

# William C. Haneberg

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3063 Portsmouth Avenue  
Cincinnati OH 45208 USA  
office/cell: (513) 405-0560  
e-mail: bill@haneberg.com  
web: www.haneberg.com

Geologic Hazard Assessment  
Engineering Geology  
Structural Geology  
Geomechanics  
Hydrogeology

## SYNOPSIS

21 years of experience encompassing professional practice, applied research, teaching, technical project management, and professional leadership. Emphasis on geologic hazard assessment, engineering geology, physical hydrogeology, structural geology, computational geology, and the use of geologic information in support of policy decisions.

## EMPLOYMENT

### Haneberg Geoscience, Cincinnati, Ohio and Seattle, Washington

*Consulting Geologist, 7/99 - present.* Planning, execution, and completion of geologic studies with emphasis on landslide hazards and other forms of ground failure. Scientific work has included:

- Field and modeling studies of slope instability and other forms of earth movement in support of open-pit mine and quarry operations, timber harvest planning, TMDL sediment source analyses, environmental analysis, infrastructure planning, and litigation.
- Development and use of digital image processing and visualization software to aid in geologic interpretation of high resolution LiDAR and radar DEMs, including identification of faults, joint sets, and landslides.
- Use of terrestrial digital photogrammetry for 3-D rock mass characterization and virtual discontinuity mapping in support of surface mining and civil construction work.
- Use of static and kinematic differential GPS surveys, stochastic simulation of elevation error fields, and Monte Carlo simulation of slope angle and factor of safety calculations to assess the effects of DEM uncertainty on process-based mathematical models of landslide hazards.
- Development of process-based probabilistic methods of GIS-based landslide hazard assessment (including seismic effects) using first-order, second-moment analytical approximations and numerical Monte Carlo methods for static and seismic conditions.
- Formulation of continuum mechanics models of deformation above a mid-crustal magma body with implications for tiltmeter placement and data interpretation. Integration of DEM, InSAR, leveling, and geologic information to constrain and evaluate model results.
- Preliminary evaluation of land subsidence potential as a consequence of groundwater pumping in the Española Basin (Santa Fe area), New Mexico.

### Department of Geology, University of Cincinnati, Cincinnati, Ohio

*Adjunct Professor of Geology, 9/09 – present.* Organization of departmental colloquium series. Collaboration on Himalayan slope stability, neotectonic, and geomorphic research. Taught Structural Geology during Spring quarter 2010.

*Graduate Teaching/Research Assistant, Department of Geology (9/82 - 5/85, 9/86 - 5/88) and Hydrogeologist, Groundwater Research Center (6/87 - 8/87).*

- Assisted in teaching of various undergraduate/graduate geology courses.
- Assembled geologic information and performed preliminary well hydraulics calculations for a proposed experimental well field.
- Assisted with preparation of geologic slice maps illustrating bedrock and surficial geology for use in 3-D landslide hazard assessments.

### **Department of Geology, Portland State University, Portland, Oregon**

*Adjunct Associate Professor of Geology, 9/00 - 12/00. Taught structural geology as a sabbatical replacement.*

### **New Mexico Institute of Mining and Technology, Socorro and Albuquerque, New Mexico**

*1) Senior Engineering Geologist and Assistant Director, New Mexico Bureau of Mines and Mineral Resources— Office of State Geologist, 12/98 - 6/99. Previously Engineering Geologist and Assistant Director (5/94 - 12/98) and Engineering Geologist (1/89 - 5/94). Tenure granted 1992. Planning, execution, and completion of applied research and professional practice related to geologic hazards and groundwater hydrology in New Mexico. Proposal preparation and research contract budget administration. Presentation of results at scientific meetings and in peer-reviewed scientific publications. Service on various panels, boards, and committees related to geologic hazards and water resources. Staff supervision and mentoring, including development of job descriptions, service on or leadership of search and performance evaluation committees, and annual employee appraisal. Responsible for training student lab technicians and overseeing operations of a soils and hydrology lab. Scientific project work included:*

- Mapping, monitoring, and geomechanical modeling of ground deformation and failure associated with land subsidence due to groundwater pumping near Deming, NM. Deformation was monitored using an array of 0.1 microradian sensitivity tiltmeters and modeled using a combination of analytical thin and thick plate flexural solutions for elastic layers and multilayers.
- Nonlinear regression analysis of geophysical log porosity data and geomechanical modeling of Albuquerque basin aquifer system compaction potential using a porosity gradient method.
- Field, petrographic, and modeling studies of the influence of faults on groundwater flow in the Albuquerque basin. Development and application of analytical and finite-difference models of groundwater flow across faults, development of geometric models to assess the permeability anisotropy of fault rocks from petrographic data, and co-supervision of field characterization studies.
- Geomechanical modeling of the influence of topography and regional stress states on the local state of stress beneath the Rio Grande valley near Albuquerque. Development of analytical solutions for stresses and displacements in elastic half spaces with topography and variable states of regional stress.
- Laboratory determination of pressure-dependent hydraulic conductivity in weakly lithified sediments from the Albuquerque basin, including regression modeling of permeability-void ratio-confining pressure relationships.

- Geologic hazard mapping along a proposed transportation corridor through the Rio Grande gorge, including dormant and active landslide complexes, rock falls, hydrocompactive soils, and liquefaction.
- Field-based geologic mapping, aerial photo interpretation, and digital image analysis to assess the influence of a forest road on debris flow recurrence, travel distance, and deposition in a forested alpine watershed near Red River, NM.
- Forensic investigation of a debris flow mobilized from an irrigation-induced landslide near Cordova, NM. Project included detailed engineering geologic mapping, soil mechanics lab testing, limit equilibrium slope stability analysis to evaluate failure scenarios, and estimation of debris flow rheology.
- Service on a review board assembled to investigate the events that led to reactivation of a large dormant landslide adjacent to Costilla dam in northern New Mexico. Forensic review of pre-construction and construction geological and geotechnical data, slope stability analyses to evaluate the conditions necessary for landslide reactivation, and representation of the State of New Mexico during an arbitration hearing. Also served as a geotechnical consultant during the subsequent first filling of the reservoir.
- Mathematical modeling of the influence of host rock mineralogy on frictional heat dissipation, with implications for the origin of pseudotachylyte and inferred paleoseismicity.
- Statistical characterization and probabilistic modeling of soil lead distribution at an abandoned smelter site in Socorro, NM.
- Investigation of numerous cases of structural distress related to hydrocompactive soils.
- Numerical modeling of groundwater flow and landslide susceptibility, including the effects of rainfall infiltration, using finite-difference and analytical methods. This included a probabilistic modeling component based on Monte Carlo and first-order, second-moment methods and development of linearized pore pressure diffusion models.
- Service on various state and local committees involved with water resources planning and geologic hazard assessment (see Professional Service). Service on hiring, tenure, and other committees within New Mexico Tech. Oversaw day to day operations at agency's Albuquerque branch office and supervised up to 5 student, support, and research employees.

2) *Faculty Adjunct*, Department of Earth & Environmental Sciences and Department of Mineral & Environmental Engineering, 1/90 – 9/05.

- Taught or team-taught advanced undergraduate and graduate courses in geological engineering, geology, geophysics, and hydrology. Supervised graduate student research and served as a member of M.S. and Ph.D. research committees. See lists of graduate students supervised and courses taught at the end of this document.

### **Manitou Exploration Company, Inc., Granville, Ohio**

*Petroleum Geologist*, 6/85 - 7/86.

- Interpreted rotary drill cuttings and geophysical logs in order to make oil and gas well completion recommendations.
- Conducted geologic studies to site new wells, including computer programming for trend surface mapping of geologic attributes.

- Reserve analyses for individual wells and depletion curve analyses for a small oil field.

**Geology Department, Bowling Green State University, Bowling Green, Ohio**

*Graduate Teaching Assistant* (summer field camp, 6/82 - 8/82) and *Undergraduate Research Assistant*, Department of Geology (1/82 - 5/82).

**EDUCATION**

**Ph.D.**, 1989, Geology, University of Cincinnati. Primary emphasis: geomechanics. Secondary emphasis: engineering geology and hydrogeology. Dissertation: *Hydrology and Drainage of a Thin Colluvium Hillside in Delhi Township, Ohio*. Advisor: Arvid Johnson.

**M.S.**, 1985, Geology, University of Cincinnati. Primary emphasis: structural geology. Thesis: *Fractures in the Cambrian Rome Formation near Wytheville, Virginia*. Advisor: Kees De Jong.

**B.S. cum laude**, 1982, Bowling Green State University (Ohio). Major: geology. Minor: general science.

**PROFESSIONAL CERTIFICATION AND LICENSES**

**Certified Professional Geologist**, American Institute of Professional Geologists, #10311

**Licensed Geologist, Engineering Geologist, and Hydrogeologist** State of Washington, #501

**Professional Geologist**, State of Wisconsin, #356

**Accredited Mathematica Consultant**, Wolfram Research, Inc.

**PROFESSIONAL AFFILIATIONS**

**Fellow**, Geological Society of America

**Member**, American Geophysical Union

**Member**, Association of Engineering Geologists

**SELECTED CONSULTING PROJECTS AND RESEARCH CONTRACTS**

**Seattle City Light**. Emergency 3-D rock slope modeling, structural mapping, and data analysis for a rockslide source area and adjacent slopes, Ross Dam, Washington, using terrestrial digital photogrammetry and airborne LiDAR. 2010.

**Kleinfelder**. 3-D rock slope modeling, structural mapping, data analysis, and high-resolution photo mosaic creation in support of rockfall hazard assessment for a 600-foot high rock face, Boundary Dam, Washington, using terrestrial digital photogrammetry. 2010.

**URS Corporation**. Preliminary evaluation of Española basin, New Mexico, aquifer compaction and land subsidence potential for the New Mexico Office of State Engineer. 2009-2010.

**MACTEC Engineering & Consulting**. Development of guidance for 3-D subsurface discontinuity characterization and GIS watershed modeling in support of National Cooperative Highway Research Program project on scour at bridge foundations in rock (NCHRP 24-29). 2006-2009.

**Barr & Mudford / C.F. Watts**. Airborne LiDAR DEM creation from point cloud data, rock mass discontinuity mapping and modeling, 2-D and 3-D visualization, structural geologic interpretation, and review of opposition expert reports in support of a lawsuit involving a fatal rock-fall in Yosemite National Park (Terbush v United States). 2009.

**Fisher & Strickler Rock Engineering.** 3-D rock slope modeling, structural mapping, and data analysis in support of quarry operations, eastern Virginia, using terrestrial digital photogrammetry. 2009

**Saguaro GeoServices.** 3-D rock slope modeling and structural mapping in support of highway rock slope design, SR 87, Arizona, using terrestrial digital photogrammetry. 2009.

**Fireman's Fund / Great American Insurance Company / Caufield & James.** Finite element modeling of the effects of rubble pile placement on vadose zone deformation in support of groundwater contamination litigation. Review of opposition expert reports (Angeles Chemical Company *et al v* McKesson Corporation). 2005-2009.

**Wyllie & Norrish Rock Engineers.** 3-D rock slope modeling and structural mapping in support of mine planning, Sonora, Mexico, using terrestrial digital photogrammetry. 2008.

**MMI Engineering.** Remote sensing consultation regarding geologic conditions and excavation issues along a proposed 1000 km petroleum pipeline route, western Kazakhstan. 2008.

**Jordan, Jones & Goulding.** Multi-scale 3-D rock slope modeling and structural mapping in support of engineering design, Bellwood quarry-to-reservoir conversion, Atlanta, Georgia, using terrestrial digital photogrammetry. 2008.

**URS Corporation.** 3-D digital outcrop modeling using terrestrial digital photogrammetry, structural mapping, and 3-D digital surface-subsurface geologic model development in support of rock slope remediation and reconstruction along I-90 Snoqualmie Pass East, Hyak to Keechelus Dam, Washington, in collaboration with Wyllie & Norrish Rock Engineers, Burk GeoConsult, and Strickler's Geologic Consulting. 2006-2008.

**URS Corporation.** Airborne LiDAR data processing, enhancement, and advising in support of natural gas pipeline seismic hazard analysis and landslide hazard assessment, Papua New Guinea. 2007-2008.

**Sanborn.** Application of the in-house probabilistic landslide modeling software PISA-m and support for application of the SHALSTAB and SMORPH landslide hazard models as part of a LiDAR-based comparative evaluation project for the North Coast Regional Water Quality Control Board. Freshwater Creek and Ryan Creek watersheds, Humboldt County, California. 2007-2008.

**Aggregate Industries US.** 3-D digital outcrop modeling and structural mapping support associated with aggregate quarry decommissioning, Colorado, using terrestrial digital photogrammetry. 2007.

**Geosyntec Consultants.** Field reconnaissance, aerial photo image analysis, and report review for a structurally complicated rock slope, San Francisco Bay area. 2007.

**Golder Associates.** 3-D digital outcrop modeling and structural mapping in support of rock slope design in a hard rock quarry, southern California, using terrestrial digital photogrammetry. 2007.

**Stillwater Sciences.** Application of the in-house probabilistic landslide modeling software PISA-m as part of a LiDAR-based comparative evaluation project for the North Coast Regional Water Quality Control Board. Elk River watershed, Humboldt County, California. 2006-2007.

**Aimone-Martin & Associates.** 3-D digital rock mass modeling and structural mapping in support of blast design and crusher effectiveness studies at a limestone quarry near Grants, New Mexico, using terrestrial digital photogrammetry. 2006.

**The Islands Trust.** Consultation and development of DEM based rational probabilistic landslide hazard models to use as screening tools for land use planning on two islands in British Columbia. 2006.

**Rutherford & Chekene Consulting Engineers.** LiDAR processing and interpretation, engineering geologic mapping, watershed-scale static and seismic probabilistic slope stability modeling, and slope risk assessment, University of California at San Francisco Parnassus Campus. 2006.

**City of Henderson, Nevada.** Review of potential blasting- and earthquake-triggered slope hazards. 2006.

**Golder Associates.** 3-D digital outcrop modeling and structural mapping in support of rock slope remediation along Interstate 90, MP 66 near Snoqualmie Pass, Washington, using terrestrial digital photogrammetry in collaboration with Wyllie & Norrish Rock Engineers. 2006.

**Landau Associates.** LiDAR DEM creation, enhancement, slope mapping, and provisional landslide identification in support of critical area ordinance mapping in Edmonds, Washington. 2005-2006.

**Graniterock and GeoSyntec Consultants.** Peer review of hydrogeologic data, report, and groundwater model prepared in support of quarry operations in fractured igneous rocks along a fault zone. Synthesis and hydrogeologic interpretation of structural geologic information in support of model revisions. 3-D digital outcrop modeling and mapping of rock mass discontinuities using terrestrial digital photogrammetry. 2005-2006.

**Pacific Northwest Center for Geologic Mapping Studies (GeoMapNW), University of Washington.** Airborne LiDAR consulting and training in support of quadrangle scale geologic mapping, Mercer Island, Washington. 2005.

**URS Corporation.** LiDAR and slope stability consultant, US Highway 20 improvement project, Pioneer Mountain to Eddyville, Oregon Coast Ranges. 2005.

**Landau Associates.** Gridding, visualization, and preliminary interpretation of a high-resolution LiDAR DEM in support of groundwater modeling and slope stability investigations, Cedar River watershed, Washington. 2004-2005.

**Condor Earth Technologies.** Terrain hazard analysis including LiDAR DEM processing, 2-D and 3-D terrain visualization and analysis, delineation of potential slope stability hazards, field verification, and geotechnical advising. Lihir Mine, Papua New Guinea. 2004.

**State of Washington, General Administration Department, Engineering and Architectural Services.** Geotechnical review and analysis of landslide problems persisting after completion of a \$1.5 million slope stabilization project on the Washington state capitol campus. 2004.

**AMEC Earth & Environmental.** Calculation of non-parametric confidence limits for metal concentrations in potential earthwork fill sources for Seattle-Tacoma International Airport. 2004.

**U.S. Geological Survey, National Earthquake Hazards Reduction Program.** Influence of conventional and LiDAR DEM errors on the reliability of earthquake triggered landslide hazard maps. Detailed GPS surveying and geostatistical simulation of elevation error distributions with applications to seismic slope stability modeling. 2003-2004.

**Crowley & Bünger.** Technical expert in lawsuit regarding earth movements and structural damage associated with highway embankment construction (Skow v Iowa). 2003-2004.

**North Coast Regional Water Quality Control Board (California)/Concur, Inc.** Humboldt County Independent Scientific Review Panel. Review of methods for calculating timber harvest rates that will not impede recovery of impaired watersheds; review of the role of timber harvesting on landsliding, downstream flooding, and potential remedial measures; assessment of habitat conservation plan measures as related to surface water quality attainment; outline of future data and technology needs. 2002-2003.

**Northwest Environmental Training Center (Seattle).** Development and teaching of 2-day short courses on applied statistics for MTCA environmental site managers and fundamentals of computational hydrogeology. Teaching of 2-day introductory hydrogeology course for non-hydrogeologists. 2003-2005.

**New Mexico Bureau of Geology and Mineral Resources.** Interpretation of geodetic data and mathematical modeling of deformation above a mid-crustal magma body along the Rio Grande rift. 2001-2003.

**American Planning Association.** Preparation of a chapter on new technologies for landslide hazard assessment, to be included in a nationally distributed handbook for planners. 2002.

**Lerner & Lerner Academic Editors and Publishers.** Contributing author for *World of Earth Science*, *Gale Encyclopedia of Science*, and *Encyclopedia of Espionage, Intelligence, and Security*. 2002-2003.

**US Forest Service, Clearwater National Forest.** Review of slope stability and erosion aspects of North Lochsa Face ecosystem management plan EIS. 2001.

**Scotia Pacific Company.** Development and application of physically based probabilistic landslide hazard assessment models for watershed analysis and forest planning. 2001.

**Vorys, Sater, Seymour and Pease.** Forensic investigation and expert services regarding landslides, precipitation, mine subsidence, blasting vibrations, and structural distress in a residential area adjacent to an active limestone quarry and abandoned coalmines. 2000.

**Chino Mines Company (Phelps-Dodge Corporation).** Engineering geologic mapping of rock slopes adjacent to an open pit copper mine. Rock slope monitoring system design. 1999-2000.

**Daniel B. Stephens & Associates.** Open-pit mine hydrogeology and slope stability proposal review and comment. 1999.

**National Science Foundation.** Hydrogeologic characterization of the Sand Hill fault zone, Albuquerque Basin, New Mexico (co-PI with L.B. Goodwin, P.S. Mozley, and A.L. Gutjahr). January 1998 - December 2001.

**William Lettis & Associates.** Liquefaction mapping in the Albuquerque/Santa Fe corridor. January-December 1998. PI on subcontract with Wm. Lettis & Associates as part of a National Earthquake Hazard Reduction Program (NEHRP) grant.

**New Mexico Department of Public Safety, Earthquake Preparedness Program.** Engineering geologic and preliminary liquefaction susceptibility mapping of shallow Rio Grande alluvium, Albuquerque, New Mexico. July 1997 - September 1998.

**New Mexico Department of Public Safety, Earthquake Preparedness Program.** World Wide Web earthquake education site and public access computer. July 1997 - June 1998.

**New Mexico Department of Public Safety, Earthquake Preparedness Program.** Development of new tools to evaluate paleoseismicity (with L.B. Goodwin and T.M. Whitworth). September 1997 - August 1998.

**City of Albuquerque, Public Works Department, Water Utility Division.** Characterization of major hydrogeologic units in the northern Albuquerque Basin (with J.W. Hawley). October 1993 - September 1995.

**New Mexico Engineering Research Institute.** First-filling monitoring of Costilla Dam. June 1993 - December 1994.

**New Mexico Interstate Stream Commission.** Costilla Dam Independent Review Team. July - December 1992 and January - June 1994.

**New Mexico State Highway and Transportation Department.** Rio Grande gorge highway corridor study, Rinconada to Pilar. May - June 1992.

**U.S. Geological Survey and New Mexico Water Resources Research Institute.** Cyclic flexure of surficial strata in response to seasonal groundwater withdrawal from the Mimbres Basin, New Mexico. July 1991 - October 1992.

**New Mexico Institute of Mining and Technology, Research Council.** Use of seismic reflection profiles to characterize soil deformation associated with earth fissures and groundwater withdrawal near Deming, New Mexico. 1990.

**The Hillside Trust.** Drainage of a natural colluvium-mantled hillside in western Cincinnati. 1987-1989.

**ARCO Exploration Company.** Fractures in the Cambrian Rome Formation near Wytheville, Virginia. 1983-1985.

**Geological Society of America.** Fractures in the Cambrian Rome Formation near Wytheville, Virginia. 1983 (Penrose Grant).

## PROFESSIONAL SERVICE

**Editorial Policy Board,** *Environmental & Engineering Geoscience*. Chair, 2007 – present. Member, 2001-2007. Joint AEG-GSA appointee, 2008 – present. GSA appointee, 2001-2007. Associate Editor, 1995 - 2001.

**Chair,** Engineering Geology Division, Geological Society of America, 2003-04. Previously vice-chair (2002-03), secretary (2001-02), and management board member-at-large (2000-01).

**Chair,** Digital and Electronic Technology in Geology Technical Working Group, Association of Environmental & Engineering Geologists, 2007-present.

**Chair,** Professional Development Committee, Geological Society of America, 2004-2006. Committee member, 2003-2004.

**Joint Technical Program Committee Representative,** Engineering Geology Division, Geological Society of America Annual Meeting, 2002 and 2003.

**Organizer,** Mass Wasting in Disturbed Watersheds. AEG Shlemon Conference, Durango, Colorado, Spring 2006 (with S. Cannon, J. Coe, and P. Santi).

**Organizer,** Earth Fissures. AEG Shlemon Conference, El Paso, Texas, April 2004 (with J.R. Keaton).

**Organizer,** Faults and Subsurface Fluid Flow: Fundamentals and Applications to Hydrogeology and Petroleum Geology. Geological Society of America Penrose Conference, Taos, New Mexico, September 1997 (with J.C. Moore, L.B. Goodwin, and P.S. Mozley).

**Advocate/Convener,** Fractured Rock Characterization in Applied Geology. Geological Society of America 2006 Annual Meeting topical session.

**Advocate/Convener,** GIS, GPS, and Remote Sensing Applications in Geologic Hazard Assessment. Geological Society of America 2004 Annual Meeting topical session (with N. Levine).

**Advocate/Convener**, Characterizing Complexity in Geomechanics, Engineering Geology, and Hydrogeology . Geological Society of America 2003 Annual Meeting topical session (with E. Medley).

**Advocate/Convener**, Humans as Geologic Agents. Geological Society of America 2002 Annual Meeting topical session (with J. Ehlen and R. Larson).

**Advocate/Convener**, Nothing Ventured, Nothing Gained: Geology and Risk Assessment in the 21<sup>st</sup> Century. Geological Society of America 2001 Annual Meeting topical session (with S. Burns).

**Convener**, Quantifying Hazardous Natural Processes for Risk Assessment. Association of Engineering Geologists 1996 Annual Meeting symposium (with J.R. Keaton).

**Convener**, Instability of Clay and Shale Hillslopes. Geological Society of America 1992 Annual Meeting symposium (with R.W. Fleming).

**Member**, International Association for Engineering Geology (IAEG) Commission No. 1 (Engineering Geologic Visualization and Characterization), 2007-present.

**Member**, Geological Society of America *Ad Hoc* Committee on Divisions, 2006.

**Member**, Shlemon Conference Operational Committee, Association of Engineering Geologists, 2004.

**Member**, New Mexico State Engineer Mid-Rio Grande Technical Advisory Committee, 1995-1999.

**Member**, New Mexico Interstate Stream Commission Regional Water Planning Work Group, 1996.

**Member**, Institute Senate Research Committee, New Mexico Tech, 1992-1994.

**Member**, External Awards Committee, Geological Society of America, 1998.

**Member**, E.B. Burwell, Jr. Award Panel, Engineering Geology Division, Geological Society of America, 1990-1992.

**State Delegate**, Western States Seismic Policy Council, alternate years 1992 -1998.

**Faculty Member**, Watershed Assessment and Restoration short course, U.S. Forest Service National Advanced Resource Technology Center, April 1995.

**Vice-chair**, Institute Senate, New Mexico Tech, 1994-1995.

**Member**, City of Cincinnati Infrastructure Commission, 1987.

**Manuscript or Proposal Reviewer** for *Nature*, *Geological Society of America Bulletin*, *Geology*, *Water Resources Research*, *Geomorphology*, *Journal of Geology*, *Journal of Geophysical Research*, *Bulletin of the Seismological Society of America*, *Landslides*, *Engineering & Environmental Geoscience*, *Engineering Geology*, *Hydrogeology Journal*, *Journal of Geotechnical Engineering*, *American Association of Petroleum Geologists Bulletin*, *Clays and Clay Minerals*, *Annals of Geophysics*, *Advances in Water Resources*, *Computers & Geosciences*, *Advances in Space Research*, Kansas Geological Survey, U.S. Geological Survey, Columbia University Press, Oxford University Press, National Science Foundation, U.S. Department of Energy, Wyoming Water Resources Research Institute, Petroleum Research Fund.

## HONORS

**Richard H. Jahns Distinguished Lecturer in Engineering Geology.** Association of Environmental & Engineering Geologists and Geological Society of America (Engineering Geology Division). 2010-2011.

**Mayfield Distinguished Lecturer,** Bowling Green State University, Department of Geology, 2010.

**Fulbright Senior Specialists Program Roster,** Council for International Exchange of Scholars, 2009-present.

**Claire P. Holdredge Award,** Association of Environmental & Engineering Geologists, for *Computational Geosciences with Mathematica* as a recent publication judged to be an outstanding contribution to the advancement of the profession, 2006.

**Meritorious Service Award,** Geological Society of America, Engineering Geology Division, 2006.

**Visiting Scholar,** Western Michigan University, Department of Geosciences, September 2006.

**Presidential Citations,** Association of Environmental & Engineering Geologists, 2004, 2006-2009.

**Editor's Citation for Excellence in Scientific Refereeing,** American Geophysical Union, 2002.

**Certificate of Distinction** from the New Mexico State Engineer for contributions made as a member of the Costilla Dam Independent Review Team resulting in the State's recovery of nearly \$5 million in cost overruns associated with the reactivation of a dormant landslide, 1994.

**Outstanding Teaching Assistant,** Department of Geology, University of Cincinnati, 1985.

## PUBLICATIONS

### Books Written

**Haneberg, W.C.**, 2004, *Computational Geosciences with Mathematica*: Springer-Verlag, 381 p.

### Books Edited

Ehlen, J., **Haneberg, W.C.**, and Larson, R.L., editors, 2006, *Humans as Geologic Agents*: Geological Society of America Reviews in Engineering Geology, 158 pp.

**Haneberg, W.C.**, Mozley, P.S., Moore, J.C., and Goodwin, L.B., editors, 1999, *Faults and Subsurface Fluid Flow in the Shallow Crust*: American Geophysical Union Geophysical Monograph 113, 220 pp.

**Haneberg, W.C.** and Anderson, S.A., editors, 1995, *Clay and Shale Slope Instability*: Geological Society of America Reviews in Engineering Geology 10, 160 pp.

### Peer Reviewed Papers in Journals and Books

Gurung, N., **Haneberg, W.C.**, Ramana, G.V., and Datta, M., 2010, Engineering geology and stability of the Laprak landslide, Gorkha District, Nepal: *Environmental & Engineering Geoscience*, v. 16, in press.

**Haneberg, W.C.**, 2009, Improved optimization and visualization of drilling directions for rock mass discontinuity characterization: *Environmental & Engineering Geoscience*, v. 15, p. 107-113 (doi: 10.2113/gseegeosci.15.2.107).

- Haneberg, W.C.**, Cole, W.F., and Kasali, G., 2009, High-resolution LiDAR-based landslide hazard mapping and modeling, UCSF Parnassus Campus, San Francisco, USA: *Bulletin of Engineering Geology and the Environment*, v. 68, p. 273-286 (doi: 10.1007/s10064-009-0204-3).
- Adam, B., Dietsch, C., Owen, L.A., Caffee, M.W., Spotila, J.A., and **Haneberg, W.C.**, 2009, Exhumation and incision history of the Lahul Himalaya, northern India, based on (U-Th)/He thermochronometry and terrestrial cosmogenic nuclide dating techniques: *Geomorphology*, v. 107, p. 285-299 (doi:10.1016/j.geomorph.2008.12.017).
- Dortch, J.M. Owen, L.A., **Haneberg, W.C.**, Caffee, M.W., Dietsch, C., and Kamp, U., 2009, Nature and timing of large landslides in the Himalaya and Transhimalaya of northern India: *Quaternary Science Reviews*, v. 28, no. 11-12, p. 1037-1054 (doi:10.1016/j.quascirev.2008.05.002).
- Haneberg, W.C.**, 2009, Simplified analysis of vibration induced rock toppling: *Environmental & Engineering Geoscience*, v. 15, p. 41-45 (doi: 10.2113/gsegeosci.15.1.41).
- Haneberg, W.C.**, 2008, Using close range terrestrial digital photogrammetry for 3-D rock slope modeling and discontinuity mapping in the United States: *Bulletin of Engineering Geology and the Environment*, v. 67, no. 4, p. 457-469 (doi: 10.1007/s10064-008-0157-y).
- Haneberg, W.C.**, 2008, Elevation errors in a LIDAR digital elevation model of West Seattle and their effects on slope stability calculations, in R.L. Baum, J. Godt, and L. Highland, editors, *Landslides and Engineering Geology of the Greater Seattle Area*, Washington: Geological Society of America Reviews in Engineering Geology, v. 20, p. 55-66 (doi: 10.1130/2008.4020(03)).
- Haneberg, W.C.**, 2006, Effects of digital elevation model errors on spatially distributed seismic slope stability calculations: an example from Seattle, Washington: *Environmental & Engineering Geoscience*, v. 12, p. 247-260 (doi: 10.2113/gsegeosci.12.3.247).
- Haneberg, W.C.**, 2004, Simulation of 3-D block populations to characterize outcrop sampling bias in block-in-matrix rocks (bimrocks): *Felsbau*, v. 22, no. 5, p. 19-26.
- Haneberg, W.C.**, 2004, A rational probabilistic method for spatially distributed landslide hazard assessment: *Environmental & Engineering Geoscience*, v. 10, p. 23-47, (doi: 10.2113/10.1.27).
- Haneberg, W.C.**, Bauer, P.W., and Chávez, W.X., Jr., 2002, Multilevel geologic hazard assessment mapping in the Rio Grande gorge, northern New Mexico, USA, in P. T. Bobrowsky, editor, *Geoenvironmental Mapping: Method, Theory and Practice*: A.A. Balkema, p. 75-91.
- Haneberg, W.C.**, 2000, Deterministic and probabilistic approaches to geologic hazard assessment: *Environmental & Engineering Geoscience*, v. 6, p. 209-226, (DOI: 10.2113/gsegeosci.6.3.209).
- Heynekamp, M.R., Goodwin, L.B., Mozley, P.S., and **Haneberg, W.C.**, 1999, Controls on fault-zone architecture in poorly lithified sediments, Rio Grande rift, New Mexico: implications for fault zone permeability and fluid flow, in Haneberg, W.C., Mozley, P.S., Moore, J.C., and Goodwin, L.B., editors, *Faults and Subsurface Fluid Flow in the Shallow Crust*: American Geophysical Union Geophysical Monograph, v. 113, p. 27-50.
- Whitworth, T.M., **Haneberg, W.C.**, Mozley, P.S., and Goodwin, L.B., 1999, Solute sieving induced calcite precipitation on pulverized quartz sand— experimental results and implications for the membrane behavior of fault gouge, in Haneberg, W.C., Mozley, P.S., Moore, J.C., and Goodwin, L.B., editors, *Faults and Subsurface Fluid Flow in the Shallow Crust*: American Geophysical Union Geophysical Monograph, v. 113, p. 149-158.

- Haneberg, W.C.**, 1999, Effects of valley incision on the subsurface state of stress— theory and application to the Rio Grande valley near Albuquerque, New Mexico: *Environmental & Engineering Geoscience*, v. 5, p. 117-131.
- Haneberg, W.C.**, Gomez, P., Gibson, A., and Allred, B., 1998, Preliminary measurements of stress-dependent hydraulic conductivity of Santa Fe Group aquifer system sediments, Albuquerque Basin, New Mexico: *New Mexico Geology*, v. 20, p. 14-20.
- Haneberg, W.C.**, 1995, Steady-state groundwater flow across idealized faults: *Water Resources Research*, v. 31, p. 1815-1820.
- Haneberg, W.C.**, 1995, Depth-porosity relationships and virgin specific storage estimates for the upper Santa Fe Group aquifer system, central Albuquerque Basin, New Mexico: *New Mexico Geology*, v. 17, p. 62-71.
- Haneberg, W.C.**, 1995, Groundwater flow and the stability of heterogeneous infinite slopes underlain by impervious substrata, in Haneberg, W.C. and Anderson, S.A., editors, *Clay and Shale Slope Instability*: Geological Society of America Reviews in Engineering Geology, v. 10, p. 63-78.
- Haneberg, W.C.** and Friesen, R.L., 1995, Tilts, strains, and ground-water levels near an earth fissure in the Mimbres Basin, New Mexico: *Geological Society of America Bulletin*, v. 107, p. 316-326.
- Haneberg, W.C.** and Gökce, A.Ö., 1994, *Rapid water-level fluctuations in a thin colluvium landslide west of Cincinnati, Ohio*: U.S. Geological Survey Bulletin 2059-C, 16 p.
- Haneberg, W.C.** and Bauer, P.W., 1993 Geologic setting and dynamics of a rockslide along NM 68, Rio Grande gorge, northern New Mexico: *Bulletin of the Association of Engineering Geologists*, v. 30, p. 7-16.
- Haneberg, W.C.**, Austin, G.S., and Brandvold, L.A., 1993, Soil lead distribution at an abandoned smelter site in Socorro, New Mexico: *Environmental Geology*, v. 21, p. 90-95.
- Haneberg, W.C.**, 1993, Drape folding of compressible elastic layers— II. Matrix solution for two-layer folds: *Journal of Structural Geology*, v. 15, p. 923-932.
- Haneberg, W.C.**, 1992, Drape folding of compressible elastic layers— I. Analytical solutions for vertical uplift: *Journal of Structural Geology*, v. 14, p. 713-721.
- Haneberg, W.C.**, 1992, Geologic hazards in New Mexico— Part 2: *New Mexico Geology*, v. 14, p. 45-52.
- Haneberg, W.C.**, 1992, Geologic hazards in New Mexico— Part 1: *New Mexico Geology*, v. 14, p. 34-41.
- Haneberg, W.C.**, 1991, Pore pressure diffusion and the hydrologic response of nearly-saturated, thin landslide deposits to rainfall: *Journal of Geology*, v. 99, p. 886-892.
- Haneberg, W.C.**, 1991, Observation and analysis of short-term pore pressure fluctuations in a thin colluvium landslide complex near Cincinnati, Ohio: *Engineering Geology*, v. 31, p. 159-184.
- Haneberg, W.C.** and Tripp, G., 1991, An irrigation-induced debris flow in northern New Mexico: *Bulletin of the Association of Engineering Geologists*, v. 28, p. 359-374.
- Haneberg, W.C.**, 1990, A Lagrangian interpolation method for three-point problems: *Journal of Structural Geology*, v. 12, p. 945-947.
- Haneberg, W.C.**, 1988, Some possible effects of consolidation on growth fault geometry: *Tectonophysics*, v. 148, p. 309-316.

**Haneberg, W.C.**, 1982, A paradigmatic analysis of Darwin's use of uniformitarianism in *The Origin of Species: Compass*, v. 60, p. 89-94.

### **Papers in Conference Proceedings**

**Haneberg, W.C.**, 2008, Revisiting an old project with new technology— digital terrain modeling and multi-layered virtual geologic hazard mapping along a proposed highway realignment, Rio Grande gorge, New Mexico, in *Proceedings*, 59<sup>th</sup> Highway Geology Symposium, Santa Fe, May 5-9, 2008, paper #5.2, 21 pp.

**Haneberg, W.C.**, 2007, Directional roughness profiles from three-dimensional photogrammetric or laser scanner point clouds, in E. Eberhardt, D. Stead, and T. Morrison, editors, *Rock Mechanics: Meeting Society's Challenges and Demands: Proceedings*, 1<sup>st</sup> Canada-U.S. Rock Mechanics Symposium, Vancouver, May 27-31, 2007, p. 101-106.

**Haneberg, W.C.**, Norrish, N.I., and Findley, D.P., 2006, Digital outcrop characterization for 3-D structural mapping and rock slope design along Interstate 90 near Snoqualmie Pass, Washington: *Proceedings*, 57<sup>th</sup> Annual Highway Geology Symposium, Breckenridge, Colorado, September 27-29, 2006, p. 146-160.

**Haneberg, W.C.**, Creighton, A.L., Medley, E.W., and Jonas, D.A., 2005, Use of LiDAR to assess slope hazards at the Lihir gold mine, Papua New Guinea, in O. Hungr, R. Fell, R. Couture, and E. Eberhardt, editors, *Landslide Risk Management: Proceedings of International Conference on Landslide Risk Management*, Vancouver, Canada, 31 May - 3 June, 2005, Supplementary CD.

**Haneberg, W.C.**, 2000, Influence of valley form on the subsurface state of stress— application of simple elastic models to understand modes of Appalachian coal mine roof failure, in J. Girard, M. Liebman, C. Breeds, and T. Doe, editors, *Pacific Rocks 2000 (Proc. Fourth North American Rock Mechanics Symposium, Seattle, July 31 - August 1, 2000)*: Balkema, p. 873-879.

**Haneberg, W.C.**, 1993, Uncertainty in estimates of soil lead contamination at the Billing smelter site, Socorro, New Mexico, in S.N. Hoose, editor, *Proc. Symposium on Ethical Considerations in the Environmental Practice of Engineering Geology and Hydrogeology, 36<sup>th</sup> Annual Meeting, Association of Engineering Geologists, San Antonio, Texas, October 14, 1993*, p. 30-37.

**Haneberg, W.C.** and Friesen, R.L., 1992, Diurnal groundwater level and deformation cycles near an earth fissure in the subsiding Mimbres Basin, New Mexico, in M.L. Stout, editor, *Proc. 35<sup>th</sup> Annual Meeting, Association of Engineering Geologists, Long Beach, California, October 2-9, 1992*, p. 46-53.

**Haneberg, W.C.**, Reynolds, C.B., and Reynolds, I.B., 1991, Geophysical characterization of soil deformation associated with earth fissures near San Marcial and Deming, New Mexico, in A.I. Johnson, editor, *Land Subsidence (Proc. 4<sup>th</sup> International Symposium on Land Subsidence, Houston, Texas, May 12-18, 1991)*: International Association of Hydrological Sciences Publication No. 200, p. 271-280.

### **Professional Meeting Abstracts**

**Haneberg, W.C.** and Watts, C.F., in preparation, Using Airborne LiDAR for forensic structural geology— two rockfall case histories from Yosemite National Park: Geological Society of America 2010 Annual Meeting (invited Pardee Symposium presentation).

Watts, C.F., Rogers, J.D., **Haneberg, W.C.**, and Underwood, S.A., 2010, 3D visualization of rockfalls at Glacier Point, Yosemite National Park, CA, Using ArcGIS and Google Earth: Association of Environmental & Engineering Geologists Annual Meeting, in press.

- Weppner, E., Hoyt, J., and **Haneberg, W.**, 2009, Comparison of slope stability models derived from 1-m LiDAR DEM, Freshwater Creek and Ryan Slough watershed, Humboldt County, California: *Geological Society of America Abstracts with Programs*, v. 41, no. 7, p. 678.
- Haneberg, W.C.**, 2009, Airborne LiDAR as a practical tool for high resolution geologic mapping— a decade of lessons learned and potential revealed: *Geological Society of America Abstracts with Programs*, v. 41, no. 7, p. 431. (invited presentation)
- Haneberg, W.C.**, 2009, A Mathematica package for equal area projection and analysis of rock mass discontinuity orientations: *AEG News*, v. 52 (Program with Abstracts, 2009 Annual Meeting), p. 75-76.
- Haneberg, W.C.**, 2009, Virtual mapping as a practical engineering geology tool— brave new paradigm or more new clothes for the emperor?: *AEG News*, v. 52 (Program with Abstracts, 2009 Annual Meeting), p. 75.
- Dortch, J., Owen, L.A., **Haneberg, W.C.**, Caffee, M.W., Dietsch, C., and Kamp, U., 2009, Nature and timing of large landslides in the Himalaya and Transhimalaya of northern India: *AEG News*, v. 52 (Program with Abstracts, 2009 Annual Meeting), p. 68. (invited presentation)
- Weppner, E., Hoyt, J., and **Haneberg, W.C.**, 2008, LiDAR-based landslide hazard modeling using PISA-m, SHALSTAB, and SMORPH, Freshwater Creek and Ryan Slough watershed, Humboldt County, California: *Eos, Trans. AGU*, v. 89, no. 53, Fall Meeting Supplement, Abstract H41K-04.
- Haneberg, W.C.** and Gurung, N., 2008, Reconnaissance engineering geology of the Laprak landslide, Gorkha District, western Nepal: *AEG News*, v. 51 (Program with Abstracts, 2008 Annual Meeting), p. 66.
- Haneberg, W.C.**, 2008, Rapid prototyping of computer models to characterize discontinuous rock masses: *AEG News*, v. 51 (Program with Abstracts, 2008 Annual Meeting), p. 66.
- Love, D.W., Allen, B.D., Chamberlin, R.M., and **Haneberg, W.C.**, 2008, Preliminary interpretation of six years of tiltmeter motions above the flanks of the Socorro magma body, central Rio Grande Rift: New Mexico Geological Society 2008 Spring Meeting.
- Haneberg, W.C.**, 2007, Large-scale terrain visualization using SRTM digital elevation models: an example from the Indian Himalaya: *Geological Society of America Abstracts with Programs*, v. 39, no. 6, p. 166.
- Haneberg, W.C.**, 2007, Using airborne LiDAR and GIS technologies for field verified virtual landslide hazard mapping— a new approach to an old problem with examples from Papua New Guinea and San Francisco: *Geological Society of America Abstracts with Programs*, v. 39, no. 6, p. 439.
- Haneberg, W.C.** and Medley, E.W., 2007, Internal structure of the San Andreas fault zone at the A.R. Wilson Quarry, Aromas, California, as inferred from 3-D digital outcrop modeling: *Geological Society of America Abstracts with Programs*, v. 39, no. 6, p. 454.
- Haneberg, W.C.**, Cole, W.F., and Kasali, G., 2007, LiDAR based landslide hazard mapping and modeling using a multi-layered GIS approach, UCSF Parnassus Campus, San Francisco, California. Association of Environmental & Engineering Geologists 2007 Annual Meeting, Los Angeles.
- Haneberg, W.C.**, Burk, R.L., Findley, D.P., and Norrish, N.I., 2007, Virtual structural mapping using 3-D digital rock slope models, I-90 near Snoqualmie Pass, Washington: *Geological Society of America 2007 Cordilleran Section Meeting Abstracts with Programs*, v. 39, no. 4, p. 24.
- Haneberg, W.C.**, 2006, Digital photogrammetry for 3-D structural mapping and rock mass characterization: *Association of Environmental & Engineering Geologists 2006 Annual Meeting*

*Program with Abstracts.*

- Haneberg, W.C.**, 2006, Elevation errors in a LiDAR digital elevation model and their effects on slope stability calculations: *Association of Environmental & Engineering Geologists 2006 Annual Meeting Program with Abstracts.*
- Haneberg, W.C.**, 2006, Measurement and visualization of directional roughness profiles using three-dimensional point clouds: *Geological Society of America 2006 Annual Meeting Abstracts with Programs*, v. 38, no. 7, p. 27.
- Troost, K.G., Wisher, A.P., and **Haneberg, W.C.**, 2006, A multifaceted approach to high-resolution geologic mapping of Mercer Island, near Seattle, Washington, *Geological Society of America 2006 Annual Meeting Abstracts with Programs*, v. 37, no. 7, p. 164.
- Haneberg, W.C.**, 2005, Enhancing LiDAR digital elevation models to identify and characterize the surficial expression of faults: *Geological Society of America Abstracts with Programs*, v.37, p. 476. (invited presentation)
- Haneberg, W.C.**, 2005, 3-D digital rock mass characterization using high-resolution photogrammetric or laser scanner point clouds: *Geological Society of America Abstracts with Programs*, v.37, p. 245.
- Haneberg, W.C.**, Medley, E., Creighton, A.L., and Jonas, D.A., 2005, Use of LiDAR for a preliminary terrain hazard assessment at the Lihir gold mine, Papua New Guinea: *AEG News*, v. 48 (Annual Meeting Program with Abstracts), July 2005, p. 68.
- Haneberg, W.C.**, 2004, Effects of digital elevation model errors on slope angle, static factor of safety, and Newmark acceleration uncertainty in GIS-style landslide hazard modeling: *Geological Society of America Abstracts with Programs*, v.36, p. 297.
- Clark, J.A. and **Haneberg, W.C.**, 2004, GIS based methods for three-dimensional evaluation of liquefaction susceptibility, Albuquerque, NM: *Geological Society of America Abstracts with Programs*, v.36, p. 298.
- Haneberg, W.C.**, 2003, Monte Carlo simulation of 3-D block populations to characterize borehole and outcrop sampling bias: *Geological Society of America Abstracts with Programs*, v. 35, no. 6, September 2003, p. 41.
- Haneberg, W.C.**, Emmingham, W., Everest, F., Marston, R., Collison, A., Tarboton, D., and Twiss, R., 2003, The role of independent peer review panels in the management of forested lands: *Geological Society of America Abstracts with Programs*, v. 35, no. 6, September 2003, p. 351. (invited presentation)
- Love, D.W., Allen, B., Chamberlin, R., and **Haneberg, W.**, 2003, First year's data from tiltmeters installed around the margins of the uplift above the Socorro magma body: *New Mexico Geological Society 2003 Spring Meeting.*
- Haneberg, W.C.**, 2002, Humans as inadvertently hazardous geologic agents: *Geological Society of America 2002 Annual Meeting Abstracts with Program.*
- Haneberg, W.C.**, 2001, Spatially distributed probabilistic landslide hazard modeling as a first step towards quantitative risk assessment: *Geological Society of America 2001 Annual Meeting Abstracts with Program.*

- Clark, J.A. and **Haneberg, W.C.**, 2001, Engineering geologic and liquefaction susceptibility analysis of the Inner Valley, Rio Grande Basin, Albuquerque, New Mexico: GSA 2001 Rocky Mountain/South-Central Section Meeting Abstracts with Programs.
- Haneberg, W.C.**, 2000, An analytical method for estimating the probabilistic stability and reliability of forested slopes with variable pore water pressure: Western Pacific Geophysics Meeting, Tokyo, June 2000 (invited presentation).
- Dunn, A.B., and **Haneberg, W.C.**, 1999, Geologic setting and preliminary hydrologic analysis of the Costilla dam, New Mexico, landslide: Geological Society of America 1999 Annual Meeting Abstracts with Program.
- Haneberg, W.C.**, and Dunn, A.B., 1999, Reactivation of the Costilla dam, New Mexico, landslide during dam reconstruction: Geological Society of America 1999 Annual Meeting Abstracts with Program.
- Haneberg, W.C.**, 1999, Influence of lateral earth pressure on the Coulomb failure potential of dry and saturated slopes in granular materials: Association of Engineering Geologists 1999 Annual Meeting, Salt Lake City, UT.
- Love, D.W., Thomas, Jan, and **Haneberg, W.C.**, 1999, Origami leads to orogeny: Use of three-dimensional paper models for geoscience education from mineralogy to earthquakes: New Mexico Geological Society 1999 Spring Meeting.
- Haneberg, W.C.**, 1998, Influence of a forest road on the deposition of debris flow sediments, northern New Mexico: American Geophysical Union 1998 Fall Meeting.
- Dunn, A.B. and **Haneberg, W.C.**, 1998, Geologic setting of the Costilla dam, New Mexico, landslide: Association of Engineering Geologists 1998 Annual Meeting, Seattle, WA.
- Haneberg, W.C.**, 1998, Recent history of debris flow activity in the Bitter Creek drainage, northern New Mexico: *New Mexico Geology*, v. 20, pp. 47-48. (Talk given at New Mexico Geological Society spring meeting.)
- Mozley, P., Hall, J., Davis, J.M., Goodwin, L., Heynekamp, M., and **Haneberg, W.C.**, 1998, Spatial distribution of calcite cement in the Santa Fe Group, Rio Grande rift, New Mexico, USA: 15th International Sedimentological Conference, Alicante, Spain, April 1998.
- Haneberg, W.C.**, 1997, Calculated effects of valley incision on the state of stress in the Santa Fe Group aquifer system, Albuquerque Basin, New Mexico: American Geophysical Union 1997 Fall Meeting.
- Haneberg, W.C.**, 1997, The past, present, and future of engineering geology: *New Mexico Geology*, v. 19, p. 48 (invited presentation). (Talk given at New Mexico Geological Society spring meeting.)
- Mozley, P.S., Whitworth, T.M., **Haneberg, W.C.**, Goodwin, L.B., and Heynekamp, M., 1997, Controls on the spatial distribution of calcite cementation in fault zones: *AAPG-SEPM Annual Meeting Abstracts*, v. 6, p. 85.
- Haneberg, W.C.**, 1997, First order analysis of stresses in a layered elastic half space with periodic topography — implications for land subsidence potential above incised aquifer systems: *Geological Society of America Abstracts with Programs, South-Central/Rocky Mountain Sections*, v. 29, p. 12 (invited presentation).
- Haneberg, W.C.**, Bauer, P.W., and Chavez, W.X., Jr., 1996, Geologic, engineering geologic, and geologic hazards maps of a proposed highway corridor, Rio Grande gorge, northern New Mexico: *Geological Society of America Abstracts with Programs, 1996 Annual Meeting*, v. 28, p. 282 (invited presentation).

- Haneberg, W.C.**, Goodwin, L.B., Heynekamp, M., and Mozley, P.S., 1996, Field observations and numerical models of the influence of faults on groundwater flow in clastic aquifer systems: *Geological Society of America Abstracts with Programs, 1996 Annual Meeting*, v. 28, p. 255.
- Goodwin, L.B. and **Haneberg, W.C.**, 1996, Deformational fabrics and inferred permeability of faulted sands from the Rio Grande rift, New Mexico: *Geological Society of America Abstracts with Programs, 1996 Annual Meeting*, v. 28, p. 255.
- Heynekamp, M.R., Goodwin, L.B., Mozley, P.S., and **Haneberg, W.C.**, 1996, The influence of grain size on dragging and mixing of poorly consolidated sediments along a normal fault: Implications for cross-fault fluid flow: *Geological Society of America Abstracts with Programs, 1996 Annual Meeting*, v. 28, p. 255.
- Sigda, J.M., Mozley, P.S., Goodwin, L.B., and **Haneberg, W.C.**, 1996, Small displacement fault controls on single phase permeability in poorly consolidated sands: *Geological Society of America Abstracts with Programs, 1996 Annual Meeting*, v. 28, p. 256.
- Whitworth, T.M., **Haneberg, W.C.**, DeRosa, G., Romero, D., Mozley, P.S., and Goodwin, L.B., 1996, Solute sieving by pulverized quartzofeldspathic sands-- experimental results and implications for the membrane behavior of fault gouge: *Geological Society of America Abstracts with Programs, 1996 Annual Meeting*, v. 28, p. 256.
- Haneberg, W.C.**, 1996, Deterministic and probabilistic approaches to hazard assessment: Association of Engineering Geologists 1996 Annual Meeting Abstracts.
- Mozley, P.S., Goodwin, L.B., Heynekamp, M., and **Haneberg, W.C.**, 1996, Using the spatial distribution of calcite cementation to infer paleoflow conditions in fault zones: Examples from the Albuquerque Basin, New Mexico: *AAPG-SEPM Annual Meeting Abstracts*, v. 5, p. 102.
- Haneberg, W.C.**, 1995, Geophysical log derived estimates of compaction potential for the upper Santa Fe Group aquifer system, Albuquerque Basin, New Mexico: *EOS, Transactions American Geophysical Union, 1995 Fall Meeting Supplement*, p. 197.
- Haneberg, W.C.** and Hawley, J.W., 1994, Porosity and permeability characteristics of lithofacies in the upper Santa Fe Group, Albuquerque Basin, New Mexico: *Geological Society of America Abstracts with Programs, 1994 Annual Meeting*, v. 26, p. 204.
- Haneberg, W.C.**, Goodwin, L. B., and Ferranti, C. J., 1994, Pseudotachylite in a metamorphic core complex — analytical modeling of the effect of compositional variation on frictional melting: *Geological Society of America, 1994 Annual Meeting Abstracts with Programs*, v. 26, n. 7, p. 269.
- Haneberg, W.C.**, 1994, Simple analytical solutions for steady-state groundwater flow across faults: *Geological Society of America Abstracts with Programs, 1994 Rocky Mountain Section Meeting*, v. 26, p. 16.
- Haneberg, W.C.**, 1993, Pressure head distribution and the stability of heterogeneous frictional soils: *EOS, Transactions American Geophysical Union, 1993 Fall Meeting Supplement*, p. 310 (invited presentation).
- Haneberg, W.C.**, 1992, A mass balance model for the hydrologic response of fine-grained hillside soils to rainfall: *Geological Society of America Abstracts with Programs, 1992 Annual Meeting*, v. 24, p. 203 (invited presentation).

- Haneberg, W.C.**, 1992, Compressibility, stiffness, and some numerical experiments with layered drape folds in compressible elastic media: *New Mexico Geology*, v. 14, p. 62. (Talk given at New Mexico Geological Society spring meeting.)
- Bauer, P.W. and **Haneberg, W.C.**, 1992, Geologic setting for rapid mass-wasting in the Rio Grande gorge area, Taos County, New Mexico: *New Mexico Geology*, v. 14, p. 63. (Talk given at New Mexico Geological Society spring meeting.)
- Friesen, R.L. and **Haneberg W.C.**, 1992, Digital documentation of deformation and groundwater levels near an earth fissure in the Mimbres Basin, New Mexico: *New Mexico Geology*, v. 14, p. 63. (Talk given at New Mexico Geological Society spring meeting.)
- Haneberg, W.C.**, 1992, Thin-plate analysis of land subsidence and fissuring in the Mimbres Basin, southern New Mexico: *Geological Society of America Abstracts with Programs, 1992 Cordilleran Section Meeting*, v. 24, p. 30.
- Haneberg, W.C.**, 1991, Grain size distributions and sedimentary facies associated with a modern debris flow in northern New Mexico: *Geological Society of America Abstracts with Programs, 1991 Annual Meeting*, v. 23, p. 40.
- Haneberg, W.C.** and Tripp, G., 1991, An irrigation-induced debris flow near Cordova, New Mexico: *Geological Society of America Abstracts with Programs, 1991 Rocky Mountain/South-Central Section Meeting*, v. 23, p. 29.
- Haneberg, W.C.**, 1991, Mechanics of single-layer drape folding– some simple models with practical applications: *New Mexico Geology*, v. 13, p. 65. (Talk given at New Mexico Geological Society spring meeting.)
- Haneberg, W.C.**, 1990, Draping and differential compaction of compressible elastic soil layers under the influence of gravity: *Geological Society of America Abstracts with Programs, 1990 Annual Meeting*, v. 22, p. 246-247.
- Haneberg, W.C.** and Reynolds, C.B., 1990, Geophysical constraints on a mechanical model for the origin of the San Marcial earth fissure: *New Mexico Geology*, v. 12, p. 38. (Talk given at New Mexico Geological Society spring meeting.)
- Reynolds, C.B., Reynolds, I.B., and **Haneberg, W.C.**, 1990, Refraction velocity sections– an aid in shallow reflection interpretation: *Expanded Abstracts, 60th Annual Meeting, Society of Exploration Geophysicists, San Francisco, California*, v. 1, p. 383.
- Haneberg, W.C.**, 1989, Field observations and theoretical insights on the response of hillside soils to rainfall: *Geological Society of America Abstracts with Programs, 1989 Annual Meeting*, v. 21, p. 230.
- Haneberg, W.C.**, 1989, Propagation of boundary pore pressure perturbations through saturated or tension saturated soils: *Abstracts and Program, 32nd Annual Meeting, Association of Engineering Geologists, Vail, Colorado, October 1-6, 1989*, p. 76.
- Haneberg, W.C.**, 1985, Dilational fractures in the Lower Cambrian Rome Formation, southwest Virginia: *American Association of Petroleum Geologists Bulletin*, v. 70, p. 782.
- Haneberg, W.C.**, 1984, Fracturing and brecciation along the Max Meadows thrust near Wytheville, Virginia: *American Association of Petroleum Geologists Bulletin*, v. 68, p. 483.

## Miscellaneous Publications

- Haneberg, W.C.**, 2007, Book Review — *Statistics of Earth Science Data* by Graham Borradaile: *Environmental & Engineering Geoscience*, v. 11, p. 189-190.
- Haneberg, W.C.**, 2005, New quantitative landslide hazard assessment tools for planners, in J.C. Schwab, P.L. Gori, and S. Jeer, editors, *Landslide Hazards and Planning*: American Planning Association, Planning Advisory Service Report Number 533/534, p. 76-84.
- Haneberg, W.C.**, 2005, Book Review — *An Introduction to Programming with Mathematica* by Paul Wellin, Richard Gaylord, and Samuel Kamin: *Computers & Geosciences*, v. 31, p. 1300-1301.
- Haneberg, W.C.**, 2002, To exclude or not to exclude: The when and why of landslides: *Claims* (March).
- Haneberg, W.C.**, 2001, A probabilistic approach to spatially distributed landslide hazard modeling: *Earth Observation Magazine*, v. 10, no. 12, p. 10-12.
- Haneberg, W.C.**, 2000, Book Review — *The Rock Physics Handbook* by Gary Mavko, Tapan Mukerji, and Jack Dvorkin: *Environmental & Engineering Geoscience*, v. 5, p. 489-490.
- Haneberg, W.C.**, 1997, Book Review — *Geology Applied to Engineering* by Terry R. West: *Journal of Geoscience Education*, v. 45, p. 85.
- Haneberg, W.C.**, 1995, Book Review— *Unsaturated Zone Hydrology* by Gary L. Guymon, *Journal of Geology*, v. 103, p. 370.
- Haneberg, W.C.**, 1994, Quemado Lake dam: *34th Annual Field Conference Guidebook*, New Mexico Geological Society, p. 44.
- Haneberg, W.C.**, Riestenberg, M.M., Pohana, R., and Diekmeyer, S., 1992, *Cincinnati's Geologic Environment: A Trip for Secondary School Science Teachers*: Ohio Division of Geological Survey, Guidebook 9, 23 p.
- Haneberg, W.C.**, 1991, Cuspate-lobate folds along a sedimentary contact, Los Lunas volcano, New Mexico, in B. Julian and J. Zidek, editors, *Field Guide to Geologic Excursions in New Mexico and Adjacent Areas of Texas and Colorado*: New Mexico Bureau of Mines and Mineral Resources Bulletin 137, p. 162-163.
- Haneberg, W.C.**, 1991, Book Review— *Analysis of Geologic Structures* by N.J. Price and J.W. Cosgrove: *GSA Today*, v. 1, no. 5, p. 103.

## OTHER SELECTED REPORTS

- Haneberg, W.C.** and Medley, E.W., 2004, *Preliminary Terrain Hazard Assessment, Lihir Mine, Lihir Island, Papua New Guinea*: prepared for Lihir Management Pty. Ltd. under contract to Condor Earth Technologies, Sonora, CA.
- Haneberg, W.C.**, 2004, *Review and Analysis of 2002 and 2003 Heritage Park Post-Stabilization Slope Failures, Washington State Capitol Campus*: unpublished consulting report prepared under contract to the Engineering and Architectural Services Division, Washington Department of General Administration, Olympia, WA.
- Collison, A., Emmingham, W., Everest, F., **Haneberg, W.**, Marston, R., Tarboton, D., and Twiss, R., 2003, *Phase II Report, Independent Scientific Review Panel on Sediment Impairment and Effects on*

*Beneficial Uses of the Elk River and Stitz, Bear, Jordan and Freshwater Creeks*: report prepared for the North Coast Regional Water Quality Control Board, Santa Rosa, CA.

Collison, A., Emmingham, W., Everest, F., **Haneberg, W.**, Marston, R., Tarboton, D., and Twiss, R., 2002, *Final Report on Sediment Impairment and Effects on Beneficial Uses of the Elk River and Stitz, Bear, Jordan and Freshwater Creek*: report prepared for the North Coast Regional Water Quality Control Board, Santa Rosa, CA, 62 p.

**Haneberg, W.C.**, 2002, *Continuum solutions for deformation of a compressible elastic layer with topography and a pressurized magma body at depth*: Mathematica 4.0 notebook produced under contract to the New Mexico Bureau of Geology and Mineral Resources.

**Haneberg, W.C.**, 2001, *Development and application of a first-order elastic continuum model of deformation above the Socorro magma body*: interim project completion report submitted to New Mexico Bureau of Geology and Mineral Resources, 40 p.

Stone, B.D., Allen, B.D., Mikolas, M., Hawley, J.W., **Haneberg, W.C.**, Johnson, P.S., Gomez, P., Gibson, A., Allred, B., and Thorn, C.R., 1998, *Preliminary lithostratigraphy, interpreted geophysical logs, and hydrogeologic characteristics of the 98th Street core hole, Albuquerque, New Mexico*: U.S. Geological Survey Open-File Report 98-210, 82 p.

**Haneberg, W.C.**, Allred, B., Gomez, P., and Gibson, A., 1998, *Consolidation test results, triaxial permeability values, and particle size distributions, 98th Street ground water monitoring well, Albuquerque, New Mexico*: New Mexico Bureau of Mines & Mineral Resources Open-File Report 436.

**Haneberg, W.C.** and Hawley, J.W., editors, 1996, *Characterization of hydrogeologic units in the northern Albuquerque Basin*: New Mexico Bureau of Mines & Mineral Resources Open-File Report 402-C, 227 p.

**Haneberg, W.C.**, 1994, *Estimation of infiltration time lag for return flow credit, Santa Fe Ski Area, Santa Fe National Forest*: report prepared for water rights hearing on behalf of U.S. Forest Service, 20 p.

**Haneberg, W.C.** and Friesen, R.L., 1993, *Tilting of surficial strata and groundwater level fluctuations in the subsiding Mimbres Basin, New Mexico*: New Mexico Water Resources Research Institute Report No. 274, 85 p.

Catanach, R.B., D'Appolonia, E., James, R.L., O'Neil, A.L., and **Haneberg, W.C.**, 1992, *Report of the independent review panel of the Costilla Dam slide*: New Mexico Interstate Stream Commission, 32 p.

Bretz, R.E., Kieft, T.L., Docher, A., Brandvold, D., Grande, C., Haase, S., **Haneberg, W.**, Stephens, C., and Hendrickx, J., 1992, *In-place slurry-phase production pit bioremediation*: Summary Report, PERF Project 92-17, 19 p.

**Haneberg, W.C.**, Bauer, P.W., and Chavez, W.X., Jr., 1992, *Rio Grande gorge highway corridor study, Rinconada to Pilar*: Completion Report submitted to New Mexico State Highway and Transportation Department, 22 p.

**Haneberg, W.C.** and Tripp, G., 1990, *Engineering geologic investigations of an irrigation-induced debris flow near Cordova, Rio Arriba County, New Mexico*: New Mexico Bureau of Mines and Mineral Resources Open-File Report 371, 80 p.

**Haneberg, W.C.**, 1990, *Use of seismic reflection profiles to characterize soil deformation associated with earth fissures and groundwater withdrawal near Deming, New Mexico*: New Mexico Bureau of Mines and Mineral Resources, Open-File Report 367, 19 p.

Johnson, A.M., Lowell, T.V., Nash, D., Cruikshank, K., **Haneberg, W.**, Riestenberg, M., Neavel, K., Harrar, W., Olson, R., Rosemeyer, D., and Spurling, W., 1987, *Report and recommendations on maintenance of deteriorating retaining walls and streets damaged by landslides, City of Cincinnati*: City of Cincinnati Infrastructure Commission Internal Report, 48 p.

Lowell, T.V. and **Haneberg, W.C.**, 1987, *A three-dimensional mapping technique to provide base line data for landslide hazard assessment*: Department of Geology, University of Cincinnati, Final Report to the University Program Advisory Committee (UPAC), 55 p.

## GRADUATE STUDENTS SUPERVISED

Matthieu Sturzenegger, *An evaluation of rock slope characterization using digital photogrammetry and laser scanning techniques*. Ph.D. in Earth Sciences, Simon Fraser University, Canada, 2010. Committee member.

Narayan Gurung, *Landslide investigation and mitigation: a case study of Laprak landslide, Gorkha, Nepal*. M.Tech in Geotechnical and Geoenvironmental Engineering, Indian Institute of Technology, Delhi, India, 2009. External co-supervisor.

Jodi Clark, *Liquefaction susceptibility mapping of the shallow alluvium, Inner Valley, Rio Grande Basin, Albuquerque, New Mexico*. M.S. in Geology, NM Tech, 2004. Research advisor.

Geoff Rawling, *Hydrogeologic characterization of the Sand Hill fault zone, Albuquerque Basin, New Mexico*. Ph.D. in Geology, NM Tech, 2001. Committee member.

Andrew Dunn, *Geology and hydrogeology of the Costilla Dam landslide, northern New Mexico*. M.S. in Hydrology, NM Tech, 2001. Research advisor.

Michiel Heynekamp, *Controls on fault-zone architecture and fluid flow in poorly consolidated sediments: the Sand Hill fault, central New Mexico*. M.S. in Geology, NM Tech, 1998. Committee member.

Daniel Detmer, *Permeability, porosity, and grain size distributions of Pliocene and Quaternary sediments in the Albuquerque Basin, central New Mexico*. M.S. in Geology, NM Tech, 1995. Research advisor.

William Linderfelt, *Field study of capture zones in a shallow sand aquifer*. Ph.D. in Hydrology, NM Tech, 1994. Committee member.

Y.-C. Hsieh, *Identification of debris flow and soil creep deposits in Copper Canyon, Socorro County, New Mexico*. M.S. in Geology, NM Tech, 1994. Research advisor.

Robert Friesen, *Cyclic flexure of surficial strata near an earth fissure in the Mimbres Basin, southern New Mexico*. M.S. in Mineral Engineering, NM Tech, 1992. Research advisor.

Garret Ross, *Environmental geologic maps of Santa Fe County, New Mexico*. M.S. in Mineral Engineering, NM Tech, 1992. Research advisor.

Valerie Rhodes, *Laboratory study of geogrid-reinforced sand-clay mixtures from Cenozoic basin-fill deposits, central New Mexico*. M.S. in Mineral Engineering, NM Tech, 1991. Research advisor.

## UNIVERSITY COURSES TAUGHT

Geol 699	<b>Geology Colloquium</b> (UC, 2009-2010)
Geol 331	<b>Elementary Structural Geology</b> (UC, 2010)
Geol 394	<b>Seminar: Digital Terrain Modeling</b> (NKU, 2010)

Geol/Hydro 572	<b>Mechanics of Earth Surface Processes</b> (NMT, 1997, 1998)
Geol/Hydro 504	<b>Hydrogeology</b> (NMT, team taught, 1994)
Geol/Geoph 558	<b>Brittle Deformation (Mechanics of Earthquakes)</b> (NMT, team taught, 1994)
Geol 571	<b>Mechanics of Geologic Processes</b> (NMT, 1993)
Geol 391	<b>Structural Geology</b> (PSU, 2000)
Mineral Engrg 540	<b>Numerical Methods in Geotechnical Engineering</b> (NMT, 1990, 1992)
Mineral Engrg 581	<b>Geologic Hazards</b> (NMT, 1991)
Mineral Engrg 427	<b>Site Investigation</b> (NMT, 1992)

UC: University of Cincinnati  
 NMT: New Mexico Tech

NKU: Northern Kentucky University  
 PSU: Portland State University

### PROFESSIONAL SHORT COURSES TAUGHT

*Digital Terrain Modeling with Airborne LiDAR.* Association of Environmental & Engineering Geologists Annual Meeting, Los Angeles, September 24, 2007.

*Virtual Structural Mapping Using 3-D Digital Rock Slope Models.* Association of Environmental & Engineering Geologists Annual Meeting, Los Angeles, September 25, 2007 (with J. Keaton, G. Poropat, and A. Gaich).

*Introduction to Computational Hydrogeology: Developing Solutions to Groundwater Flow and Transport Equations.* Northwest Environmental Training Center, Seattle WA, February 9-10, 2005.

*Environmental Statistics for Site Managers,* Northwest Environmental Training Center, Seattle WA, June 25-26 and August 21-22, 2003.

*Applied Hydrogeologic Site Characterization for Environmental Professionals,* Northwest Environmental Training Center, Seattle WA, May 29-30, 2003.

*What are the Odds? An Introduction to Probabilistic Methods for Environmental and Engineering Geologists.* AEG-AIPG 2002 Joint Annual Meeting, Reno, September 2002.