American Geological Institute's Environmental Awareness Series that is widely used in Earth Science curricula for non-geology majors. The purpose of publication no. 119 is to educate the public about unstable ground, many types of which are the focus of major research and assessment efforts by USGS programs. **Impact:** Since its release, I have had numerous requests from educational professionals including *Sally Ride Science* for figures from the document for their use in teaching and publications, which indicates it is fulfilling its purpose.

Demonstration of leveraging of NEHRP research (2003-2008): In 2003 under the sponsorship of EERI, I collaborated with Thomas D. O'Rourke (chair), Christopher Rojahn, and Kathleen Tierney to organize and conduct a workshop to identify the contributions from earthquake engineering and science that have enhanced public safety and improved the protection of U. S. communities from hazards other than earthquakes. The purpose of the workshop was to assemble information that would enable members of the earthquake community to articulate the contributions of NEHRP to risk reduction in a multihazard environment. In 2008, the effort culminated in publication no. 114. I represented the Earth sciences community in organizing the workshop and wrote the relevant sections of the report. **Impacts:** The workshop discussions provided the basis for congressional testimony by O'Rourke at reauthorization hearings for NEHRP about its

collateral benefits (leveraging), and the report was provided by EERI to the 2008 DOI Presidential Transition Team.

Project Officer, ATC-35 (1993-2007): ATC-35 was a USGSA funded cooperative agreement with the Applied Technology Council (ATC) to promote the use of USGS earthquake science by practicing design engineers. I defined the scope of work and served as the project officer and primary USGS liaison for ATC-35. I attended project planning meetings and was intimately involved in its many activities. ATC-35 organized workshops on strong ground motion including workshops to: (1) solicit input from engineers for the USGS national strong ground motion maps, and (2) improve utilization of seismologic knowledge of strong ground motion in engineering design practice and in regulations and building codes. ATC-35 also sponsored regional seminar series for practicing earthquake engineers and earth scientists in which research scientists presented their latest findings in earthquake hazard assessment. The project steering committee prepared a report to the USGS with recommendations on improving transfer of USGS earthquake science to the practicing design profession. I helped the group organize the report and articulate the recommendations to maximize prospects for its adoption by the USGS. **Impacts:** The Director's Office and other programs cited the report as a model for outreach activities. Some of the workshops solicited input from the engineering community on design of the National Seismic Hazard Maps, which materially affected how information was presented, including the selection of the site D reference boundary (Vote “rock”). Seminars in the Pacific Northwest and Central United States were important sources of education of the local engineering community about their seismic hazards.

RENDERING SCIENTIFIC JUDGMENT

Executive Committee, Connecticut Institute of Water Resources, 1973-75, Member

Connecticut Department of Environmental Protection Technical Advisory Group on Sanitary Landfills, 1974-75, Member

Geothermal subsidence review committee-Lawrence Berkeley Laboratory, Oct. 20-21, 1981, Member

Lawrence Livermore National Laboratory, consultant, September-November 1982. (Advised on studies of surface deformation associated with nuclear testing at the Nevada Test Site)

National Academy of Sciences/National Research Council Committee on Ground Failure Hazards, 1983-1985, Liaison representative Geological Society of America, Observer

National Academy of Sciences/National Research Council Panel on Land Subsidence, 1985-1991, Chairperson

Cabinet of Taiwan Government, consultant on land subsidence in Taiwan, April-June 1986. (Evaluated subsidence problems in coastal Taiwan and briefed Executive Yuan or cabinet; Taiwan implemented new groundwater monitoring program).

Instituto de Pesquisas Tecnológicas, São Paulo, Brazil, consultant on Cajamar sinkhole collapse, September-November 1986. (Reviewed investigation and advised IPT with William Back).

Elsevier Journal of Engineering Geology, 1988-1993, Editor

National Academy of Sciences/National Research Council Panel on Geologic Hazards of the Committee on Status and Research Objectives in the Solid-Earth Sciences, 1989-1990, Member

National Science Foundation Review Panel, 1990-1991, Conducted on-site review and reviewed proposal for five-year renewal of National Center for Earthquake Engineering, Buffalo, NY, Member

Princeton University, Department of Civil Engineering and Operations Research, Advisory Council, 1990-1998, Member

U.S. Department of Justice, expert witness, 1991- 1993. (Advised and testified on causes of land subsidence at Redondo Beach, CA, on behalf of U.S. government)

American Association of Petroleum Geologists, Journal of Environmental Geosciences, 1993-1998, Associate Editor

California Department of Insurance, Adviser during administrative hearings, November 1994-April 1995 (Reviewed earthquake loss modeling and advised CaDOI on Farmer's Insurance application to change its residential earthquake insurance premiums)

National Science Foundation Review Panel: One-year renewal of National Center for Earthquake Engineering, Buffalo, NY, September 1996, Member

California Division of Mines and Geology Informal Advisory Committee: Review of EQE and RMS loss models, 1997, Member (Advised on review of earthquake loss model used for earthquake insurance application by California Earthquake Authority)

Portola Valley *ad hoc* Geologic Setback Committee, member, 2001 (Reviewed and revised guidelines for construction setbacks from active faults in Portola Valley, CA)

National Science Foundation NEES Advisory Committee, 2003, Member

Geotechnical Extreme Events Reconnaissance (GEER) Association Advisory Panel, 2004-2017, Member

America’s Wetlands Envisioning the Future of the Gulf Coast, Technical Group, 2006, Member

American Geological Institute Environmental Science Advisory Committee, 2010-2016, Member

Applied Technology Council, 2013, Participated in 5-person committee funded by NIST that developed framework to update the plan to coordinate NEHRP agencies during post-earthquake investigations (Wrote sections of framework, which was published as NIST GRC 14-917-29, publication no. 125), Member

HONORS AND AWARDS

Honor/Award	Date	Organization
Cum Laude	1965	Princeton University
Sigma Xi	1965	Princeton University
Geology Honors Award	1970	Stanford University
Superior Service Award	1981	U.S. Department of Interior
Apprec. Cert. (Loma Prieta EQ)	1990	U.S. Geological Survey
Public Service Award	1991	U.S. Department of Interior
Distinguished Service Award	1995	Geol. Society of America (Hydrogeology Div.)
R. H. Jahns Disting. Lecturer	1998	Assn. of Engineering Geol./Geol. Soc. Amer.

Apprec. Cert. (Project Impact)	1999	City of Oakland, California
Apprec. Cert. (Project Impact)	2001	Association of Bay Area Governments
Annual Distinguished Lecturer	2008	New Zealand Soc. for Earthquake Engineering
Publication (Best Paper) Award	2011	Assn. of Environ. & Engineering Geologists
Distinguished Service Award	2012	U.S. Department of Interior

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science	Member	1968-present
American Geophysical Union	Member	1968-present
Earthquake Engineering Research Institute	Member	1999-present
Geological Society of America	Fellow	1967-present

Editor, Hydrogeology Division Newsletter (1982-1987)
Management Board, Engineering Geology Division (1986-1988)
Chairperson, Engineering Geology Division (1989)
Councilor (1995-1997)
Committee on Nominations, member (1990)
Committee on Publications, chair (1997)
Donath Medal Committee, chair (1998-1999)
GSA Foundation, Trustee (2010-2015)
Audit Committee (2013-present)
Finance Committee (2010-present)
Treasurer (2017-present)

Seismological Society of America	Member	2005-present
Sigma Xi	Member	1965-present

TECHNICAL PRESENTATIONS (INVITED=I, VOLUNTEERED=P)

1. (P) Holzer, T.L., 1971, Effect of seismic loading on creep behavior of a fine-grained estuarine sediment [abs.]: Geological Society of America Abstracts with Programs, v. 3, no. 7, p. 602.

2. (P) Holzer, T.L., and Ryder, R.B., 1972, Occurrence of ground water in Triassic bedrock north-central Connecticut (abs.): Geological Society of America Abstracts with Programs, v. 4, no. 1, p. 21.

3. (P) Chestnut, L.N., and Holzer, T.L., 1973, Hydrogeology of a sanitary landfill in glacial drift in eastern Connecticut [abs.]: Geological Society of America Abstracts with Programs, v. 5, no. 2, p. 146.

4. (P) Holzer, T.L., 1973, Residential land-use planning in eastern Connecticut based on hydrogeology [abs.]: Geological Society of America Abstracts with Programs, v. 5, no. 2, p. 179.

5. (P) —1975, A subsurface oil spill—investigation and remedial action [abs.]: Geological Society of America Abstracts with Programs, v. 7, no. 1, p. 75-76.

6. (P) —1976, Ground failure in areas of subsidence due to ground water decline in the United States [abs.]: International Symposium on Land Subsidence, 2nd, Anaheim, California, 1976, Proceedings, Program.

7. (P) Holzer, T.L., and Davis, S.N., 1976, Earth fissures associated with water-table declines [abs.]: Geological Society of America Abstracts with Programs, v. 8, no. 6, p. 923-924.

8. (P) Holzer, T.L., 1977, Crustal uplift caused by ground-water withdrawal in the Lower Santa Cruz Basin, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 9, no. 7, p. 1023.

9. (P) —1977, Potential elastic response of the lithosphere to mining of ground water in the U.S. [abs.]: EOS, Transactions, American Geophysical Union, v. 58, no. 12, p. 1138.

10. (P) Holzer, T.L., and Davis, S.N., and Lofgren, B.E., 1977, Active surface faulting caused by ground-water extraction near Picacho, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 9, no. 4, p. 437.

11. (I) Clark, M.M., Buchanan-Banks, J.M., Holzer, T.L., 1978, Creep along parts of the Garlock fault--possible relation to decline in ground-water level [abs.]: Geological Society of America Abstracts with Programs, v. 10, no. 3, p. 100.

12. (I) Holzer, T.L., 1978, Vertical offset across ground failures associated with ground-water withdrawal from alluvial basin [abs.]: Geological Society of America Abstracts with Programs, v. 10, no. 3, p. 109.

13. (P) —1978, Surface faulting probably related to ground-water withdrawal, San Joaquin Valley, California [abs.]: Geological Society of America Abstracts with Programs, v. 10, no. 7, p. 424.

14. (I) Narasimhan, T.N., and Holzer, T.L., 1978, Possibility of soil deformation in the partially saturated zone due to pore pressure changes [abs.]: Geological Society of America Abstracts with Programs, v. 10, no. 3, p. 138-139.

15. (P) Holzer, T.L., 1979, Results from exploratory drilling near the Picacho fault, south-central Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 3, p. 84.

16. (P) —1979, Surface effects from ground-water withdrawal in arid areas [abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 3, p. 84-85.

17. (P) —1979, Elastic expansion of the lithosphere caused by ground-water withdrawal in south-central Arizona [abs.]: Tectonophysics, v. 52, no. 1-4, p. 304.

18. (P) Holzer, T.L., and Pampeyan, E.H., 1979, Differential subsidence across earth fissures in Arizona, California, and Nevada [abs.]: Geological Society of America Abstracts with Programs, v. 11, no. 7, p. 445.

19. (I) Holzer, T.L., 1980, Land subsidence and ground failure induced by fluid withdrawal in urban areas [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 449.

20. (I) —1980, Overconsolidation of clastic aquifer systems in areas of man-induced land subsidence [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 449.

21. (I) Holzer, T.L., and Verbeek, E.R., 1980, Modern surface faulting in the Goose Creek oil field (Baytown, Texas)—a reexamination [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 449.

22. (I) Holzer, T.L., and Verbeek, E.R., and Riley, F.S., 1980, Surface deformation caused by ground-water withdrawal from unconsolidated aquifers [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 602.

23. (I) Riley, F.S., and Holzer, T.L., 1980, Deformation of aquifer systems caused by ground-water withdrawal [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 510.

24. (P) Holzer, T.L., and Davis, S.N., 1981, Earth fissures caused by ground-water level declines, Sonoran and Mojave Deserts [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 2, p. 61-62.

25. (P) Holzer, T.L., and Bluntzer, R.L., 1981, Significance of petroleum withdrawal to subsidence and surface faulting in the Houston-Galveston, Texas, area [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 475-476.

26. (P) Holzer, T.L., and Gabrysch, R.K., 1982, Historical surface faulting in part of the Houston-Galveston, Texas, subsidence bowl arrested by partial water-level recoveries [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 7, p. 417.

27. (P) Howard, J.H., and Holzer, T.L., 1982, Experimental investigation of wrench faulting in sandy materials [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 7, p. 518.

28. (P) Holzer, T.L., 1985, Surface deformation near ground failure associated with ground-water withdrawal [abs.]: EOS, Transactions, American Geophysical Union, v. 66, no. 46, p. 850.

29. (P) Holzer, T.L., Bennett, M.J., Youd, T.L., and Chen, A.T.F., 1986, Identification of a site to monitor liquefaction during the predicted 1988 Parkfield earthquake, Cholame Valley, California [abs.]: Association of Engineering Geologists Abstracts with Program, Annual Meeting, 19th, San Francisco, p. 51.

30. (I) Holzer, T.L., 1987, Geodetic networks and land subsidence caused by withdrawal of underground fluids [abs.]: EOS, Transactions, American Geophysical Union, v. 68, no. 16, p. 288.

31. (P) —, 1987, Modern surface deformation across fault scarps in Las Vegas Valley, Nevada [abs.]: Geological Society of America Abstracts with Programs, v. 19, no. 7, p. 706.

32. (I) Holzer, T.L., Youd, T.L., Bennett, M.J., and Stepp, J.C., 1987, Parkfield liquefaction and ground motion experiment [abs.]: EOS, Transactions American Geophysical Union, v. 68, no. 44, p. 1350.

33. (I) Holzer, T.L., and Gray, R.E., 1988, Land subsidence in North America--the demise of terra firma [abs]: Geological Society of America Abstracts with Programs, v. 20, no. 7, p. A82.

34. (P) Holzer, T.L. 1989, Catastrophic collapse along fissures caused by withdrawal of ground water from unconsolidated aquifer systems [abs]: International Geological Congress, 28th, Abstracts, v. 2, p. 67.

35. (P) Prandini, F.L., Nakazawa, V.A., and Holzer, T.L., 1989, Covered karst of Cajamar town, São Paulo, Brazil [abs]: International Geological Congress, 28th, Abstracts, v. 2, p. 63-64.

36. (P) Holzer, T. L., 1989, Detection of unsaturation beneath a water table [abs]: Geological Society of America Abstracts with Programs, v. 21, no. 6, p. A41.

37. (P) Bennett, M.J., Bonilla, M.G., and Holzer, T.L., 1990, Liquefaction in the Marina District, San Francisco, California during the Loma Prieta earthquake [abs.]: Geological Society of America Abstracts with Programs, v. 22, no. 7, p. A188.

38. (I) Holzer, T.L., 1993, Land subsidence and poroelasticity [abs.]: EOS, Transactions, American Geophysical Union, v. 74, no. 43 (Fall Meeting Supplement), p. 255.

39. (P) Holzer, T.L., Tinsley, J.C., III, and Bennett, M.J., 1994, Field measurements and prediction of ground deformation: Miller Farm Lateral Spread, Watsonville, California [abs.]: Abstracts: 5th U.S.-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Soil Liquefaction, Snowbird, Utah, p. 2.

40. (P) Kayen, R.E., Mitchell, J.K, and Holzer, T.L., 1994, Ground motion characteristics and their relation to soil liquefaction at Wildlife liquefaction array [abs.]: Abstracts: 5th U.S.-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Soil Liquefaction, Snowbird, Utah, p. 2.

41. (P) Holzer, T.L., and Bennett, M.J., 1994, Searching for a paleoliquefaction signature in geotechnical borings in sands [abs.]: Geological Society of America Abstracts with Programs, v. 26, no. 7, p. A252 - A253.

42. (P) Holzer, T.L., and Bennett, M.J., 1994, A paleoliquefaction signature in natural sand deposits? [abs.]: EOS, Transactions, American Geophysical Union, v. 75, no. 44 (Fall Meeting Supplement), p. 452.

43. (P) Holzer, T.L., Fuis, G.S., Fletcher, J.B., Brocher, T.M., Dietel, C.M., and Ryberg, T., 1995, Interpretation of the FNO seismogram of the April 19, 1995, Oklahoma City, Oklahoma, bombing [abs.]: EOS, Transactions, American Geophysical Union, v. 76, no. 46 (Fall Meeting Supplement), p. 379.

44. (I) Holzer, T.L., 1996, The 1995 Kobe, Japan, earthquake: Implications for earthquake risk reduction [abs.]: Program with Abstracts: 1996 American Association for the Advancement of Science Annual Meeting and Science Innovation Exposition, Baltimore, MD, p. A-151.

45. (I) Holzer, T.L., 1997, Postearthquake investigations--Lessons learned by the U.S. Geological Survey [abs.]: Abstracts, International Symposium on Geology for Geohazard Mitigation in Asia, Japanese Agency of Industrial Science and Technology, Osaka, Japan, p. 35-36.

46. (P) Bennett, M.J., Holzer, T.L., Ponti, D.J., and Tinsley, J.C., 1998, Geotechnical investigation of liquefaction-induced ground deformation in alluvium during the 1994 Northridge, California, earthquake [abs.]: Association of Engineering Geologists Program with Abstracts, Annual Meeting, 41st, Seattle, p. 77.

47. (I) Holzer, T.L., 1998, Earthquakes and natural disaster insurance [abs.]: Association of Engineering Geologists Program with Abstracts, Annual Meeting, 41st, Seattle, p. 49. (Also Holzer, T.L., 1998, Earthquakes and natural disaster insurance [abs.]: Geological Society of America Abstracts with Programs, v. 30, no. 7, p. A253.)

48. (I) Holzer, T.L., 1998, Ricerca e produzione di idrocarburi e aree a potenziale subsidenza: Il ruolo della [abs.]: L'umpatto ambientalle dellat ricerca e della produzione di idrocarburi: Realta' e percezione, September 21, 1998, Centro V.I.A. Italia, Milan, Italy, p. 11.

49. (I) Holzer, T.L., 1999, Sensitivity of loss models to ground motion [abs.]: Workshop on loss estimation methodologies for disaster risk reduction, New York City Area Consortium for Earthquake Loss Mitigation, Palisades, NY, January 7-8, 1999.

50. (I) Holzer, T.L., 1999, Insuring natural hazards: The need for greater predictive capability [abs.]: Geological Society of America Abstracts with Programs, v. 31, no. 7, p. A434.

51. (P) Stow, S.H., Abbott, D.M., Cronin, V., Dunne, D., Hatcher, R.D., Holzer, T.L., and Melrose, T., 1999, Guidelines for ethical professional conduct issued by the American Geological Institute [abs.]: Geological Society of America Abstracts with Programs, v. 31, no. 7, p. A136.

51. (I) Holzer, T.L., 1999, The 1989 Loma Prieta, California, earthquake: A 10-year perspective [abs.]: EOS, Transactions, American Geophysical Union, v. 80, no. 46 (Fall Meeting Supplement), p. F38.

52. (P) Meremonte, M., Ozel, O., Cranswick, E., Erdik, M. Safak, E., Overturf, D., Frankel, A., and Holzer, T.L., 1999, Damage and site response in Avcilar, West of Istanbul [abs.]: EOS, Transactions, American Geophysical Union, v. 80, no. 46 (Fall Meeting Supplement), p. F673.

53. (P) Muller, C.S., Carver, D., Safak, E., Cranswick, E., Meremonte, M., Frankel, A. and Holzer, T.L., 1999, Aftershocks of the 1999 Kocaeli, Turkey, earthquake recorded on portable digital seismographs [abs.]: EOS, Transactions, American Geophysical Union, v. 80, no. 46 (Fall Meeting Supplement), p. F670.

54. (P) Holzer, T.L., and Toprak, S., 1999, Differential building settlements caused by liquefaction during the Izmit, Turkey, earthquake [abs.]: EOS, Transactions, American Geophysical Union, v. 80, no. 46 (Fall Meeting Supplement), p. F673.

55. (I) Holzer, T.L., 2000, Seismograms offer insight into the 1995 Oklahoma City bombing [abs.]: Association of Engineering Geologists Program with Abstracts, Annual Meeting, 43rd, v. 43, no. 4, p. 90.

56. (P) Holzer, T.L., 2000, Horizontal creep across earth fissures–Picacho basin, Arizona [abs.]: Geological Society of America Abstracts with Programs, v. 32, no. 7, p. A494.

57. (P) Holzer, T.L., Bennett, M.J., Toprak, S., 2002, Liquefaction potential index and seismic hazard mapping in the San Francisco Bay area, California [abs.]: Abstracts, 7th National Conference on Earthquake Engineering, p. 225.

58. (I) Holzer, T.L., 2002, Forensic seismology and the 1995 Oklahoma City terrorist bombing [abs.]: EOS, Transactions, American Geophysical Union, v. 83, no. 19 (Spring Meeting Supplement), p. S2.

59. (P) Holzer, T.L., Bennett, M.J., Noce, T.E., Padovani, A.C., and Tinsley, J.C., III, 2003, The liquefaction potential index [abs.]: Geological Society of America Abstracts with Programs, v. 34, no. 7, p. 310.

60. (P) Holzer, T.L., 2003, Earthquake loss estimation: What matters? [abs.]: EOS, Transactions, American Geophysical Union, v.84, no. 46 (Fall Meeting Supplement), p. F15.

61. (P) Holzer, T.L., Noce, T.E., Tinsley, J.C., III, Bennett, M.J., and Rosenberg, L.I., 2004, Subsurface geologic conditions at two lateral spreads, Oceano, California, 2003 San Simeon Earthquake [abs.]: Seismological Research Letters, v. 75, no. 2, p. 293-294.

62. (P) Holzer, T., Toprak, S., Bennett, M., Noce, T., Tinsley, J., 2004, Quantitative liquefaction hazard mapping with the liquefaction potential index [abs.]: 32nd International Geological Congress, Scientific Sessions: abstracts (part 1), p. 399.

63. (P) Holzer, T.L., J.L. Blair, T.E. Noce, and Bennett, 2006, LiqueMap: A real-time postearthquake map of liquefaction probability [abs.]: Abstracts, 8th National Conference on Earthquake Engineering.

64. (P) Holzer, T.L., J.L. Blair, T.E. Noce, and M.J. Bennett, 2006, Predicted liquefaction of east bay fills during a repeat of a 1906 San Francisco, California, earthquake [abs.]: Seismological Research Letters, v. 77, no. 2, p. 275.

65. (P) Holzer, T.L., and Bennett, M.J., 2007, Geology and lateral spreading [abs.]: First North American Landslide Conference.

66. (P) Holzer, T.L., 2007, Forensic seismology [abs.]: Geological Society of America Abstracts with Programs, v. 39, no. 6, p. 198.

67. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2007, Liquefaction Scenarios in the Northern Santa Clara Valley for a Repeat of the 1868 Hayward Fault (M6.7-7.0) Earthquake [abs.]: EOS Transactions, American Geophysical Union, v. 88, no. 52, Fall Meeting Supplement, Abstract S21A-0234.

68. (P) Noce, T.E., Holzer, T.L., and Bennett, M.J., 2008 , 2007, LiqueMap: A real-time postearthquake map of liquefaction probability [abs.]: EOS Transactions, American

Geophysical Union, v. 88, no. 52, Fall Meeting Supplement, Abstract S51A-0225.

69. (P) Holzer, T.L., and Rix, G.J., 2008, Development of a probabilistic method for regional liquefaction hazard mapping based on liquefaction potential index [abs.]: Seismological Research Letters, v. 79, no. 2, p. 276-277.

70. (P) Holzer, T.L., Bennett, M.J., and Noce, T.E., 2008, Evaluations of probabilistic LPI-based maps of liquefaction hazard using observed liquefaction in historical earthquakes [abs.]: Seismological Research Letters, v. 79, no. 2, p. 277.

71. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2008, Predicted liquefaction in the Greater Oakland Area and Northern Santa Clara Valley during a repeat of the 1868 Hayward Fault (M6.7-7.0) Earthquake [abs.]: Third conference on earthquake hazards in the East San Francisco Bay area-Science, hazard, engineering, and risk, Conference Program with Abstracts, p.51.

72. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2008, Predicted liquefaction in the Greater Oakland and Northern Santa Clara Valley areas for a repeat of the 1868 Hayward earthquake [abs.]: EOS Transactions, American Geophysical Union, v. 89, no. 52, Fall Meeting Supplement, Abstract S11A-1714.

73. (P) Galloway, D.L., and Holzer, T.L., 2008, Ground failures related to ground-water extraction in the Southwestern United States [abs.]: Reunión Anual de la Unión Geofísica Mexicana, Puerto Vallarta, Mexico.

74. (I) Holzer, T.L. and Wesson, R.L., 2009. The national and scientific legacies of the 1989 Loma Prieta Earthquake [abs.]: Seismological Research Letters, v. 80, no. 2, p. 333.

75. (I) Holzer, T.L., 2009, Implications of ground-deformation measurements across earth fissures in subsidence areas in the southwest [abs.]: Abstracts of the 2009 Ground Water Summit, National Ground Water Association, p. 174.

76. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2009, Liquefaction probability curves for surficial geologic deposits [abs.]: EOS Transactions, American Geophysical Union, v. 90, no. 52, Fall Meeting Supplement, Abstract NH43B-1322.

77. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2010, Regional strong ground motion during the 1811-1812 New Madrid earthquakes inferred from paleoliquefaction [abs.]: Geological Society of America Abstracts with Programs, v.42, no. 5, p.

78. (I) Holzer, T.L., Bennett, M.J., and Noce, T.E., 2011, Probabilistic liquefaction hazard mapping efforts in the San Francisco Bay Area, California, and future needs [abs.]: Seismological Research Letters, v. 82, no. 2, p. 315.

79. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2011, Regional peak ground acceleration during the 1811-12 New Madrid earthquakes inferred from paleoliquefaction in Quaternary sediments [abs.]: Seismological Research Letters, v. 82, no. 2, p. 334.

80. (I) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2011, Implications of liquefaction caused by the 1811-12 New Madrid earthquakes for ground shaking and earthquake magnitudes [abs.]: Seismological Research Letters, v. 82, no. 2, p. 274.

81. (P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2012, Liquefaction evidence for large magnitudes of the 1811-1812 New Madrid earthquakes [abs.]: Geological Society of America Abstracts with Programs, v.44, no. 5, p.

82. (P) Maier, K.L., Gatti, E., Ponti, D.J., Holzer, T.L., Tinsley, J.C., Pagenkopp, M.E., Starratt, S.W., Wan, E., Hillhouse, J.W., Burtt, D., 2013, Geologic interpretations of geotechnical data in the Quaternary Sacramento-San Joaquin Delta, California, U.S.A. [abs.]: Geological Society of America Abstracts with Programs, v.45, no. 7, p. 374.

83. (P) Gatti, E., Maier, K.L., Holzer, T., Knudsen, K., Olson, H., Pagenkopp, M., Ponti, D., Rosa, C., Tinsley, J., Wan, E., 2013, Quaternary geology and geomorphology of the Sacramento-San Joaquin Delta, California: evolution and processes [abs.]: EOS Transactions, American Geophysical Union, v. 94, no. 52, Fall Meeting Supplement.

84. (P) Maier, K.L., Gatti, E., Ponti, D.J., Tinsley, J.C., Starratt, S.W., Hillhouse, J.W., Pagenkopp, M., Olson, H.A., Burtt, D., Rosa, C., and Holzer, T.L., 2013, New identification and interpreted correlation, deposition, and significance of widespread Quaternary volcanic ash in the Sacramento-San Joaquin Delta, California [abs]: EOS Transactions, American Geophysical Union, v. 94, no. 52, Fall Meeting Supplement.

BIBLIOGRAPHY

(Ad)	Administrative Report	(M)	Map
(B, Ch)	Book, Chapter	(O)	Open-file Report
(BR)	Book Review	(P)	Paper
(F)	USGS Fact Sheet	(R, D)	Reply, discussion

1. (P) Holzer, T.L., 1973, Inland wetlands and ground water in eastern Connecticut: Proceedings of Wetlands Conference, Storrs, Connecticut, June 20, 1973: Water Resources Institute Report 21, p. 66-81.

2. (D) —, 1973, Comments on "Determination of the hydraulic diffusivity of a heterogeneous confining bed" by R.G. Wolff and S.S. Papadopulos: Water Resources Research, v. 9, no. 4, p. 1104-1105.

3. (P) Holzer, T.L., and Höeg, K., 1973, Effect of seismic loading on undrained clay creep: American Society of Civil Engineers Journal of the Soil Mechanics and Foundations Division, v. 99, no. 1, p. 153-158.

4. (P) Holzer, T.L., Höeg, K., and Arulanandan, K., 1973, Excess pore pressures during undrained clay creep: Canadian Geotechnical Journal, v. 10, no. 1, p. 12-24.

5. (R) Holzer, T.L., 1974, Excess pore pressures during undrained clay creep —, Reply: Canadian Geotechnical Journal, v. 11, no. 1, p. 216-217.

6. (P) —, 1975, Limits to growth and septic tanks, *in* Jewel, W. J., and Swan, R., eds., Water pollution control in low density areas – Proceedings of a Rural Environmental Engineering Conference: Hanover, New Hampshire, University Press of New England, p. 65-74.

7. (P) —, 1976, Application of ground-water flow theory to a subsurface oil spill: Ground Water, v. 14, no. 3, p. 138-145.

8. (Ad) Holzer, T.L., and Mifflin, M.D., 1977, Recommended investigation – Land subsidence and potential ground rupture in Las Vegas Valley, Nevada: U.S. Geological Survey Administrative Report, 18 p.

9. (P) Holzer, T.L., 1977, Ground failure in areas of subsidence due to ground-water decline in the United States, *in* International Symposium on Land Subsidence, 2nd, Anaheim, California, 1976, Proceedings: International Association of Hydrological Sciences Publication 121, p. 423-433.

10. (D) Gabrysch, R.K., and Holzer, T.L., 1978, Discussion of "Fault control of subsidence, Houston, Texas," by C.W. Kreitler: Ground Water, v. 16, no. 1, p. 51-55.

11. (O) Holzer, T.L., 1978, Documentation of potential for surface faulting related to ground-water withdrawal in Las Vegas Valley, Nevada: U.S. Geological Survey Open-file Report 78-79, 21 p., 9 figs.

12. (O) —, 1978, Results and interpretation of exploratory drilling near the Picacho fault, south-central Arizona: U.S. Geological Survey Open-file Report 78-1016, 17 p., 13 figs., 3 tables, 3 pls.

13. (P) Holzer, T.L., and Thatcher, W., 1979, Modeling deformation due to subsidence faulting, *in* Saxena, S.K., ed., Evaluation and prediction of subsidence--International Conference of Evaluation and Prediction of Subsidence, Pensacola Beach, Florida, U.S.A., 1978, Proceedings: American Society of Civil Engineers, p. 349-357.

14. (P) Holzer, T.L., Davis, S.N., and Lofgren, B.E., 1979, Faulting caused by groundwater extraction in southcentral Arizona: Journal of Geophysical Research, v. 84, no. B2, p. 603-612.

15. (O) Holzer, T.L., and Pampeyan, E.H., 1979, Earth fissures and localized differential subsidence: U.S. Geological Survey Open-file Report 78-951, 9 p., 2 figs.

16. (P) Holzer, T.L., 1979, Elastic expansion of the lithosphere caused by ground-water depletion: Journal of Geophysical Research, v. 84, no. B9, p. 4689-4698.

17. (P) Jachens, R.C., and Holzer, T.L., 1979, Geophysical investigations of ground failure related to ground-water withdrawal – Picacho basin, Arizona: Ground Water, v. 17, no. 6, p. 574-585.

18. (O) Holzer, T.L., 1979, Leveling data – Eglington fault scarp, Las Vegas Valley, Nevada: U.S. Geological Survey Open-file Report 79-950, 7 p., 2 figs., 1 table.

19. (M) —, 1980, Reconnaissance maps of earth fissures and land subsidence, Bowie and Willcox areas, Arizona: U.S. Geological Survey Miscellaneous Field Studies map MF-1156, scale 1: 24,000. 2 sheets.

20. (P) —, 1980, Research at the U.S. Geological Survey on faults and earth fissures associated with land subsidence: Geological Society of America, The Engineering Geologist, v. 15, no. 3, p. 1-3.

21. (P) —, 1980, Faulting caused by ground-water level declines, San Joaquin Valley, California: Water Resources Research, v. 16, no. 6, p. 1065-1070.

22. (R) —, 1981, A reply to "Is there a Casa Grande bulge and will it cause earthquakes in Arizona?": Arizona Bureau of Geology and Mineral Technology, Fieldnotes, v. 11, no. 1, p. 9-11.

23. (P) Holzer, T.L., and Pampeyan, E.H., 1981, Earth fissures and localized differential subsidence: Water Resources Research, v. 17, no. 1, p. 223-227.

24. (P) Holzer, T.L., 1981, Preconsolidation stress of aquifer systems in areas of induced land subsidence: Water Resources Research, v. 17, no. 3, p. 693-704.

25. (P) Jachens, R.C., and Holzer, T.L., 1982, Differential compaction mechanism for earth fissures near Casa Grande, Arizona: Geological Society of America Bulletin, v. 93, no. 10, p. 998-1012.

26. (P) Holzer, T.L., Gabrysch, R.K., and Verbeek, E.R., 1983, Faulting arrested by control of ground-water withdrawal in Houston, Texas: Earthquake Information Bulletin, v. 15, no. 6, p. 204-209.

27. (P) Holzer, T.L., and Bluntzer, R.L., 1984, Land subsidence near oil and gas fields, Houston, Texas: Ground Water, v. 22, no. 4, p. 450-459.

28. (P) Holzer, T.L., 1984, Ground failure induced by ground-water withdrawal from unconsolidated sediment, *in* Holzer, T.L., ed., Man-induced land subsidence: Geological Society of America Reviews in Engineering Geology, v. VI, p. 67-105.

29. (B) — (editor), 1984, Man-induced land subsidence: Geological Society of America Reviews in Engineering Geology, v. VI, 221 p.

30. (P) —, 1985, A review of methods for predicting land subsidence caused by withdrawal of ground water, *in* International Symposium on the North American Vertical Datum, 3rd, Rockville, MD, 1985, Proceedings: National Ocean Service, Department of Commerce, p. 177-185.

31. (P) —, 1985, Land subsidence: National Research Council. Ground Failure, v. 1, no. 2, p. 10-12 (Reprinted in Underground Space, v. 9, 1985, and Earthquakes and Volcanoes, v. 18, no. 3, p. 131-137, 1986).

32. (P) Holzer, T.L., and Johnson, A.I., 1985, Land subsidence caused by ground-water withdrawal in urban areas: GeoJournal, v. 11, no. 3, p. 245-255.

33.(BR)Holzer, T.L., 1985, Review of "Collected case studies in engineering geology, hydrogeology, and engineering geology" by M.J. Knight, E.J. Minty, and R.B. Smith: Engineering Geology, v. 22, p. 378-379.

34. (O) Holzer, T.L., Bennett, M.J., Youd, T.L., and Chen, A.T.F., 1986, Field investigation to identify a site for monitoring liquefaction, Cholame Valley, California: U.S. Geological Survey Open-file Report 86-346, 34 p.

35. (P) Holzer, T.L., 1986, Ground failure caused by ground-water withdrawal from unconsolidated sediments, *in* International Symposium on Land Subsidence, 3rd, Venice, Italy, 1984, Proceedings, International Association of Hydrological Sciences Publication 151, p. 747-756.

36. (P) Holzer, T.L., and Gabrysch, R.K., 1987, Effect of water-level recoveries on fault creep, Houston, Texas: Ground Water, v. 25, no. 4, p. 392-397.

37. (P) Holzer, T.L., and Lluria, M.R., 1987, Selected hydrogeologic problems in central Arizona, *in* Davis, G.H., and Vanden Dolder, E.M., eds., Geologic diversity of Arizona and its margins – Excursions to choice areas: Arizona Bureau of Mines and Technology Special Paper 5, p. 205-211.

38. (P) Holzer, T.L., Bennett, M.J., Youd, T.L., and Chen, A.T.F., 1988, Parkfield, California, liquefaction prediction: Seismological Society of America Bulletin, v. 78, no. 1, p. 385-389.

39. (P) Pampeyan, E.H., Holzer, T.L., and Clark, M.M., 1988, Modern ground failure in the Garlock Fault zone, Fremont Valley, California: Geological Society of America Bulletin, v. 100, no. 5, p. 677-691.

40. (P) Holzer, T.L., Youd, T.L., and Bennett, M.J., 1989, In situ measurement of pore pressure build-up during liquefaction, *in* Wind and Seismic Effects Meeting, 20th, Gaithersburg, MD, 1988, Proceedings: National Institute of Standards and Technology Special Publication 760, p. 118-130.

41. (P) Holzer, T.L., Bennett, M.J., and Youd, T.L., 1989, Lateral spreading field experiments by the U.S. Geological Survey, *in* O'Rourke, T.D., and Hamada, M., U.S.-Japan workshop on liquefaction, large ground-deformation and their effects on lifelines, 2nd, Buffalo, 1989, Proceedings, National Center for Earthquake Engineering Research Technical Report NCEER-89-0032, p. 82-101.

42. (P) Holzer, T.L., Youd, T.L., and Hanks, T.C., 1989, Dynamics of liquefaction during the 1987 Superstition Hills, California, earthquake: Science, v. 244, p. 56-59.

43. (P) Youd, T.L., Holzer, T.L., and Bennett, M.J., 1989, Liquefaction lessons learned from Imperial Valley, California, *in* International Conference on Soil Mechanics and Foundation Engineering, 12th, Rio de Janeiro, 1989, Proceedings, p. 47-54.

44. (P) Youd, T.L., Tang, Y.K., Stepp, J.C., Holzer, T.L., and Jackson, G.O., 1989, A wedging system for downhole accelerometers: Earthquake Spectra, v. 5, no. 4, p. 813-818.

45. (P) Holzer, T.L., 1989, State and local response to damaging land subsidence in United States urban areas: Engineering Geology, v. 27, p. 449-466.

46. (P) Plafker, George, and Galloway, John P., 1989, Lessons learned from the Loma Prieta, California, Earthquake of October 17, 1989: U.S. Geological Circular 1045, 48 p. (Co-authored section on liquefaction)

47. (P) U.S. Geological Survey Staff, 1990, The Loma Prieta, California, earthquake: an anticipated event: Science, v. 247, p. 286-293. (Co-authored section on liquefaction)

48. (O) Holzer, T.L., and O'Rouke, T.D. (editors), 1990, Effects of the Loma Prieta Earthquake on the Marina District, San Francisco, California: U.S. Geological Survey Open-file Report 90-253, 127 p.

49. (P) Prandini, F.L., Nakazawa, V.A., Dantas, A.M.A., and Holzer, T.L., 1990, Karst and urbanization: Investigation and monitoring in Cajamar, São Paulo State, Brazil, *in* Simpson, E.S., and Sharp, J.M., Jr., eds., International Association of Hydrogeologists, Selected Papers on Hydrogeology from the 28th International Geological Congress, v. 1, p. 53-65.

50. (P) Holzer, T.L. 1991, Nontectonic subsidence, *in* Kiersch, G.A., ed., The heritage of engineering geology; The first hundred years: Geological Society of America Centennial Special Volume 3, p. 219-232.

51. (P) Panel on Land Subsidence, 1991, Mitigating losses from land subsidence in the United States: National Academy of Sciences, National Research Council, 58 p. (Author of Chapter 1 and edited whole report) http://www.nap.edu/books/POD309/html/55.html

52. (P) Holzer, T.L., and Clark, M.M., 1993, Sand boils without earthquakes: Geology, v. 21, no. 10, p. 873-876.

53. (P) Youd, T.L., and Holzer, T.L., 1994, Piezometer performance at the Wildlife liquefaction site, California: American Society of Civil Engineers, Journal of Geotechnical Engineering, v. 120, no. 6, p. 975-995.

54. (P) Holzer, T.L., 1994, Loma Prieta damage largely attributed to enhanced ground shaking: Transactions, American Geophysical Union, *EOS*, v. 75, no. 26, p. 299-301. (Reprinted in Oregon Geology, v. 56, no. 5, p. 111-113, 1994)

55. (P) Holzer, T.L., 1994, Predicting earthquake effects - learning from Northridge and Loma Prieta: Science, v. 265, p. 1182-1183. (Reprinted in Current Issues in Geology, Selected Readings, McKinney, M.L., and Tolliver, R.L., eds., West Publishing Company, p. 33-34, 1995)

56. (P) Holzer, T.L., Tinsley, J.C., III, Bennett, M.J., and Mueller, C.S., 1994, Observed and predicted ground deformation - Miller Farm lateral spread, Watsonville, California, *in* O'Rourke, T.D., and Hamada, M., eds., U.S. - Japan workshop on earthquake resistant design of lifeline facilities and countermeasures against liquefaction, 5th, Snowbird, 1994, Proceedings, National Center for Earthquake Engineering Research Technical Report NCEER-94-0026, p. 79-99.

57. (P) Kayen, R.E., Mitchell, J.K., and Holzer, T.L., 1994, Ground motion characteristics and their relation to soil liquefaction at the Wildlife liquefaction array, Imperial Valley, California, *in* O'Rourke, T.D., and Hamada, M., eds., U.S. - Japan workshop on earthquake resistant design of lifeline facilities and countermeasures against liquefaction, 5th, Snowbird, 1994, Proceedings, National Center for Earthquake Engineering Research Technical Report NCEER-94-0026, p. 267-283.

58. (P) Holzer, T.L., 1995, The 1995 Hanshin-Awaji (Kobe), Japan, earthquake: GSA Today, v. 5, no. 8, p. 154-167.

59. (Ad) Holzer, T.L., Fuis, G.S., Ryberg, T., Fletcher, J.B., Brocher, T.M., and Dietel, C.M., 1995, Interpretation of seismograms of the April 19, 1995, Oklahoma City bombing: U.S. Geological Survey Administrative Report to FBI, 9 p., 3 figs.

60. Holzer, T.L., 1995, Kobe earthquake damage: Geological Society of America Slide Set SLI001, 30 slides.

61. (R) Youd, T.L., and Holzer, T.L., 1995, Reply to R.F. Scott and B. Hushmand, Discussion of "Piezometer performance at the Wildlife liquefaction site, California": Journal of Geotechnical Engineering, v. 121, no. 12, p. 919.

62. (O) U.S. Geological Survey, 1996, USGS Response to an urban earthquake, Northridge '94: U.S. Geological Survey Open-file Report 96-263, 78 p. (Co-author of section "How does ground failure occur?")

63. (P) Chung, R. M.; Ballantyne, D. B.; Comeau, E.; Holzer, T. L.; Madrzykowski, D.; Schiff, A. J.; Stone, W. C.; Wilcoski, J.; Borcherdt, R. D.; Cooper, J. D.; Lew, H. S.; Moehle, J.; Sheng, L. H.; Taylor, A. W.; Bucker, I.; Hayes, J.; Leyendecker, E. V.; O'Rourke, T.; Singh, M. P.; Whitney, M., 1996, *January 17, 1995 Hyogoken-Nanbu (Kobe) earthquake: Performance of Structures, Lifelines, and Fire Protection Systems*: National Institute of Standards and Technology Special Report 901, 538 p. (Author of sections on geological and geotechnical settings and ports and harbors) http://fire.nist.gov/bfrlpubs/build96/art002.html

64. (P) Holzer, T.L., Fletcher, J.B., Fuis, G.S., Ryberg, T., Brocher, T.M., and Dietel, C.M., 1996, Seismograms offer insight into Oklahoma City bombing: Transactions, American Geophysical Union, *EOS*, v. 77, no. 41, p. 393,398-399. (Edited and Reprinted in Earth in Space)

65. (P) Holzer, T.L., Bennett, M.J., Tinsley, J.C., III, Ponti, D.J. and Sharp, R.V., 1996, Causes of ground failure in alluvium during the Northridge, California, earthquake of January 17, 1994, *in* Hamada, M. and O'Rourke, T.D., eds., U.S. - Japan workshop on earthquake resistant design of lifeline facilities and countermeasures against liquefaction, 6th, Tokyo, 1996, Proceedings, National Center for Earthquake Engineering Research Technical Report NCEER-96-0012, p. 345-360.

66. (P) Power, M.S., and Holzer, T.L., 1996, Liquefaction maps: Applied Technology Council TechBrief 1, 12 p.

67.(Ad) NEHRP, 1996, Reducing the effects of earthquakes in the United States: National Earthquake Hazards Reduction Program Biennial Report to Congress, Fiscal Years, 1995-1996, Federal Emergency Management Agency (Author of USGS Loma Prieta and Kobe Studies, p. G-5-G-10)

68. (P) Massonnet, D., Holzer, T.L., and Vadon, H., 1997, Land subsidence caused by the East Mesa geothermal field, California, observed using SAR interferometry: Geophysical Research Letters, v. 24, no. 8, p. 901-904.

69. (P) Holzer, T.L., 1998, Relevance of earthquake science and engineering to insurance, *in* Earthquake insurance: Public policy perspectives from the Western United States earthquake insurance summit, June 25-26, 1998, Sacramento, CA, Western States Seismic Policy Council, San Francisco, p. 189-190.

70. (P) Holzer, T.L., 1998, Introduction, *in* Holzer, T.L., ed., The Loma Prieta, California, earthquake of October 17, 1989 – Liquefaction: U.S. Geological Survey Professional Paper 1551-B, p. B1-B8.

71. (B) Holzer, T.L. (editor), 1998, The Loma Prieta, California, earthquake of October 17, 1989 – Liquefaction: U.S. Geological Survey Professional Paper 1551-B, 314 p.

72. (M) Tinsley, J. C., III, Egan, J.A., Kayen, R.E., Bennett, M.J., Kropp, A., and Holzer, T.L., 1998, Appendix: Maps and descriptions of liquefaction and associated effects, *in* Holzer, T.L., ed., The Loma Prieta, California, earthquake of October 17, 1989 – Liquefaction: U.S. Geological Survey Professional Paper 1551-B, p. B287-B314, 2 pls. (1:125,000).

73. (P) Holzer, T.L., 1998, The history of the aquitard-drainage model, *in* Borchers, J.W., ed., Land subsidence: Case histories and current research: Association of Engineering Geologists Special Publication no. 8, p. 7-16.

74. (O) Bennett, M.J., Ponti, D.J., Tinsley, J.C., III, Holzer, T.L., and Conway, C.H., 1998, Subsurface geotechnical investigations near sites of ground deformation caused by the January 17, 1994, Northridge, California, earthquake: U.S. Geological Survey Open-file Report 98-373, 145 p.

75. (P) Holzer, T.L., 1998, Introduction, *in* Holzer, T.L., ed., The Loma Prieta, California, earthquake of October 17, 1989 – Earth structures and engineering characterization of ground motion: U.S. Geological Survey Professional Paper 1552-D, p. D1.

76. (B) Holzer, T.L. (editor), 1998, The Loma Prieta, California, earthquake of October 17, 1989 – Earth structures and engineering characterization of ground motion: U.S. Geological Survey Professional Paper 1552-D, 80 p.

77. (P) Holzer, T.L., Bennett, M.J., Ponti, D.J., and Tinsley, J.C., III, 1999, Liquefaction and soil failure during 1994 Northridge earthquake: Journal of Geotechnical and Geoenvironmental Engineering, v. 125, no. 6, p. 438-452.

78.(P) Holzer, T.L., 1999, A 1978 Cordilleran section symposium: Debating ideas relevant to the west, *in* Moores, E.M., Sloan, D., and Stout, D.L., eds., Classic Cordilleran concepts: A view from California, Geological Society of America Special Paper 338, p. 416.

79. (P) Holzer, T.L., 1999, Extensive research on Loma Prieta improves understanding of earthquakes: Transactions, American Geophysical Union, *EOS*, v. 80, no. 41, p. 482-483.

80. (P) Toprak, S., Holzer, T.L., Bennett, M.J., and Tinsley, J.C., III, 1999, CPT- and SPT-based probabilistic assessments of liquefaction potential, *in* O'Rourke, T.D., Bardet, J-P., and Hamada, M., eds., U.S. - Japan workshop on earthquake resistant design of lifeline facilities and countermeasures against liquefaction, 7th, Seattle, 1999, Proceedings, Multidisciplinary Center for Earthquake Engineering Research Technical Report MCEER-99-0019, p. 69-86.

81. (P) Celebi, M., Toprak, S., and Holzer, T.L., 1999, Strong-motion, site-effects, and hazard issues in rebuilding Turkey: in light of the 17 August 1999 earthquake and its aftershocks, *in* Karaca, M., and Ural, D.N., eds., ITU-IAHS International conference on the Kocaeli earthquake, 17 August 1999, Istanbul, 1999, Proceedings, Istanbul Technical University, p.

93-110. (Reprinted in International Journal for Housing Science and its Applications, v. 24, no. 1, p. 21-38)

82. (P) U.S. Geological Survey (Holzer, T.L., scientific editor), 2000, Implications for earthquake risk reduction in the United States from the Kocaeli, Turkey, earthquake of August 17, 1999: U.S. Geological Survey Circular 1193, 64 p. (http://pubs.usgs.gov/circ/2000/c1193/)

83. (P) Mitchell, J., and Holzer, T., 2000, Geotechnical effects, *in* Scawthorn, Charles, ed., The Marmara, Turkey, earthquake of August 17, 1999–Reconnaissance report: Multidisciplinary Center for Earthquake Engineering Research Technical Report MCEER-00-0001, p, 19-36.

84. (P) Holzer, T.L., 2000, The August 17, 1999, Kocaeli, Turkey, earthquake - A lesson for California?: California Geology, v. 53, no. 6, p. 4-16.

85. (P) Holzer, T.L., 2000, Methods for prediction of earth fissures and faults associated with groundwater withdrawal, *in* The Fragile Territory, Congresso Nazionale dei Geologi, 10th, Rome, Proceedings, Consiglio Nazionale dei Geologi, p. 179-185.

86. (P) Holzer, T.L., Toprak, S., and Bennett, M.J., 2002, Liquefaction potential index and seismic hazard mapping in the San Francisco Bay area, California, *in* Urban Earthquake Risk, National Conference on Earthquake Engineering, 7th, Boston, Proceedings, v. II, p. 1699-1706

87. (M) Holzer, T.L., Bennett, M.J., Noce, T.E., Padovani, A.C., and Tinsley, J.C., III, 2002, Liquefaction hazard and shaking amplification maps of Alameda, Berkeley, Emeryville, Oakland, and Piedmont, California: A digital database: U.S. Geological Survey Open-file Report 02-296. (http://pubs.usgs.gov/of/2002/of02-296/)

88. (O) Holzer, T.L., Wentworth, C.M., Bakun, W.H., Boatwright, J., Brocher, T.M., Çelebi, M., Ellsworth, W.L., Fletcher, J.P.B., Geist, E.L., Graymer, R.W., Kayen, R.E., Keefer, D.K., Oppenheimer, D.H., Savage, W.U., Schwartz, D.P., and Simpson, R.W., 2002, Comments on potential geologic and seismic hazards affecting Mare Island, Solano County, California: U.S. Geological Survey Open-file Report 02-425, 14 p, 8 figs. (http://geopubs.wr.usgs.gov/open-file/of02-425/) (Wentworth and I wrote the OFR based on technical input from others)

89. (P) Holzer, T.L., Noce, T.E., Bennett, M.J., Haefner, S., 2002, Distribution of USGS CPT data via the web, *in* Swift, J.N., Stepp, J.C., Roblee, C.J., Turner, L.L., Real, C.R., and Savage, W.U., eds., Invited workshop on archiving and web dissemination of geotechnical data, Richmond, CA, Proceedings, COSMOS Publication no. CP-2001-03 (Also PEER 2002/04), p. 93-96.

90. (P) Noce, T.E., and Holzer, T.L., 2003, CPT-hole closure: Ground Water Monitoring & Remediation, v. 23, no. 1, p. 93-96. (*Concept 80%; Writing 90%; Analysis 50%; Data collection 10%*)

91. (P) Holzer, T.L., Borcherdt, R.D., Comartin, C.D., Hanson, R.D., Scawthorn, C.R., Tierney, K., and Youd, T.L., 2003, The plan to coordinate NEHRP post-earthquake investigations: U.S. Geological Survey Circular 1242, 17 p. (http://geopubs.wr.usgs.gov/circular/c1242) (*Concept 30%; Writing 90%)*

92. (P) Toprak, S., and Holzer, T.L., 2003, Liquefaction potential index: Field assessment: Journal of Geotechnical and Geoenvironmental Engineering, v. 129, no. 4, p. 315-322. (*Concept 50%; Writing 50%; Analysis 50%)*

93. (F) Noce, T.E., and Holzer, T.L., 2003, Subsurface exploration with the cone penetration testing truck: U.S. Geological Survey Fact Sheet 028-03, 2 p. (http://pubs.usgs.gov/fs/2003/fs028-03/) (*Concept 40%; Writing 40%*)

94. (P) Holzer, T.L., 2003, Seismic hazards mapping for Project Impact – Berkeley and Oakland, California, *in*, Disaster Resistant California Conference 2003, San Jose, Proceedings, 10 p. (Available on CD-ROM from the Collaborative for Disaster Mitigation (CDM), San Jose State University, San Jose, CA)

95. (P) Holzer, T.L., and Bennett, M.J., 2003, Unsaturation beneath a water table: Geological Society of America Journal of Environmental and Engineering Geosciences, v. IX, no. 4, p. 379-385. (*Concept 100%; Writing 90%; Analysis 80%; Data collection 50%*)

96. (P) Holzer, T.L., Toprak, S., and Bennett, M.J., 2003, Application of the liquefaction potential index to liquefaction hazard mapping , *in* Hamada, M., Bardet, J-P., and O'Rourke, T.D., eds., U.S. - Japan workshop on earthquake resistant design of lifeline facilities and countermeasures against liquefaction, 8th, Tokyo, 2002, Proceedings, Multidisciplinary Center for Earthquake Engineering Research Technical Report MCEER-03-0003, p.161-171. (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

97. (O) Holzer, T.L., Noce, T.E., Bennett, M.J., Di Alessandro, C., Boatwright, J., Tinsley, J.C., III, Sell, R.W., and Rosenberg, L.I., 2004, Liquefaction-induced lateral spreading at Oceano, California, during the 2003 San Simeon earthquake: U.S. Geological Survey Open-file Report 2004-1269, 41 p.(http://pubs.usgs.gov/of/2004/1269/) (*Concept 100%; Writing 90%; Analysis 40%; Data collection 10%*)

98. (P) Holzer, T.L., Bennett, M.J., Noce, T.E., Tinsley, J.C., III, 2005, Shear-wave velocity of surficial geologic sediments in Northern California: Statistical distributions and depth dependence: Earthquake Spectra, v. 21, no. 1, p.161-177. (*Concept 100%; Writing 90%; Analysis 70%; Data collection 10%*)

99. (P) Holzer, T.L., Padovani, A.C., Bennett, M.J., Noce, T.E., and Tinsley, J.C., III, 2005, Mapping NEHRP V_{S30} site classes: Earthquake Spectra, v. 21, no. 2, p. 353-370. (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

100.(D) Holzer, T.L., 2005, Comment on "Comparison between probabilistic seismic hazard analysis and flood frequency analysis" by Zhenming Wang and Lindell Ormsbee: Transactions, American Geophysical Union, *EOS*, v. 86, no. 33, p. 303.

101.(P) Holzer, T.L., Noce, T.E., Bennett, M.J., Tinsley, J.C., III, and Rosenberg, L.I., 2005, Liquefaction at Oceano, California, during the 2003 San Simeon earthquake: Bulletin Seismological Society of America, v. 95, no. 6, p. 2396-2411 (Reprinted in Olson, B., ed., 2007, Geology and tectonic development of western San Luis Obispo County, southern Coast Ranges, California, South Coast Geological Society, Inc., Annual Field Trip Guide Book No. 34, p. 407-422). (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

102.(P) Holzer, T.L., and Galloway, D.L., 2005, Impacts of land subsidence caused by withdrawal of underground fluids in the United States, *in* Ehlen, J., Hanneberg, W., Larson, R., eds., Humans as geologic agents, Geological Society of America Reviews in Engineering Geology VXI, p. 87-99. (*Concept 80%; Writing 80%; Analysis 50%*)

103.(P) Holzer, T.L., Scawthorn, C.S., and Rojahn, C., 2005, Coordinating NEHRP post-earthquake investigations–Exercising the Plan: Earthquake Spectra, v. 21, no. 4, p. 1043-1062. (*Concept 50%; Writing 30%; Analysis 50%*)

104.(P) Holzer, T.L., Blair, J.L., Noce, T.E., and Bennett, M.J., 2006, Predicted liquefaction of East Bay fills during a repeat of a 1906 San Francisco earthquake: Earthquake Spectra, v. 22, no.S2, p. S261-S277. (*Concept 100%; Writing 90%; Analysis 50%*)

105.(P) Holzer, T.L., Blair, J.L., Noce, T.E., and Bennett, M.J., 2006, LiqueMap: A real-time postearthquake map of liquefaction probability *in* National Conference on Earthquake Engineering, 8th, San Francisco, Proceedings, Paper 89, 10 p. (*Concept 100%; Writing 90%; Analysis 50%*)

106.(P) Holzer, T.L., Bennett, M.J., Noce, T.E., Padovani, A.C., and Tinsley, J.C., III, 2006, Liquefaction hazard mapping with LPI in the greater Oakland, California, area: Earthquake Spectra, v. 22, no. 3, p. 693-708. (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

107. Holzer, T.L., 2006, Liquefaction-When the ground flows, *in* d'Alessio, M.A., ed., Earthquake Science Explained, U.S. Geological Survey General Interest Publication 21, p. 6. (http://pubs.usgs.gov/gip/2006/21/)

108.(P) Cox, R.T., Hill, A.A., Larsen, D., Holzer, T.L., Forman, S.L., Noce, T.E., Gardner, C., and Morat, J., 2007, Seismotectonic implications of sand blows in the Southern Mississippi embayment: Engineering Geology, v. 89, no. 3-4, p. 278-299. (*Concept 10%; Writing10%; Analysis 10%*)

109.(P) Holzer, T.L., and Bennett, M.J., 2007, Geologic and hydrogeologic controls of boundaries of lateral spreads: Lessons from USGS case histories, *in*, Schaefer, V.R., Schuster, R.L., and Turner, A.K., eds., First North American Landslide Conference, Proceedings, Association of Engineering Geologists Special Publication 23, p. 502-522. (*Concept 100%; Writing 90%; Analysis 50%; Data collection 30%*)

110.(P) Holzer, T.L., and Youd, T.L., 2007, Liquefaction, ground oscillation, and soil deformation at the Wildlife Array, California: Seismological Society of America Bulletin, v. 97, no. 3, p. 961-976. (*Concept 100%; Writing 90%; Analysis 90%; Data collection 50%*)

111.(P) Andrus, R.D., Mohanan, N.P., Piratheepan, P., Ellis, B.S., and Holzer, T.L., 2007, Predicting shear-wave velocity from cone penetration resistance, *in* K.D. Pitilakes, ed., International Conference on Earthquake Geotechnical Engineering, 4th, June 25-28, 2007, Thessaloniki, Greece, Proceedings: Springer, The Netherlands, Paper No. 1454. (*Data collection 5%*)

112.(P) Holzer, T.L., 2008, Theme lecture: Probabilistic liquefaction hazard mapping, *in* Zeng, D., Manzari, M.T., and Hiltunen, D., eds., Geotechnical Earthquake Engineering and Soil Dynamics Conference, 4th, Sacramento, Proceedings, ASCE Geotechnical Special Publication No. 181, p. 1-32.

113.(O) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2008, Liquefaction hazard maps for three earthquake scenarios for the communities of San Jose, Campbell, Cupertino, Los Altos, Los Gatos, Milpitas, Mountain View, Palo Alto, Santa Clara, Saratoga, and Sunnyvale, northern Santa Clara County, California: U.S. Geological Survey Open-file Report 2008-1270, 33 p., 3 plates, and database (http://pubs.usgs.gov/of/2008/1270/). (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

114.(B) O'Rourke, T.D., Holzer, T.L., Rojahn, C., and Tierney, K., 2008, Contributions of earthquake engineering to protecting communities and critical infrastructure from multihazards: EERI, Oakland, CA, 57 p. (*Concept 5%; Writing 10%*)

115.(P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2009, Scenario liquefaction hazard maps of Santa Clara Valley, Northern California: Seismological Society of America Bulletin, v. 99, no. 1, p. 367-381 (doi: 10.1785/0120080227). (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

116.(B) Holzer, T.L., 2009, Living with unstable ground: Alexandria, VA, American Geological Institute Environmental Awareness Series No. 11, 64 p (ISBN: 0-922152-82-9).

117.(P) Holzer, T.L., 2010, Technical Commentary: The water table: Ground Water, v. 48, no. 2, p. 171-173 (doi: 10.1111/j.1745-6584.2009.00640.x).

118.(P) Holzer, T.L., Jayko, A.S., Hauksson, E., Fletcher, J.P.B., Noce, T.E., Bennett, M.J., and Dietel, C.M., 2010, Liquefaction caused by the 2009 Olancha, California (USA), **M**5.2 earthquake: Engineering Geology, v. 116, No. 1-2, p. 184-188 (doi: 10.1016/j.enggeo. 2010.07.009). http://dx.doi.org/10.1016/j.enggeo.2010.07.009 (*Concept 60%; Writing 80%; Analysis 50%; Data collection 5%*)

119.(O) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2010, Maps and documentation of seismic CPT soundings in the eastern, central, and western United States: U.S. Geological Survey Open-file Report 2010-1136, 63 p, 3 tables.(http://pubs.usgs.gov/of/2010/1136/). (*Concept 90%; Writing 40%; Analysis 30%; Data collection 5%*)

120.(P) Holzer, T.L., 2010, Implications of ground-deformation measurements across earth fissures in subsidence areas in the southwestern USA , *in* Carreón-Freyre, D.C., Cerca, M., and Galloway, D.L., eds., Land Subsidence, Associated hazards and the role of natural resources development: International Association of Hydrological Sciences Publication 339, p. 9-19 (ISBN: 978-1-907161-12-4).

121.(P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2010, Predicted liquefaction in the greater Oakland area and Northern Santa Clara Valley during a repeat of the 1868 Hayward Fault (**M**6.7-7.0) Earthquake, *in* Knudsen, K., Baldwin, J., Brocher, T., Burgmann, R., Craig, M., Cushing, D., Hellweg, P., Wiegers, M., and Wong, I., eds., Proceedings of the 3rd Conference on earthquake hazards in the eastern San Francisco Bay area: California Geological Survey Special Report 219, p. 147-163. (*Concept 100%; Writing 90%; Analysis 50%; Data collection 10%*)

122.(Ad) Celebi, M., Holzer, T.L., and Scharer, K.M., 2011, Van, Turkey, M7.1 Earthquake of October 23, 2011: EDAT Report to USAID/OFDA, 26 p. (*Concept 70%; Writing 60%; Analysis 30%; Data collection 30%*)

123.(P) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2011, Liquefaction probability curves for surficial geologic deposits: Environmental & Engineering Geoscience, v. XVII, no. 1, p. 1-21 (doi:10.2113/gseegeosci.17.1.1). (*Concept 100%; Writing 90%; Analysis 40%; Data collection 10%*)

124.(P) Holzer, T.L., and Savage, J.C., 2013, Global earthquake fatalities and population: Earthquake Spectra, v. 29, no. 1, p. 155-175 (doi: 10.1193/1.4000106 FEB 2013). (*Concept 70%; Writing 90%; Analysis 50%; Data collection 90%*)

125.(Ad) Holzer, T.L., Noce, T.E., and Bennett, M.J., 2013, Strong ground motion inferred from liquefaction caused by the 1811-1812 New Madrid, MO, earthquakes: U.S. Geological Survey Administrative Report, 18 p., 11 figs, 5 tables. (*Concept 100%; Writing 90%; Analysis 70%; Data collection 10%*)

126.(Ad) NEHRP Consultants Joint Venture, 2013, A framework to update the plan to coordinate NEHRP post-earthquake investigations: National Institute of Standards and Technology, Gaithersburg, MD, Report No. NIST GCR 14-917-29. (*Concept 10%; Writing 20%; Analysis 20%; Data collection 10%*)

127.(FS) Brocher, T. M., Filson, J. R., Fuis, G. S., Haeussler, P. J., Holzer, T. L., Plafker, G., and Blair, J. L., 2014, The 1964 Great Alaska Earthquake and Tsunamis—A modern perspective and enduring legacies: U.S. Geological Survey Fact Sheet 2014-3018 , 4 p. (*Concept 0%; Writing 5%; Analysis 0%; Data collection 0%*)

128.(P) Holzer, T.L., Noce, T.E., Bennett, M.J., 2015, Strong ground motion inferred from liquefaction caused by the 1811-1812 New Madrid, Missouri, earthquakes: Seismological Society of America Bulletin, v.105, no. 5, p. 2589–2603 (doi: 10.1785/0120130258) (IP-045331)

129.(P) Holzer, T.L., 2016, Regional liquefaction hazard mapping – challenges, *in* Atalar, C., Çinioğlu, F., Das, B.M., Sağlamer, A., Toğrul, E., , eds., Proceedings of the Fourth International Conference on New Developments in Soil Mechanics and Geotechnical Engineering, p. 59-69.