

## **Ross William Boulanger**

Department of Civil & Environmental Engineering  
University of California  
One Shields Avenue  
Davis, CA 95616  
phone: (530) 752-2947  
email: [rwboulanger@ucdavis.edu](mailto:rwboulanger@ucdavis.edu)

### **Education**

Ph.D. Geotechnical Engineering, University of California, Berkeley, CA (November 1990)  
M.S. Geotechnical Engineering, University of California, Berkeley, CA (May 1987)  
B.A.Sc. Civil Engineering, University of British Columbia, Vancouver, B. C., Canada (May 1986)

### **Registration**

Registered Professional Civil Engineer in the State of California (since June 1992)

### **Professional History**

Director, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering,  
University of California, Davis, CA (2009 - present)  
Distinguished Professor (2020 - present), Professor (2002 - 2020), Vice-Chair (1998 - 2001), Associate  
Professor (1998 - 2002) and Assistant Professor (1992 - 1998), Department of Civil and  
Environmental Engineering, University of California, Davis, CA  
Senior Staff Engineer, Woodward-Clyde Consultants, Oakland, CA (1990 - 1992)  
Lecturer, University of California, Berkeley, CA (January 1992 - May 1992)  
Lecturer, University of California, Davis, CA (September 1991 - December 1991)  
Staff Engineer, Woodward-Clyde Consultants, Oakland, CA (May 1987 - August 1987)

### **Awards and Honors**

Distinguished Lecture Award, Earthquake Engineering Research Institute (2019)  
ISET Shamsher Prakash Award, Indian Society of Earthquake Technology (ISET), India (2018)  
Member, National Academy of Engineering (elected 2017)  
Cross Canada Lecturer, Fall 2016 Tour, Canadian Geotechnical Society (2016)  
Ralph B. Peck Award, American Society of Civil Engineers (2016)  
TK Hsieh Award, Institution of Civil Engineers, UK (2014)  
Fellow, American Society of Civil Engineers (2012)  
Norman Medal, American Society of Civil Engineers (2006)  
Outstanding Paper Award, United States Society on Dams, 25<sup>th</sup> Annual Conference (2005)  
Walter L. Huber Civil Engineering Research Prize, American Society of Civil Engineers (2002)  
Shamsher Prakash Research Award, SP Foundation (2001)  
Arthur Casagrande Professional Development Award, American Society of Civil Engineers (1998)  
Distinguished Alumni Award, University College of the Cariboo, BC, Canada (1998)  
National Science Foundation CAREER Award (1995)  
Parker Davies Trask Fellowship, University of California, Berkeley (1986)  
Industrial Liaison Program Fellowship, University of California, Berkeley (1986)  
N. M. Skalbania Limited Prize, University of British Columbia (1986)

## ***Professional Affiliations***

Member, US National Academy of Engineering (NAE)  
Fellow, American Society of Civil Engineers (ASCE)  
Member, International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)  
Member, Earthquake Engineering Research Institute (EERI)  
Member, United States Society on Dams (USSD)  
Member, Association of State Dam Safety Officials (ASDSO)  
Member, Geoprofessional Business Association (GBA)

## ***Professional Service and Special Assignments***

Member, Awards Committee, ASCE Geo-Institute (2019 - present)  
Member (2016 - present) and Chair (2018 - 2019), NHERI Council, Natural Hazards Engineering Research Infrastructure network for the National Science Foundation  
Member, NHERI Science Plan Task Group, Natural Hazards Engineering Research Infrastructure program (2016 - present)  
Member, USSD Earthquakes Committee, United States Society on Dams (2010 - present)  
Chair (2016 - 2019), Vice-Chair (2009 - 2016, 2019 - present), and Member (2006 - present), Technical Committee No. 203 – Earthquake Geotechnical Engineering, International Society of Soil Mechanics and Geotechnical Engineering  
Chair (2004 - 2009), Co-chair (2000 - 2004) and Member (1996 - present), Earthquake Engineering and Soil Dynamics Committee of ASCE's Geo-Institute  
Advisory Panel Member, Geo-Engineering Earthquake Reconnaissance Association (2005 - present)  
Member, EERI Board of Directors, Earthquake Engineering Research Institute (2016 – 2020)  
Member, Organizing Committee, NSF-funded Workshop to Advance the NHERI 5-Year Science Plan, Washington, DC, March 18-19 (2019)  
Co-Chair with D. Wijewickreme, 3<sup>rd</sup> International Conference on Performance-based Design in Earthquake Geotechnical Engineering, ISSMGE Technical Committee TC203 on Earthquake Geotechnical Engineering, Vancouver, B.C., Canada, July 16-19 (2017)  
Member, USSD Board of Directors, United States Society on Dams (2009 - 2015)  
International Core Member, Center for Urban Earthquake Engineering, Tokyo Institute of Technology, Tokyo, Japan (2007 - 2013)  
Chair (2014) and Member (2012-2013), EERI Nominating Committee, Earthquake Engineering Research Institute  
Co-lead, Geotechnical Extreme Events Reconnaissance (GEER) team for the March 11, 2011, Tohoku earthquake, Japan (2011 - 2012)  
International Observer, ERTC-12 Evaluation Committee for the Application of the Eurocode 8, International Society of Soil Mechanics and Geotechnical Engineering (2006 - 2010)  
Member, Research Committee, Pacific Earthquake Engineering Research (PEER) Center (2003 - 2010)  
Team Member, International Familiarization of ISO Code for Geotechnical Earthquake Resistant Design, New Energy and Industrial Technology Development Organization, Japan (2005 - 2009)  
Chair, Organizing Committee for the ASCE Geo-Institute's Specialty Conference on Geotechnical Earthquake Engineering and Soil Dynamics, Sacramento, CA, May 18-22, 2008 (2004-2008)  
Member, Site Operations and Shared Use Committee of NEES (2003 - 2006)  
Chair, Proceedings Committee, 100<sup>th</sup> Anniversary Earthquake Conference – commemorating the 1906 San Francisco earthquake, A joint conference co-convened by EERI, SSA, and OES in San Francisco, CA, April 18-22, 2006 (2004 - 2006)  
Organizer, U. S.-Japan Workshop on the Simulation and Performance of Pile Foundations in Liquefied and Laterally Spreading Ground, sponsored by the PEER Center, Davis, CA, March 16-18 (2005)

Member, ISO/TC98/SC3/WG10 Working Group on Draft Standard for Seismic Actions on Geotechnical Works, International Standards Organization (2002 - 2005)

Member, A2K03 Committee on Foundations of Bridges and Other Structures, TRB (2002 - 2004)

Editor, Journal of Geotechnical and Geoenvironmental Engineering, ASCE (2001 - 2004)

Member, Publications Policy Committee of EERI (1999 - 2004)

Organizer, U.S.-Japan Seminar on Seismic Disaster Mitigation in Urban Area by Geotechnical Engineering, Anchorage, AK, June 26-27, sponsored by the National Science Foundation (NSF), East Asia and Pacific Program (2002)

Editorial Board Member, Journal of Geotechnical and Geoenvironmental Engineering, ASCE (2000 - 2001)

Technical Specialist for external review of US Army Corps of Engineers research on liquefaction at high confining stresses, Vicksburg, MS (2000 - 2001)

Member of Geotechnical Reconnaissance Team funded by the National Science Foundation to report on the effects of the 1999 Chi-Chi earthquake in Taiwan (1999)

Member of Geotechnical Reconnaissance Team funded by the National Science Foundation to report on the effects of the 1999 Kocaeli earthquake in Turkey (1999)

Organizing Committee Member, Workshop on the Integration of Engineering Research and Education, sponsored by the National Science Foundation (NSF), Civil and Mechanical Systems Division, Arlington, VA, November 8-10, 1998

Member of Geotechnical Reconnaissance Team funded by the National Science Foundation to report on the effects of the 1995 Hyogoken-Nanbu earthquake near Kobe, Japan (1995)

Organizing Committee Member, Stability and Performance of Slopes and Embankments - II, an ASCE Specialty Conference in Berkeley, CA, June 29 - July 1, 1992

### ***Consulting Activities***

Pacific Gas & Electric Company. Member, Dam Safety Advisory Board for the PG&E Company's Dam Safety Program, CA (2020 - present)

Santa Clara Valley Water District. Technical Review Board for design of the Pacheco Reservoir Expansion Project, CA (2020 - present)

BHP Billiton. Technical consultation regarding numerical modeling of a tailings impoundment, Quirke mine, ON, Canada (2020 - present)

Metro Vancouver. Member, Technical Review Board for Capilano Main No. 5, Stanley Park Water Supply Tunnel Project, Vancouver, BC, Canada (2019 - present)

Contra Costa Water District. Member, Technical Review Board for Los Vaqueros Reservoir Expansion Project, CA (2019 - present)

U.S. Army Corps of Engineers. Independent External Peer Review (IEPR) Panelist for review of the Isabella Lake Dam Safety Modification Project Construction Phase, CA (2019 - present)

Rio Tinto Kennecott Copper. Member, Independent Technical Review Board for design and evaluation of tailing embankments, UT (2018 - present)

Metro Vancouver. Member, Geotechnical Expert Advisory Panel for Iona Island Wastewater Treatment Plant, Vancouver, BC, Canada (2018 - present)

Metro Vancouver. Member, Technical Review Board for design of the Annacis Water Supply Tunnel, Surrey and New Westminster, BC, Canada (2016 - present)

Grant County Public Utility District No. 2. Member, Board of Consultants for seismic evaluation and modification of the embankment dam at Priest Rapids on the Columbia River, WA (2015 - present)

Grant County Public Utility District No. 2. Member, Technical Integration Team for seismic risk evaluation of the embankment dam at Wanapum on the Columbia River, WA (2015 - present)

Los Angeles Department of Water and Power. Member, Board of Consultants for seismic assessment and improvement projects: Bouquet Canyon Reservoir Dams No. 1 and 2, Eagle Rock Dam, Ivanhoe Dam, North Haiwee Dam No. 2, South Haiwee Dam, Stone Canyon Dam, Tinemaha Dam, Upper Stone Canyon Dam, and the Van Norman Stormwater Capture project, CA (2013 - present)

GeoPentech. Review of liquefaction evaluations for North Shore Wastewater Treatment Plant, North Vancouver, BC, Canada (2019 - 2020)

Clean Water Services. Member, Consulting Review Board for design alternative studies by CWS and the U.S. Bureau of Reclamation for Scoggins Dam, Tualatin Project, OR (2019)

Santa Clara Valley Water District. Technical review regarding dam safety evaluations of Coyote, Chesbro, and Uvas Dams, CA (2018 - 2019)

California Department of Water Resources, Division of Engineering. Technical support for seismic evaluation of B. F. Sisk Dam, CA (2007 - 2018)

Cotton, Shires and Associates, Inc. Technical review and consultation regarding investigations and analyses of settlement at the Millennium Tower, San Francisco, CA (2016 - 2018)

Pacific Gas and Electric Co. Member, Dam Risk Panel for seismic risk evaluation of hydro generation facilities, San Francisco, CA (2015 - 2017)

Los Angeles Department of Water and Power. Member, Technical Review and Advisory Panel, Headworks Reservoir Project, Los Angeles, CA (2009 - 2016)

U.S. Army Corps of Engineers. Independent Expert Project Review (IEPR) Panelist for review of the Isabella Lake Dam Safety Modification Project, CA (2015 - 2016)

Geosyntec Consultants, Inc. Technical review and consultation regarding seismic deformation analyses of the Blue Ridge Dam, Fannin County, GA (2014 - 2016)

Bechtel Canada Co. Technical review and consultation regarding site characterization and seismic evaluation for a proposed marine facility, BC, Canada (2015 - 2016)

East Bay Municipal Utility District. Member, Technical Review Board for the seismic upgrades of Chabot Dam, San Leandro, CA (2015 - 2016)

Earthquake Commission of New Zealand. Expert panel for peer review of engineering studies regarding increased liquefaction vulnerability of residential land in Christchurch, New Zealand (2015)

Deltares. Workshop to examine seismic evaluation practices and remediation strategies for levees in the Netherlands, Groningen, The Netherlands (2015)

Tennessee Valley Authority. Workshop to develop guidance document regarding liquefaction assessments with emphasis on numerical modeling, Knoxville, TN (2015)

New Zealand Ministry of Business, Innovation, and Employment. Peer review of ground improvement guidelines for Christchurch, New Zealand (2014 - 2015)

Earthquake Commission of New Zealand. Peer review of ground improvement trials and land damage work, Christchurch, New Zealand (2014 - 2015)

U.S. Department of the Interior, Bureau of Reclamation. Technical review of the Bureau of Reclamation's Embankment Dam Seismic Analysis Design Standard, Denver, CO (2014 - 2015)

Shimmick/FCC/Impregilo Joint Venture. Member, Technical Advisory Panel for review of design and construction of the main span bridge and approach bridges of the Gerald Desmond Bridge Project, Port of Long Beach, Los Angeles, CA (2012 - 2015)

U.S. Army Corps of Engineers (via URS). Quality control and consistency (QCC) review panel coordination meeting, Risk Management Center, Lakewood, CO (2014)

Geocomp Corporation. Technical review services for the Tennessee Valley Authority regarding seismic evaluations of Kingston Fossil Plant Stilling Pond, TN (2014)

EBA Engineering Consultants, Ltd. Technical review and consultation regarding seismic design of the Evergreen Line Rapid Transit Project, Vancouver, BC, Canada (2013 - 2014)

U.S. Army Corps of Engineers. Technical Specialist for review of seismic evaluations for Success Dam, CA (1999 - 2014)

GeoPentech. Consultation regarding seismic site characterization and site response analyses for the San Onofre Nuclear Generating Station, San Onofre, CA (2013)

URS Corporation. Technical review of seismic evaluations for Gatun Dam, Panama (2012)

U.S. Department of the Interior, Bureau of Reclamation. Member, Consulting Review Board, Scoggins Dam, Tualatin Project, OR (2011 - 2012)

GEI Consultants, Inc. Member of Technical Expert Panel for review of Delta Seismic Design studies for California Department of Water Resources, CA (2011 - 2012)

Tennessee Valley Authority. Peer review of seismic properties study for Kingston Coal Fly Ash, Kingston Fossil Plant, Harriman, TN (2011)

B.C. Hydro. Technical Specialist for review of seismic evaluations for the John Hart Powerhouse Replacement and Dam Deficiency Investigation Projects, Campbell River, BC, Canada (2009 - 2011)

U.S. Army Corps of Engineers. Technical Panelist for review of seismic evaluations for Isabella Dam, CA (2005 - 2011)

California Department of Water Resources. Independent Review Committee, Delta Habitat Conservation and Conveyance Program, CA (2010)

EBA Engineering Consultants, Ltd. Port Mann Highway Project, Seismic Engineering Review, Category 3 Checking for the Port Mann Bridge, Vancouver, Canada (2009-2010)

Terra / GeoPentech Joint Venture. Member, Technical Review Board for the seismic evaluations of Camanche Dam, CA (2008 - 2009)

Klohn Crippen Berger Ltd. Technical support for seismic testing of tailings samples from Greens Creek project, Canada (2007 - 2009)

URS Corporation. Member, Soil Strength Advisory Panel for the DWR Urban Levee Geotechnical Evaluations Program, Sacramento, CA (2008)

ENGEO Incorporated. Technical Panelist for review of Treasure Island geotechnical conceptual design work, CA (2007 - 2008)

URS Corporation. Member, Seismic Review Panel for the Delta Risk Management Strategy Project's seismic levee vulnerability studies, CA (2007 - 2008)

B.C. Hydro. Member, Technical Review Board for seismic deficiency investigations on Cheakamus Dam, B.C., Canada (2007 - 2008).

Terra / Ninyo & Moore Joint-Venture. Member, Independent Review Board, San Pablo Dam Seismic Upgrading Project, CA (2006 - 2007)

Terrain Engineering. Consultation on the causes of damages to the sewer system at Metro Air Park, Sacramento, CA (2006 - 2007)

GeoPentech. Consultation for seismic evaluation of tailings dam (2005 - 2006)

California Department of Water Resources, Division of Safety of Dams. Member, Consulting Board for Earthquake Analysis (2005)

Harlan Tait Associates. Cyclic triaxial testing of soil samples from Piedmont Reservoir Dam, Piedmont, CA (2002 - 2003)

Farrell Design-Build Companies, Inc. Technical review of rammed aggregate pier technology, Placerville, CA (2002 - 2003)

California Division of Safety of Dams. Technical Specialist for review of seismic evaluations for dams in California (2000 - 2002)

U. S. Army Corps of Engineers. External reviewer of liquefaction research by the Earthquake Research and Development Center (ERDC) (2000 - 2002)

RMC Geoscience. Review panel for liquefaction analyses and ground improvement efforts at the Union Pacific Rail Yard, Sacramento, CA (1998 - 1999)

Sub-consultant to Dr. I. M. Idriss. Dynamic properties for foundation materials along the realignment of the outlet works for Prado Dam, CA (1997 - 1998)

Parsons Brinckerhoff Quade & Douglas, Inc. Study of ground improvement issues for the Posey and Webster Street Tubes Seismic Retrofit Project, Alameda, CA (1996 - 1997)

Sub-consultant to Dr. I. M. Idriss. Review of a soil-structure interaction study for two 15-story structures in Oakland, CA (1995)

Miller Pacific Engineering Group, as retained through the Law Offices of Clinton A. Johnson.  
Consultation regarding liquefaction hazards and ground improvement by compaction grouting for the Santa Cruz Transit District's Maintenance and Operations Facility, CA (1993 - 1994)  
Woodward-Clyde Consultants. Final design, plans and specifications for ground improvement by compaction grouting, stone columns, and a steel-reinforced DSM wall at the California Water Operations Center, Sacramento, CA (1992)  
Woodward-Clyde Consultants. Evaluation of compaction grouting effectiveness for ground densification within a test section at the California Water Operations Center, Sacramento, CA (1992)  
Contech Construction Products, Inc. Performed finite element analyses of long-span, flexible, metal box culvert structures to evaluate the effects of observed field deformations on load carrying capacity. Compared results with the Simplified Design Procedure in use (1988)

## **Publications**

### **Monographs**

1. Idriss, I. M., and Boulanger, R. W. (2008). *Soil liquefaction during earthquakes*. Monograph MNO-12, Earthquake Engineering Research Institute, Oakland, CA, 261 pp.

### **Journals**

106. Boulanger, R. W., Wilson, D. W., Kutter, B. L., DeJong, J. T., and Bronner, C. E. (2020). "NHERI Centrifuge Facility: Large-scale centrifuge modeling in geotechnical research." *Frontiers in Built Environment*, 6:121, 10.3389/fbuil.2020.00121.
105. Paull, N. A., Boulanger, R. W., and DeJong, J. T. (2020). "Accounting for spatial variability in nonlinear dynamic analyses of embankment dams on liquefiable deposits." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 146(11): 04020124, 10.1061/(ASCE)GT.1943-5606.0002372.
104. Krage, C. P., Price, A. B., Lukas, W. G., DeJong, J. T., DeGroot, D. J., and Boulanger, R. W. (2019). "Slurry deposition method of low plasticity intermediate soils for laboratory element testing." *Geotechnical Testing Journal*, GTJODJ, ASTM, 10.1520/GTJ20180117.
103. Boulanger, R. W., and Ziotopoulou, K. (2019). "A constitutive model for clays and plastic silts in plane-strain earthquake engineering applications." *Soil Dynamics and Earthquake Engineering*, 127(2019): 105832, 10.1016/j.soildyn.2019.105832.
102. Boulanger, R. W. (2019). "Nonlinear Dynamic Analyses of Austrian Dam in the 1989 Loma Prieta Earthquake." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(11): 05019011, 10.1061/(ASCE)GT.1943-5606.0002156.
101. Price, A. B., Boulanger, R. W., and DeJong, J. T. (2019). "Centrifuge modeling of variable rate cone penetration in low-plasticity silts." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(11): 04019098, 10.1061/(ASCE)GT.1943-5606.0002145.
100. Darby, K. M., Boulanger, R. W., and DeJong, J. T. (2019). "Effect of partial drainage on cyclic strengths of saturated sands in dynamic centrifuge tests." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(11): 04019089, 10.1061/(ASCE)GT.1943-5606.0002085.
99. Darby, K. M., Hernandez, G. L., DeJong, J. T., Boulanger, R. W., Gomez, M. G., and Wilson, D. W. (2019). "Centrifuge model testing of liquefaction mitigation via microbially induced calcite precipitation." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(10): 04019084, 10.1061/(ASCE)GT.1943-5606.0002122.

98. Moug, D. M., Price, A. B., Parra Bastidas, A. M., Darby, K. M., Boulanger, R. W., and DeJong, J. T. (2019). "Mechanistic development of CPT-based cyclic strength correlations for a clean sand." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(10): 04019072, 10.1061/(ASCE)GT.1943-5606.0002101.
97. Boulanger, R. W., Munter, S. K., Krage, C. P., and DeJong, J. T. (2019). "Liquefaction evaluation of interbedded soil deposit: Çark Canal in 1999 M7.5 Kocaeli Earthquake." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(9): 05019007, 10.1061/(ASCE)GT.1943-5606.0002089.
96. Khosravi, M., Boulanger, R. W., Wilson, D. W., Olgun, C. G., Shao, L., and Tamura, S. (2019). "Stress transfer from rocking shallow foundations on soil-cement reinforced clay." *Soils and Foundations*, Japanese Geotechnical Society, 59(2019): 966-981, 10.1016/j.sandf.2019.04.003.
95. Moug, D. M., Boulanger, R. W., DeJong, J. T., and Jaeger, R. A. (2019). "Axisymmetric simulations of cone penetration in saturated clay." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145(4): 04019008, 10.1061/(ASCE)GT.1943-5606.0002024.
94. Darby, K. M., Boulanger, R. W., DeJong, J. T., and Bronner, J. D. (2019). "Progressive changes in liquefaction and cone penetration resistance across multiple shaking events in centrifuge tests." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(3): 04018112, 10.1061/(ASCE)GT.1943-5606.0001995.
93. Boulanger, R. W., Khosravi, M., Khosravi, A., and Wilson, D. W. (2018). "Remediation of liquefaction effects for an embankment using soil-cement walls: Centrifuge and numerical modeling." *Soil Dynamics and Earthquake Engineering*, 114(2018), 38-50, 10.1016/j.soildyn.2018.07.001.
92. Tamura, S., Khosravi, M., Wilson, D. W., Rayamajhi, D., Boulanger, R. W., Olgun, C. G., and Wang, Y. (2018). "A simple method for detecting cracks in soil-cement reinforcement for centrifuge modeling." *International Journal of Physical Modeling in Geotechnics*, 18(6): 281-289, 10.1680/jphmg.17.00036.
91. Khosravi, M., Boulanger, R. W., Wilson, D. W., Olgun, C. G., Tamura, S., and Wang, Y. (2017). "Dynamic centrifuge tests of structures with shallow foundations on soft clay reinforced by soil-cement grids." *Soils and Foundations*, Japanese Geotechnical Society, 57:501-513, 10.1016/j.sandf.2017.06.002.
90. Price, A. B., DeJong, J. T., and Boulanger, R. W. (2017). "Cyclic loading response of silt with multiple loading events." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 143(10): 04017080, 10.1061/(ASCE)GT.1943-5606.0001759.
89. Boulanger, R. W., Moug, D. M., Munter, S. K., Price, A. B., and DeJong, J. T. (2016). "Evaluating liquefaction and lateral spreading in interbedded sand, silt, and clay deposits using the cone penetrometer." *Australian Geomechanics*, The Australian Geomechanics Society, 51(4), 109-128.
88. Boulanger, R. W., and Montgomery, J. (2016). "Nonlinear deformation analyses of an embankment dam on a spatially variable liquefiable deposit." *Soil Dynamics and Earthquake Engineering*, 91(2016), 222-233, 10.1016/j.soildyn.2016.07.027.
87. Montgomery, J., and Boulanger, R. W. (2016). "Effects of spatial variability on liquefaction-induced settlement and lateral spreading." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 2017, 143(1), 04016086, 10.1061/(ASCE)GT.1943-5606.0001584.
86. Ziotopoulou, K., and Boulanger, R. W. (2016). "Plasticity modeling of liquefaction effects under sloping ground and irregular cyclic loading conditions." *Soil Dynamics and Earthquake Engineering*, 84 (2016), 269-283, 10.1016/j.soildyn.2016.02.013.
85. Khosravi, M., Boulanger, R. W., Tamura, S., Wilson, D. W., Olgun, G., and Wang, Y. (2016). "Dynamic centrifuge tests of soft clay reinforced by soil-cement grids." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 142(7), 04016027, 10.1061/(ASCE)GT.1943-5606.0001487.

84. Rayamajhi, D., Boulanger, R. W., Ashford, S. A., and Elgamal, A. (2016). "Dense granular columns in liquefiable ground: Effects on deformations." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 142(7), 04016024, 10.1061/(ASCE)GT.1943-5606.000147.
83. Rayamajhi, D., Ashford, S. A., Boulanger, R. W., and Elgamal, A. (2016). "Dense granular columns in liquefiable ground: Shear reinforcement and cyclic stress ratio reduction." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 142(7), 04016023, 10.1061/(ASCE)GT.1943-5606.0001474.
82. van Ballegooy, S., Wentz, F., and Boulanger, R. W. (2015). "Evaluation of CPT-based liquefaction procedures at regional scale." *Soil Dynamics and Earthquake Engineering*, 79 (2015), 315-334, 10.1016/j.soildyn.2015.09.016.
81. Boulanger, R. W., and Idriss, I. M. (2015). "CPT-based liquefaction triggering procedure." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 142(2), 04015065, 10.1061/(ASCE)GT.1943-5606.0001388.
80. Boulanger, R. W., and Idriss, I. M. (2015). "Magnitude scaling factors in liquefaction triggering procedures." *Soil Dynamics and Earthquake Engineering*, 79 (2015), 296-303, 10.1016/j.soildyn.2015.01.004.
79. Idriss, I. M., and Boulanger, R. W. (2015). "2<sup>nd</sup> Ishihara Lecture: SPT- and CPT-based relationships for the residual shear strength of liquefied soil." *Soil Dynamics and Earthquake Engineering*, 68, 57-68, 10.1016/j.soildyn.2014.09.010.
78. Rayamajhi, D., Tamura, S., Khosravi, M., Boulanger, R. W., Wilson, D. W., Ashford, S. A., and Olgun, C. G. (2015). "Dynamic centrifuge tests to evaluate reinforcing mechanisms of soil-cement columns in liquefiable sand." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 141(6), 04015015, 10.1061/(ASCE)GT.1943-5606.0001298.
77. Howell, R., Rathje, E. M., and Boulanger, R. W. (2014). "Evaluation of simulation models of lateral spread sites treated with prefabricated vertical drains." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 141(1), 04014076, 10.1061/(ASCE)GT.1943-5606.0001185.
76. Montgomery, J., Boulanger, R. W., and Harder, L. F., Jr. (2014). "Examination of the  $K_{\sigma}$  overburden correction factor on liquefaction resistance." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(12), 04014066, 10.1061/(ASCE)GT.1943-5606.0001172.
75. Armstrong, R. J., Boulanger, R. W., and Beaty, M. H. (2014). "Equivalent static analyses of piled bridge abutments affected by earthquake-induced liquefaction." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(8), 04014046, 10.1061/(ASCE)GT.1943-5606.0001152.
74. Khosravifar, A., Boulanger, R. W., and Kunnath, S. K. (2014). "Design of extended pile shafts for the effects of liquefaction." *Earthquake Spectra*, EERI, 30(4), 1775-1799, 10.1193/032512EQS107M.
73. Khosravifar, A., Boulanger, R. W., and Kunnath, S. K. (2014). "Effects of liquefaction on inelastic demands on extended pile shafts." *Earthquake Spectra*, EERI, 30(4), 1749-1773, 10.1193/032412EQS105M.
72. Dahl, K. R., DeJong, J. T., Boulanger, R. W., Pyke, R., and Wahl, D. (2014). "Characterization of an alluvial silt and clay deposit for monotonic, cyclic and post-cyclic behavior." *Canadian Geotechnical Journal*, 51(4): 432-440, 10.1139/cgj-2013-0057.
71. Maki, I. P., Boulanger, R. W., DeJong, J. T., and Jaeger, R. A. (2014). "State-based overburden normalization of cone penetration resistance in clean sand." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(2), 04013006, 10.1061/(ASCE)GT.1943-5606.0001020.

70. Rayamajhi, D., Nguyen, T. V., Ashford, S. A., Boulanger, R. W., Lu, J., Elgamal, A., and Shao, L. (2014). "Numerical study of shear stress distribution for discrete columns in liquefiable soils." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 140(3), 04013034, 10.1061/(ASCE)GT.1943-5606.0000970.
69. Boulanger, R. W., Kamai, R., and Ziotopoulou, K. (2014). "Liquefaction induced strength loss and deformation: Simulation and design." *Bulletin of Earthquake Engineering*, Springer, 12: 1107-1128, 10.1007/s10518-013-9549-x.
68. Boulanger, R. W., Wilson, D. W., and Idriss, I. M. (2013). Closure to "Examination and reevaluation of SPT-based liquefaction triggering case histories." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 138(8), 2000-2001.
67. Chang, D., Boulanger, R. W., Brandenburg, S., and Kutter, B. L. (2013). "FEM analysis of dynamic soil-pile-structure interaction in liquefied and laterally spreading ground." *Earthquake Spectra*, EERI, 29(3), 733-755.
66. Ziotopoulou, K., and Boulanger, R. W. (2013). "Calibration and implementation of a sand plasticity plane-strain model for earthquake engineering applications." *Journal of Soil Dynamics and Earthquake Engineering*, 53, 268-280, 10.1016/j.soildyn.2013.07.009.
65. Boulanger, R. W., and Ziotopoulou, K. (2013). "Formulation of a sand plasticity plane-strain model for earthquake engineering applications." *Journal of Soil Dynamics and Earthquake Engineering*, Elsevier, 53, 254-267, 10.1016/j.soildyn.2013.07.006.
64. Nguyen, T. V., Rayamajhi, D., Boulanger, R. W., Ashford, S. A., Lu, J., Elgamal, A., and Shao, L. (2013). "Design of DSM grids for liquefaction remediation." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 139(11), 1923-1933, 10.1061/(ASCE)GT.1943-5606.0000921.
63. Brandenburg, S. J., Zhao, M., Boulanger, R. W., and Wilson, D. W. (2013). "p-y plasticity model for nonlinear dynamic analysis of piles in liquefiable soil." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 139(8), 1262-1274.
62. Kamai, R., and Boulanger, R. W. (2013). "Simulations of a centrifuge test with lateral spreading and void redistribution effects." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 139(8), 1250-1261.
61. Montoya, B. M., DeJong, J. T., and Boulanger, R. W. (2013). "Dynamic response of liquefiable sand improved by microbial induced calcite precipitation." *Geotechnique*, 63(4), 302-312, 10.1680/geot.SIP13.P.019.
60. Cox, B. R., Boulanger, R. W., Tokimatsu, K., Wood, C., Abe, A., Ashford, S., Donahue, J., Ishihara, K., Kayen, R., Katsumata, K., Kishida, T., Kokusho, T., Mason, B., Moss, R., Stewart, J., Tohyama, K., and Zekkos, D. (2013). "Liquefaction at strong motion stations and in Urayasu City during the 2011 Tohoku-Oki earthquake." *Earthquake Spectra*, EERI, 29(S1), S55-S80.
59. Armstrong, R. J., Boulanger, R. W., and Beaty, M. H. (2013). "Liquefaction effects on piled bridge abutments: Centrifuge tests and numerical analyses." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 139(3), 433-443.
58. Conlee, C. T., Gallagher, P. M., Boulanger, R. W., and Kamai, R. (2012). "Dynamic response of colloidal silica treated sands using centrifuge model tests." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 138(11), 1334-1345.
57. Boulanger, R. W., and Idriss, I. M. (2012). "Probabilistic SPT-based liquefaction triggering procedure." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 138(10), 1185-1195.
56. Boulanger, R. W., and Idriss, I. M. (2012). "Evaluation of overburden stress effects on liquefaction resistance at Duncan Dam." *Canadian Geotechnical Journal*, 49, 1052-1058.
55. Idriss, I. M., and Boulanger, R. W. (2012). "Examination of SPT-based liquefaction triggering correlations." *Earthquake Spectra*, EERI, 28(3), 989-1018.

54. Boulanger, R. W., Wilson, D. W., and Idriss, I. M. (2012). "Examination and re-evaluation of SPT-based liquefaction triggering case histories." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 138(8), 898-909.
53. Howell, R., Rathje, E. M., Kamai, R., and Boulanger, R. W. (2012). "Centrifuge modeling of prefabricated vertical drains for liquefaction remediation." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 138(3), 262-271.
52. Kamai, R. and Boulanger, R. W. (2012). "Single-element simulations of partial-drainage effects under monotonic and cyclic loading." *Journal of Soil Dynamics and Earthquake Engineering*, 35, 29-40.
51. Khosravifar, A., and Boulanger, R. W. (2010). "Inelastic response of extended pile shafts in laterally spreading ground during earthquakes." *DFI Journal*, Deep Foundations Institute, 4(2), 41-53.
50. Kishida, T., Boulanger, R. W., Abrahamson, N. A., Driller, M. W., and Wehling, T. M. (2009). "Seismic response of levees in Sacramento-San Joaquin Delta." *Earthquake Spectra*, EERI, 25(3), 557-582.
49. Kishida, T., Boulanger, R. W., Abrahamson, N. A., Driller, M. W., and Wehling, T. M. (2009). "Site effects for the Sacramento-San Joaquin Delta." *Earthquake Spectra*, EERI, 25(2), 301-322.
48. Kishida, T., Boulanger, R. W., Abrahamson, N. A., Wehling, T. M., and Driller, M. W. (2009). "Regression models for dynamic properties of highly organic soils." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 135(4), 533-543.
47. Kishida, T., Wehling, T. M., Boulanger, R. W., Driller, M. W., and Stokoe, K. H., II (2009). "Dynamic properties of highly organic soils from Montezuma Slough and Clifton Court." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 135(4), 525-532.
46. Boulanger, R. W., and Idriss, I. M. (2009). Closure to "Evaluation of cyclic softening in silts and clays." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 135(2), 308.
45. Chu, D. B., Stewart, J. P., Boulanger, R. W., and Lin, P. S. (2008). "Cyclic softening of low-plasticity clay and its effect on seismic foundation performance." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 134(11), 1595-1608.
44. Meehan, C. L., Boulanger, R. W., and Duncan, J. M. (2008). "Dynamic centrifuge testing of slickensided shear surfaces." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 134(8), 1086-1096.
43. Malvick, E. J., Kutter, B. L., and Boulanger, R. W. (2008). "Postshaking shear strain localization in a centrifuge model of a saturated sand slope." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 134(2), 164-174.
42. Brandenburg, S. J., Boulanger, R. W., Kutter, B. L., and Chang, D. (2007). "Static pushover analyses of pile groups in liquefied and laterally spreading ground in centrifuge tests." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 133(9), 1055-1066.
41. Boulanger, R. W., and Idriss, I. M. (2007). "Evaluation of cyclic softening in silts and clays." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 133(6), 641-652.
40. Brandenburg, S. J., Boulanger, R. W., Kutter, B. L., and Chang, D. (2007). "Liquefaction-induced softening of load transfer between pile groups and laterally spreading crusts." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 133(1), 91-103.
39. Boulanger, R. W., and Idriss, I. M. (2006). "Liquefaction susceptibility criteria for silts and clays." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 132(11), 1413-1426.
38. Malvick, E. J., Kutter, B. L., Boulanger, R. W., and Kulasingam, R. (2006). "Shear localization due to liquefaction-induced void-redistribution in a layered infinite slope." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 132(10), 1293-1303.
37. Idriss, I. M., and Boulanger, R. W. (2006). "Semi-empirical procedures for evaluating liquefaction potential during earthquakes." *Journal of Soil Dynamics and Earthquake Engineering*, Elsevier, 26, 115-130.

36. Brandenberg, S. J., Boulanger, R. W., Kutter, B. L., and Chang, D. (2005). "Behavior of pile foundations in laterally spreading ground during centrifuge tests." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 131(11), 1378-1391.
35. Hutchinson, T. C., Chai, Y. H., and Boulanger, R. W. (2005). "Simulation of full-scale cyclic lateral load tests on piles." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 131(9), 1172-1175.
34. Boulanger, R. W. (2005). Closure to "High overburden stress effects in liquefaction analyses." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 131(8), 1060-1062.
33. Brandenberg, S. J., Boulanger, R. W., and Bruce L. Kutter (2005). "Discussion of 'Single piles in lateral spreads: Field bending moment evaluation.'" *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 131(4), 529-531.
32. Hutchinson, T. C., Chai, Y. H., Boulanger, R. W., and Idriss, I. M. (2004). "Inelastic seismic response of extended pile-shaft-supported bridge structures." *Earthquake Spectra*, Earthquake Engineering Research Institute, 20(4), 1057-1080.
31. Hutchinson, T. C., Chai, Y. H., Boulanger, R. W., and Idriss, I. M. (2004). "Estimating inelastic displacements for design: Extended pile-shaft-supported bridge structures." *Earthquake Spectra*, Earthquake Engineering Research Institute, 20(4), 1081-1094.
30. Kulasingam, R., Malvick, E. J., Boulanger, R. W., Kutter, B. L. (2004). "Strength loss and localization at silt interlayers in slopes of liquefied sand." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 130(11), 1192-1202.
29. Boulanger, R. W. (2003). "High overburden stress effects in liquefaction analyses." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 129(12), 1071-1082.
28. Wehling, T. M., Boulanger, R. W., Arulnathan, R., Harder, L. F., Jr., and Driller, M. W. (2003). "Nonlinear dynamic properties of a fibrous organic soil." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 129(10), 929-939.
27. Boulanger, R. W. (2003). "Relating  $K_\alpha$  to relative state parameter index." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 129(8), 770-773.
26. Curras, C. J., Boulanger, R. W., Kutter, B. L., and Wilson, D. W. (2001). "Seismic response of pile-group-supported structure." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 127(7), 585-596.
25. Stewart, J. P., Chu, D. B., Seed, R. B., Ju, J.-W., Perkins, W. J., Boulanger, R. W., Chen, Y.-C., Ou, C.-Y., Sun, J., and Yu, M.-S. (2001). *Soil Liquefaction*. Chi-Chi, Taiwan, Earthquake of September 21, 1999 Reconnaissance Report, J. Uzarski and C. Arnold, eds., *Earthquake Spectra*, EERI, 17(S1), 37-60.
24. Niemeier, D., Boulanger, R. W., Bayly, P. V., Schmid, S. R., Muraleetharan, K. K., and Barros, A. (2001). "Integration of engineering education and research: Perspectives from the NSF Civil and Mechanical Systems 1998 CAREER workshop." *Journal of Engineering Education*, American Society for Engineering Education, 90(2), 199-202.
23. Boulanger, R. W., Iai, S., Ansal, A., Cetin, K. O., Idriss, I. M., Sunman, B., and Sunman, K. (2000). *Performance of Waterfront Structures*. Kocaeli, Turkey, Earthquake of August 17, 1999. Reconnaissance Report, T. L. Youd, J.-P. Bardet, and J. D. Bray, eds., *Earthquake Spectra*, EERI, 16(S1), 295-310.
22. Arulnathan, R., Boulanger, R. W., Kutter, B. L., and Sluis, B. (2000). "New tool for shear wave velocity measurements in model tests." *Geotechnical Testing Journal*, GTJODJ, ASTM, 23(4), 444-453.
21. Wilson, D. W., Boulanger, R. W., and Kutter, B. L. (2000). "Observed seismic lateral resistance of liquefying sand." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 126(10), 898-906.
20. Yu, H. S., Herrmann, L. R., and Boulanger, R. W. (2000). "Analysis of steady cone penetration in clay." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 126(7), 594-605.

19. Boulanger, R. W., Curras, C. J., Kutter, B. L., Wilson, D. W., and Abghari, A. (1999). "Seismic soil-pile-structure interaction experiments and analyses." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 125(9), 750-759.
18. Boulanger, R. W., and Idriss, I. M. (1999). "Discussion of 'SPT dynamic analysis and measurements.'" *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 125(6), 534-535.
17. Boulanger, R. W., and Idriss, I. M. (1999). "Discussion of 'Liquefaction failure and remediation: King Harbor Redondo Beach, California.'" *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 125(3), 231-233.
16. Boulanger, R. W., Mejia, L. H., and Idriss, I. M. (1999). "Closure to 'Liquefaction at Moss Landing during Loma Prieta earthquake.'" *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 125(1), 92-96.
15. Wang, S., Kutter, B. L., Chacko, J., Wilson, D. W., Boulanger, R. W., and Abghari, A. (1998). "Nonlinear seismic soil-pile-structure interaction." *Earthquake Spectra*, Earthquake Engineering Research Institute, 14(2), 377-396.
14. Arulnathan, R., Boulanger, R. W., and Riemer, M. (1998). "Analysis of bender element tests." *Geotechnical Testing Journal*, GTJODJ, ASTM, 21(2), 120-131.
13. Boulanger, R. W., Meyers, M. W., Mejia, L. H., and Idriss, I. M. (1998). "Behavior of a fine-grained soil during Loma Prieta earthquake." *Canadian Geotechnical Journal*, 35, 146-158.
12. Boulanger, R. W., Arulnathan, R., Harder, L. F., Jr., Torres, R. A., and Driller, M. W. (1998). "Dynamic properties of Sherman Island peat." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 124(1), 12-20.
11. Boulanger, R. W., Wilson, D. W., Kutter, B. L., and Abghari, A. (1997). "Soil-pile-superstructure interaction in liquefiable sand." *Transportation Research Record No. 1569*, TRB, National Research Council, National Academy Press, Washington, D.C., 55-64.
10. Salgado, R., Boulanger, R. W., and Mitchell, J. K. (1997). "Lateral stress effects on CPT liquefaction resistance correlations." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 123(8), 726-735.
9. Boulanger, R. W., Mejia, L. H., and Idriss, I. M. (1997). "Liquefaction at Moss Landing during Loma Prieta Earthquake." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 123(5), 453-467.
8. Boulanger, R. W., and Truman, S. P. (1996). "Void redistribution in sand under post-earthquake loading." *Canadian Geotechnical Journal*, 33, 829-834.
7. Gookin, W. B., Riemer, M. R., Boulanger, R. W., and Bray, J. D. (1996). "Development of cyclic triaxial apparatus with broad frequency and strain ranges." *Transportation Research Record No. 1548*, TRB, National Research Council, National Academy Press, Washington, D.C., 1-8.
6. Boulanger, R. W., and Hayden, R. F. (1995). "Aspects of compaction grouting of liquefiable soil." *Journal of Geotechnical Engineering*, ASCE, 121(12), 844-855.
5. Boulanger, R. W., and Seed, R. B. (1995). "Liquefaction of sand under bi-directional monotonic and cyclic loading." *Journal of Geotechnical Engineering*, ASCE, 121(12), 870-878.
4. Boulanger, R. W., Bray, J. D., Merry, S. M., and Mejia, L. H. (1995). "Three-dimensional dynamic response analyses of Cogswell dam." *Canadian Geotechnical Journal*, 32(3), 452-464.
3. Boulanger, R. W., Chan, C. K., Seed, H. B., Seed, R. B., and Sousa, J. B. (1993). "A low-compliance bi-directional cyclic simple shear apparatus." *ASTM Geotechnical Testing Journal*, 16(1), 36-45.
2. Seed, R. B., and Boulanger, R. W. (1991). "Smooth HDPE/Clay liner interface shear strengths: compaction effects." *Journal of Geotechnical Engineering*, ASCE, 117(4), 686-693.
1. Boulanger, R. W., Seed, R. B., Baird, R. D., and Schluter, J. C. (1989). "Measurements and analyses of deformed flexible box culverts." *Transportation Research Record, No. 1231*, TRB, National Research Council, National Academy Press, Washington, D.C., 25-35.

## Conferences

162. Oathes, T. J., and Boulanger, R. W. (2020). "Seismic deformations of a levee over soft clay of varying sensitivity." Proc., 40<sup>th</sup> USSD Annual Meeting and Conference, United States Society on Dams, Denver, CO, 1-15.
161. Bassal, P. C., Boulanger, R. W., Cox, B. R., Yost, K. M., and DeJong, J. T. (2020). "Dynamic analyses of liquefaction at Palinurus Road in the Canterbury Earthquake Sequence." Proc., 40<sup>th</sup> USSD Annual Meeting and Conference, United States Society on Dams, Denver, CO, 1-17.
160. Oathes, T. J., and Boulanger, R. W. (2020). "Influence of strain-rate on localization and strain-softening in normally consolidated clays with varying strength profiles." Geo-Congress 2020: Modeling, Geomaterials, and Site Characterization. Geotechnical Special Publication 317, J. P. Hambleton, R. Makhnenko, and A. S. Budge (eds), ASCE, 247-255.
159. Paull, N. A., Boulanger, R. W., and DeJong, J. T. (2020). "Nonlinear deformation analyses of embankments on a spatially variable liquefiable deposit using conditional random fields." Geo-Congress 2020: Engineering, Monitoring, and Management of Geotechnical Infrastructure. Geotechnical Special Publication 316, J. P. Hambleton, R. Makhnenko, and A. S. Budge (eds), ASCE, 1-9.
158. Madabhushi, S. S. C., O'Hara, K., Martinez, A. V., Wilson, D. W., Boulanger, R. W., Kutter, B. L., and Ladwig, K. (2020). "Centrifuge modeling of fly ash deposit dewatering. Geo-Congress 2020: Engineering, Monitoring, and Management of Geotechnical Infrastructure. Geotechnical Special Publication 316, J. P. Hambleton, R. Makhnenko, and A. S. Budge (eds), ASCE, 20-28.
157. Moug, D. M., Price, A. B., Darby, K. M., Parra Bastidas, A. M., Boulanger, R. W., and DeJong, J. T. (2019). "Mechanistic development of CPT-based cyclic strength relationships for Ottawa sand." Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions: Proceedings of the 7<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, F. Silvestri and N. Moraci (eds), Associazione Geotecnica Italiana, Rome, Italy, ISBN 978-0-367-14328-2, 4046-4053.
156. Boulanger, R. W., and Wijewickreme, D. (2019). "Calibration of a constitutive model for the cyclic loading response of Fraser River Delta Silt." Earthquake Geotechnical Engineering for Protection and Development of Environment and Constructions: Proceedings of the 7<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, F. Silvestri and N. Moraci (eds), Associazione Geotecnica Italiana, Rome, Italy, ISBN 978-0-367-14328-2, 121-137.
155. Oathes, T. J., and Boulanger, R. W. (2019). "Numerical evaluation of strain-rate effects on strain-softening and localization in saturated clays." Proc., 39<sup>th</sup> USSD Annual Meeting and Conference, United States Society on Dams, Denver, CO, 1-15.
154. Paull, N. A., Boulanger, R. W., and DeJong, J. T. (2019). "Seismic deformations of different size embankments on a spatially variable liquefiable deposit." Proc., 39<sup>th</sup> USSD Annual Meeting and Conference, United States Society on Dams, Denver, CO, 1-15.
153. Yost, K. M., Cox, B. R., Wotherspoon, L., Boulanger, R. W., van Ballegooy, S., and Cubrinovski, M. (2019). "In situ investigation of false-positive liquefaction sites in Christchurch, New Zealand: Palinurus Road Case History." Geo-Congress 2019: Earthquake Engineering and Soil Dynamics, Geotechnical Special Publication 308, Meehan et al. (eds), ASCE, 436-451.
152. Boulanger, R. W., and Brandenburg, S. J. (2019). "Accounting for strain rate dependent behavior during consolidation of saturated clay." Geo-Congress 2019: Geotechnical Materials, Modeling, and Testing, Geotechnical Special Publication 310, Meehan et al. (eds), ASCE, 691-700.
151. Boulanger, R. W., Khosravi, M., Cox, B. R., and DeJong, J. T. (2018). "Liquefaction evaluation for an interbedded soil deposit: St. Teresa's School, Christchurch, New Zealand." Proc., International Association of Chinese Geotechnical Engineers, Chongqing, China, October 20-21, ASCE, 686-704, 10.1061/9780784482049.066.

150. Dahl, K. R., Boulanger, R. W., and DeJong, J. T. (2018). "Trends in experimental data of intermediate soils for evaluating dynamic strength." Proc., 11<sup>th</sup> U.S. National Conference in Earthquake Engineering, Integrating Science, Engineering & Policy, Earthquake Engineering Research Institute, Los Angeles, California, paper 1163.
149. Bronner, C. E., Wilson, D. W., Ziotopoulou, K., Darby, K. M., Sturm, A., Raymond, A. J., Boulanger, R. W., DeJong, J. T., Moug, D. M., and Bronner, J. D. (2018). "An example of effective mentoring for research centers." Proc., Physical Modelling in Geotechnics, McNamara et al. (eds), Taylor and Francis Group, London, ISBN 978-1-138-34419-8, 21-32.
148. Boulanger, R. W., and DeJong, J. T. (2018). "Inverse filtering procedure to correct cone penetration data for thin-layer and transition effects." Proc., Cone Penetration Testing 2018, Hicks, Pisano, and Peuchen, eds., Delft University of Technology, The Netherlands, 25-44.
147. Boulanger, R. W., and Ziotopoulou, K. (2018). "On NDA practices for evaluating liquefaction effects." Proc., Geotechnical Earthquake Engineering and Soil Dynamics V, Geotechnical Special Publication 290, S. J. Brandenberg and M. T. Manzari, eds., ASCE, 1-20.
146. Darby, K. M., Hernandez, G. L., Gomez, M. G., DeJong, J. T., Wilson, D. W., and Boulanger, R. W. (2018). "Centrifuge model testing of liquefaction mitigation via microbially induced calcite precipitation." Proc., Geotechnical Earthquake Engineering and Soil Dynamics V, Geotechnical Special Publication 290, S. J. Brandenberg and M. T. Manzari, eds., ASCE, 127-137.
145. Darby, K. M., Boulanger, R. W., and DeJong, J. T. (2018). "Volumetric strains from inverse analysis of pore pressure transducer arrays in centrifuge models." Proc., Geotechnical Earthquake Engineering and Soil Dynamics V, Geotechnical Special Publication 290, S. J. Brandenberg and M. T. Manzari, eds., ASCE, 626-636.
144. Khosravi, M., Boulanger, R. W., Khosravi, A., DeJong, J. T., Hajialilue-Bonab, M., and Wilson, D. W. (2018). "Centrifuge modeling of cone penetration testing in layered soil." Proc., Geotechnical Earthquake Engineering and Soil Dynamics V, Geotechnical Special Publication 290, S. J. Brandenberg and M. T. Manzari, eds., ASCE, 138-147.
143. Boulanger, R. W., Price, A. B., and Ziotopoulou, K. (2018). "Constitutive modeling of the cyclic loading response of low plasticity fine-grained soils." GSIC 2018, Proceedings of GeoShanghai 2018 International Conference: Fundamentals of Soil Behaviours, A. Zhou et al. (Eds.), Springer Nature Singapore Pte Ltd., pp. 1–13, 10.1007/978-981-13-0125-4\_1.
142. Boulanger, R. W., Khosravi, M., Khosravi, A., Wilson, D. W., Pulido, A. and Yunlong, W. (2017). "Remediation of liquefaction effects for a dam using soil-cement grids: Centrifuge and numerical modeling." Proc., 19<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering, Seoul, South Korea, W. Lee, J.-S. Lee, H.-K. Kim, and D.-S. Kim, eds., ISSMGE, 2477-2480.
141. Boulanger, R. W., Khosravi, M., Khosravi, A., and Wilson, D. W. (2017). "Remediation of liquefaction effects for an embankment using soil-cement walls: Centrifuge and numerical modeling." Proc., Performance-based Design in Earthquake Geotechnical Engineering, PBD-III Vancouver, M. Taiebat et al., eds., ISSMGE Technical Committee TC203, paper 537.
140. Cox, B. R., McLaughlin, K. A., van Ballegooy, S., Cubrinovski, M., Boulanger, R. W., and Wotherspoon, L. (2017). "In-situ investigation of false-positive liquefaction sites in Christchurch, New Zealand: St. Teresa's School case history." Proc., Performance-based Design in Earthquake Geotechnical Engineering, PBD-III Vancouver, M. Taiebat et al., eds., ISSMGE Technical Committee TC203, paper 265.
139. Darby, K. M., Boulanger, R. W., and DeJong, J. T. (2017). "Effect of multiple shaking events on cone penetration resistances in saturated sand." Proc., Performance-based Design in Earthquake Geotechnical Engineering, PBD-III Vancouver, M. Taiebat et al., eds., ISSMGE Technical Committee TC203, paper 534.
138. Khosravi, A., Khosravi, M., Boulanger, R. W., Wilson, D. W., Pulido, A. (2017). "Dynamic centrifuge test of an embankment on liquefiable soil reinforced with soil-cement walls." Proc., Performance-based Design in Earthquake Geotechnical Engineering, PBD-III Vancouver, M. Taiebat et al., eds., ISSMGE Technical Committee TC203, paper 386.

137. Montgomery, J., Boulanger, R. W., and Ziotopoulou, K. (2017). "Effects of spatial variability on the seismic response of the Wildlife Liquefaction Array." Proc., Performance-based Design in Earthquake Geotechnical Engineering, PBD-III Vancouver, M. Taiebat et al., eds., ISSMGE Technical Committee TC203, paper 533.
136. Darby, K. M., McIlroy, M. W., Boulanger, R. W., and DeJong, J. T. (2017). "Analysis of liquefaction at a bridge site in the 2014 Napa earthquake." Geotechnical Frontiers 2017, Seismic Performance and Liquefaction, Geotechnical Special Publication No. 281, T. L. Brandon and R. J. Valentine, eds., 277-289.
135. Munter, S. K., Boulanger, R. W., Krage, C. P., and DeJong, J. T. (2017). "Evaluation of liquefaction-induced lateral spreading procedures for interbedded deposits: Cark Canal in the 1999 M7.5 Kocaeli earthquake." Geotechnical Frontiers 2017, Seismic Performance and Liquefaction, Geotechnical Special Publication No. 281, T. L. Brandon and R. J. Valentine, eds., 254-266.
134. Parra Bastidas, A. M., Boulanger, R. W., DeJong, J. T., and Price, A. B. (2017). "Effects of pre-strain history on the cyclic resistance of Ottawa F-65 sand." 16<sup>th</sup> World Conference on Earthquake Engineering, 16WCEE, Santiago, Chile, January 9-13, paper 1213.
133. Moug, D. M., Boulanger, R. W., and DeJong, J. T. (2016). "Simulation of cone penetration in anisotropic clay." Proceedings, GeoVancouver, Canadian Geotechnical Society, Vancouver, BC, Canada, October 2-5.
132. Krage, C. P., DeJong, J. T., and Boulanger, R. W. (2016). "Identification of geologic depositional variations using CPT-based conditional probability mapping." Geotechnical and Geophysical Site Characterisation 5, B. M. Lehane, H. Acosta-Martinez, and R. Kelly, eds., Australian Geomechanics Society, Sydney, Australia, ISBN 978-0-9946261-2-7.
131. Boulanger, R. W., Moug, D. M., Munter, S. K., Price, A. B., and DeJong, J. T. (2016). "Evaluating liquefaction and lateral spreading in interbedded sand, silt, and clay deposits using the cone penetrometer." Geotechnical and Geophysical Site Characterisation 5, B. M. Lehane, H. Acosta-Martinez, and R. Kelly, eds., Australian Geomechanics Society, Sydney, Australia, ISBN 978-0-9946261-2-7.
130. Boulanger, R. W., and Beaty, M. H. (2016). "Seismic deformation analyses of embankment dams: A reviewer's checklist." Proceedings, Celebrating the Value of Dams and Levees – Yesterday, Today and Tomorrow, 36<sup>th</sup> USSD Annual Meeting and Conference, United States Society on Dams, Denver, CO, 535-546.
129. Price, A. B., DeJong, J. T., Boulanger, R. W., Parra Bastidas, A. M., and Moug, D. (2016). "Effect of prior strain history on cyclic strength and CPT penetration resistance of silica silt." Proceedings, Geotechnical and Structural Engineering Congress, Phoenix, AZ, Feb. 14-17, ASCE, 1664-1674.
128. Darby, K. M., Bronner, J. D., Parra Bastidas, A. M., Boulanger, R. W., and DeJong, J. T. (2016). "Effect of shaking history on cone penetration resistance and cyclic strength of saturated sand." Proceedings, Geotechnical and Structural Engineering Congress, Phoenix, AZ, Feb. 14-17, ASCE, 1460-1471.
127. Munter, S. K., Krage, C. P., Boulanger, R. W., DeJong, J. T., and Montgomery, J. (2016). "Potential for liquefaction-induced lateral spreading in interbedded deposits considering spatial variability." Proceedings, Geotechnical and Structural Engineering Congress, Phoenix, AZ, Feb. 14-17, ASCE, 1484-1494.
126. Armstrong, R. J., and Boulanger, R. W. (2015). "Numerical simulations of liquefaction effects on piled bridge abutments." 6<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, November 1-4, Christchurch, New Zealand.
125. Boulanger, R. W., and Montgomery, J. (2015). "Nonlinear deformation analyses of an embankment dam on a spatially variable liquefiable deposit." 6<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, November 1-4, Christchurch, New Zealand.
124. Price, A. B., Boulanger, R. W., DeJong, J. T., Parra Bastidas, A. M., and Moug, D. (2015). "Cyclic strengths and simulated CPT penetration resistances in intermediate soils." 6<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, November 1-4, Christchurch, New Zealand.

123. Tamura, S., Khosravi, M., Boulanger, R. W., Wilson, D. W., Olgun, C. G., Rayamajhi, D., and Wang, Y. (2015). "Site response of soft clay reinforced by soil-cement grid based on dynamic centrifuge tests." 6<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, November 1-4, Christchurch, New Zealand.
122. Ziotopoulou, K., and Boulanger, R. W. (2015). "Validation protocols for constitutive modeling of liquefaction." 6<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, November 1-4, Christchurch, New Zealand.
121. Dahl, K. R., DeJong, J. T., and Boulanger, R. W. (2015). "Effects of disturbance and consolidation procedures on the behavior of intermediate soils." 12<sup>th</sup> Australia New Zealand Conference on Geomechanics (ANZ 2015), 22-25 February, Wellington, New Zealand.
120. Khosravi, M., Boulanger, R. W., Wilson, D. W., Tamura, S., Olgun, C. G., and Wang, Y. (2015). "Seismic performance of soil-cement grid supporting a structure over soft clay." Proc. Deep Mixing 2015 Conf., Deep Foundations Institute, Hawthorne, NJ, 631-640.
119. Rayamajhi, D., Tamura, S., Khosravi, M., Boulanger, R. W., Wilson, D. W., Ashford, S. A., and Olgun, C. G. (2015). "Investigating reinforcing effects of soil-cement columns in liquefiable sand using dynamic centrifuge tests." Proc. Deep Mixing 2015 Conf., Deep Foundations Institute, Hawthorne, NJ, 375-384.
118. Khosravi, M., Tamura, S., Boulanger, R., Wilson, D., Olgun, C., Rayamajhi, D., and Wang, Y. (2015). "Dynamic centrifuge tests on soft clay reinforced by soil-cement grids." IFCEE 2015, ASCE, Reston, VA, 2349-2358, DOI 10.1061/9780784479087.218.
117. Boulanger, R. W., Montgomery, J., and Ziotopoulou, K. (2015). "Nonlinear deformation analyses of liquefaction effects on embankment dams." Perspectives on Earthquake Geotechnical Engineering, A. Ansal and M. Sakr, eds., Geotechnical, Geological and Earthquake Engineering 37, 247-283, Springer, DOI 10.1007/978-3-319-10786-8\_10.
116. Ziotopoulou, K., Maharjan, M., Boulanger, R. W., Beaty, M. H., Armstrong, R. J., and Takahashi, A. (2014). "Constitutive modeling of liquefaction effects in sloping ground." Tenth U.S. National Conference on Earthquake Engineering, Frontiers of Earthquake Engineering, July 21-25, Anchorage Alaska.
115. Davis, C., Boulanger, R. W., and Johnson, L. (2014). "Lifelines and utilities." Northridge 20 Symposium Summary Report, The 1994 Northridge Earthquake: Impacts, Outcomes, and Next Steps, January 16-17, Los Angeles, California, 17-18.
114. Montgomery, J., and Boulanger, R. W. (2014). "Influence of stratigraphic interfaces on residual strength of liquefied soil." Proceedings, Dams and Extreme Events – Reducing Risk of Aging Infrastructure under Extreme Loading Conditions, 34<sup>th</sup> Annual United States Society on Dams Conference, San Francisco, CA, 101-111.
113. Jaeger, R. A., DeJong, J. T., Boulanger, R. W., and Maki, I. P. (2014). "Effects of state parameter, fines content, and overburden stress on CPT resistance in silty sands." Third International Symposium on Cone Penetration Testing, Las Vegas, NV, paper 2-39.
112. Maki, I. P., Boulanger, R. W., DeJong, J. T., and Jaeger, R. A. (2014). "Overburden normalizations of CPT data in sands to clays." Third International Symposium on Cone Penetration Testing, Las Vegas, NV, paper 2-34.
111. Montgomery, J., Boulanger, R. W., Armstrong, R. J., and Malvick, E. J. (2014). "Anisotropic undrained shear strength parameters for non-linear deformation analyses of embankment dams." Geo-Congress 2014: Geo-Characterization and Modeling for Sustainability, Geotechnical Special Publication 234, ASCE Geo-Institute, 1294-1306.
110. Rayamajhi, D., Ashford, S. A., Boulanger, R. W., and Shao, L. (2013). "Non-linear analysis of shear stress redistribution for stone columns in liquefiable silty sand." International Conference on Earthquake Geotechnical Engineering (ICEGE Istanbul 2013), From Case History to Practice, In honour of Professor Kenji Ishihara, Istanbul, Turkey, June 17-19.

109. Khosravifar, A., and Boulanger, R. W. (2013). "Three-dimensional analyses of extended pile shafts subjected to liquefaction-induced lateral spreading loads." Proceedings, Seventh National Conference on Bridges and Highways, MCEER-13-SP01, J. Kapur and T. Ostrom, eds., State University of New York, Buffalo, NY, paper C2-1.
108. Boulanger, R. W., Kamai, R., and Ziotopoulou, K. (2013). "Simulation of liquefaction-induced void redistribution in a centrifuge test." 10<sup>th</sup> International Conference on Urban Earthquake Engineering, March 1-2, Tokyo Institute of Technology, Tokyo, Japan, 301-305.
107. Ziotopoulou, K., and Boulanger, R. W. (2013). "Numerical modeling issues in predicting post-liquefaction reconsolidation strains and settlements." 10<sup>th</sup> International Conference on Urban Earthquake Engineering, March 1-2, Tokyo Institute of Technology, Tokyo, Japan, 469-475.
106. Montgomery, J., Boulanger, R. W., and Harder, L. F., Jr. (2013). "Overburden correction factors for predicting liquefaction resistance under embankment dams." Proceedings, Managing Aging Infrastructure, 33<sup>rd</sup> Annual United States Society on Dams Conference, Phoenix, AZ, 693-709.
105. DeJong, J. T., Jaeger, R. A., Randolph, M. F., Boulanger, R. W., and Wahl, D. (2012). "Variable penetration rate cone testing for characterization of intermediate soils." Geotechnical and Geophysical Site Characterization 4 (ISC'4), Coutinho and Mayne, eds., Taylor and Francis Group, London, 25-42.
104. Ziotopoulou, K., and Boulanger, R. W. (2012). "Constitutive modeling of duration and overburden effects in liquefaction evaluations." 2<sup>nd</sup> International Conference on Performance-Based Design in Earthquake Geotechnical Engineering, ISSMGE, Taormina, Italy, May 28-30, paper no. 03.10, 467-482.
103. Khosravifar, A., and Boulanger, R. W. (2012). "Design of extended pile shafts for liquefaction effects." Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, R. D. Hyrciw, A. Athanasopoulos-Zekkos, and N. Yesiller, eds., Geotechnical Special Publication No. 225, ASCE Geo-Institute, 1690-1699.
102. Montoya, B. M., DeJong, J. T., Boulanger, R. W., Wilson, D. W., Gerhard, R., Ganchenko, A., and Chou, J.-C. (2012). "Liquefaction mitigation using microbial-induced calcite precipitation." Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, R. D. Hyrciw, A. Athanasopoulos-Zekkos, and N. Yesiller, eds., Geotechnical Special Publication No. 225, ASCE Geo-Institute, 1918-1927.
101. Nguyen, T. V., Rayamajhi, D., Boulanger, R. W., Ashford, S. A., Lu, J., Elgamal, A., and Shao, L. (2012). "Effect of DSM grids on shear stress distribution in liquefiable soil." Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, R. D. Hyrciw, A. Athanasopoulos-Zekkos, and N. Yesiller, eds., Geotechnical Special Publication No. 225, ASCE Geo-Institute, 1948-1957.
100. Rayamajhi, D., Nguyen, T. V., Ashford, S. A., Boulanger, R. W., Lu, J., Elgamal, A., and Shao, L. (2012). "Effect of discrete columns on shear stress distribution in liquefiable soil." Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, R. D. Hyrciw, A. Athanasopoulos-Zekkos, and N. Yesiller, eds., Geotechnical Special Publication No. 225, ASCE Geo-Institute, 1908-1917.
99. Tom, J. G., DeJong, J. T., Boulanger, R. W., and Boylan, N. (2012). "Characterization and modeling of a reconstituted offshore silty clay." Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, R. D. Hyrciw, A. Athanasopoulos-Zekkos, and N. Yesiller, eds., Geotechnical Special Publication No. 225, ASCE Geo-Institute, 869-879.
98. Ziotopoulou, K., Boulanger, R. W., and Kramer, S. L. (2012). "Site response analyses of liquefying sites." Geo-Congress 2012: State of the Art and Practice in Geotechnical Engineering, R. D. Hyrciw, A. Athanasopoulos-Zekkos, and N. Yesiller, eds., Geotechnical Special Publication No. 225, ASCE Geo-Institute, 1799-1808.

97. Montgomery, J., and Boulanger, R. W. (2012). "Overburden correction factors for liquefaction." Joint Conference Proceedings, 9<sup>th</sup> International Conference on Urban Earthquake Engineering and 4<sup>th</sup> Asia Conference on Earthquake Engineering, March 6-8, Tokyo Institute of Technology, Tokyo, Japan, 443-450.
96. Rayamajhi, D., Ashford, S. A., Nguyen, T. V., Boulanger, R. W., Lu, J., Elgamal, A., and Shao, L. (2012). "Shear stress reduction due to circular reinforcement columns in liquefiable soils." Joint Conference Proceedings, 9<sup>th</sup> International Conference on Urban Earthquake Engineering and 4<sup>th</sup> Asia Conference on Earthquake Engineering, March 6-8, Tokyo Institute of Technology, Tokyo, Japan, 607-613.
95. Boulanger, R. W. (2012). "Liquefaction in the 2011 Great East Japan Earthquake: Lessons for U.S. Practice." Proceedings of the International Symposium on Engineering Lessons Learned from the 2011 Great East Japan Earthquake, March 1-4, Tokyo, Japan, pp. 655-664.
94. Boulanger, R. W., Kamai, R., and Ziotopoulou, K. (2011). "Numerical modeling of liquefaction effects." Proc., Effects of Surface Geology on Seismic Motion, 4<sup>th</sup> IASPEI / IAEE International Symposium, August 23-26, University of California, Santa Barbara, CA.
93. Boulanger, R. W., and Idriss, I. M. (2011). "Challenges in estimating the in-situ strength of liquefied soil." 8<sup>th</sup> International Conference on Urban Earthquake Engineering, Tokyo Institute of Technology, Tokyo, Japan, 9-14.
92. Kamai, R., and Boulanger, R. W. (2011). "Numerical simulations of a centrifuge test to study void-redistribution and shear localization effects." 8<sup>th</sup> International Conference on Urban Earthquake Engineering, Tokyo Institute of Technology, Tokyo, Japan, 455-459.
91. Boulanger, R. W., and Idriss, I. M. (2011). "Cyclic failure and liquefaction: Current issues." 5<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, Santiago, Chile, Jan 10-13.
90. Jaeger, R. A., DeJong, J. T., and Boulanger, R. W. (2011). "Cylindrical cavity expansion analysis of variable penetration rate cone penetration testing using an anisotropic soil model." Geo-Frontiers 2011: Advances in Geotechnical Engineering, ASCE, 2288-2297.
89. Boulanger, R. W. (2010). "Future directions in geotechnical earthquake engineering." Proceedings, 9<sup>th</sup> U.S. National and 10<sup>th</sup> Canadian Conference on Earthquake Engineering, Earthquake Engineering Research Institute, Oakland, CA, paper 1897.
88. Wilson, D. W., Kutter, B. L., and Boulanger, R. W. (2010). "NEES @ UC Davis." Seventh International Conference on Physical Modeling in Geotechnics (ICPMG 2010), Switzerland, Vol. 1, 291-296.
87. Dahl, K. R., Boulanger, R. W., DeJong, J. T., and Driller, M. W. (2010). "Effects of sample disturbance and consolidation procedures on cyclic strengths of intermediate soils." Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, paper OSP-1.
86. Boulanger, R. W. (2010). "Sand plasticity model for nonlinear seismic deformation analyses." Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, paper IMI-6.
85. Jaeger, R. A., DeJong, J. T., Boulanger, R. W., Low, H. E., and Randolph, M. F. (2010). "Variable penetration rate CPT in an intermediate soil." Second International Symposium on Cone Penetration Testing, Huntington Beach, CA, paper 2-50.
84. Armstrong, R. J., Boulanger, R. W., and Beaty, M. H. (2010). "Nonlinear numerical modeling of centrifuge test results for embankments underlain by liquefied soil." Proceedings, Collaborative Management of Integrated Watersheds, 30<sup>th</sup> Annual United States Society on Dams Conference, Sacramento, CA, 201-215.
83. Dahl, K. R., DeJong, J. T., Boulanger, R. W., and Driller, M. W. (2010). "Laboratory testing of an alluvial clayey and silty sand." Proceedings, Collaborative Management of Integrated Watersheds, 30<sup>th</sup> Annual United States Society on Dams Conference, Sacramento, CA, 185-199.

82. Armstrong, R. J., Boulanger, R. W., and Beaty, M. H. (2010). "Non-linear dynamic modeling of bridge embankments underlain by liquefied soil." Seventh International Conference on Urban Earthquake Engineering (7CUEE) and Fifth International Conference on Earthquake Engineering (5ICEE), Tokyo Institute of Technology, Tokyo, Japan, 463-466.
81. Kamai, R., and Boulanger, R. W. (2010). "Characterizing localization processes during liquefaction using inverse analyses of instrumentation arrays." Meso-Scale Shear Physics in Earthquake and Landslide Mechanics, Y. H. Hatzor, J. Sulem, and I. Vardoulakis, eds., CRC Press, 219-238.
80. Ashford, S. A., Boulanger, R. W., Brandenburg, S. J., and Shantz, T. (2009). "Overview of recommended analysis procedures for pile foundations in laterally spreading ground." TCLEE 2009: Lifeline Earthquake Engineering in a Multihazard Environment, ASCE, 585-592.
79. Howell, R., Rathje, E., Marinucci, A., Kamai, R., Boulanger, R. W., Conlee, C., and Kano, S. (2009). "Centrifuge modeling of liquefaction sites treated with prefabricated drains." Performance-Based Design in Earthquake Geotechnical Engineering, Kokusho, Tsukamoto, and Yoshimine, eds., Taylor and Francis Group, London, 1729-1736.
78. Boulanger, R. W. (2009). "Evaluating seismic performance of earth structures and soil-structure systems." Performance-Based Design in Earthquake Geotechnical Engineering, Kokusho, Tsukamoto, and Yoshimine, eds., Taylor and Francis Group, London, 229-231.
77. Conlee, C. T., Gallagher, P. M., Boulanger, R. W., and Kamai, R. (2009). "Centrifuge modeling for liquefaction mitigation using colloidal silica stabilizer." Performance-Based Design in Earthquake Geotechnical Engineering, Kokusho, Tsukamoto, and Yoshimine, eds., Taylor and Francis Group, London, 1763-1770.
76. Suzuki, H., Tokimatsu, K., and Boulanger, R. W. (2009). "Effects of ground displacement on piles with different strength during lateral spreading in centrifuge test." Performance-Based Design in Earthquake Geotechnical Engineering, Kokusho, Tsukamoto, and Yoshimine, eds., Taylor and Francis Group, London, 1755-1762.
75. Boulanger, R. W., and Kishida, T. (2009). "Seismic response models for Sacramento-San Joaquin Delta levees." Sixth International Conference on Urban Earthquake Engineering, Tokyo Institute of Technology, Tokyo, Japan.
74. Kamai, R., Boulanger, R. W., Kano, S., Marinucci, A., Howell, R., Rathje, E., Conlee, C., and Gallagher, P. (2008). "Effects of void redistribution on post-earthquake residual strengths for liquefiable soils." Proceedings, Dam Safety 2008, Association of State Dam Safety Officials, Lexington, KY.
73. Dahl, K. R., Boulanger, R. W., and DeJong, J. T. (2008). "Cyclic strength testing of low plasticity fine-grained soils." Proceedings, Dam Safety 2008, Association of State Dam Safety Officials, Lexington, KY.
72. Armstrong, R. J., Boulanger, R. W., Gulerce, U., Kutter, B. L., and Wilson, D. W. (2008). "Centrifuge modeling of pile pinning effects." Geotechnical Earthquake Engineering and Soil Dynamics IV, D. Zeng, M. Manzari, and D. Hiltunen, eds., Geotechnical Special Publication No. 181, ASCE, NY.
71. Marinucci, A., Rathje, E., Kano, S., Kamai, R., Conlee, C., Howell, R., Boulanger, R., and Gallagher, P. (2008). "Centrifuge testing of prefabricated vertical drains for liquefaction remediation." Geotechnical Earthquake Engineering and Soil Dynamics IV, D. Zeng, M. Manzari, and D. Hiltunen, eds., Geotechnical Special Publication No. 181, ASCE, NY.
70. Wilson, D. W., Boulanger, R. W., and Gilley, C. W. (2008). "Damages to a deep sewer system installation." TRB 87<sup>th</sup> Annual Meeting Compendium of Papers, Transportation Research Board, Washington, paper 08-0702.
69. Boulanger, R. W., and Kishida, T. (2007). "Seismic site response and hazards for the Sacramento-San Joaquin Delta in California." Keynote lecture, International Conference on Civil and Environmental Engineering, Hiroshima University, October 11-12, Japan, 1-9.

68. Kano, S., Hata, Y., Boulanger, R. W., and Kamai, R. (2007). "Numerical analysis on the seismic response of liquefiable ground improved by the prefabricated drains." International Conference on Civil and Environmental Engineering, Hiroshima University, October 11-12, Japan.
67. Idriss, I. M., and Boulanger, R. W. (2007). "SPT- and CPT-based relationships for the residual shear strength of liquefied soils." Earthquake Geotechnical Engineering, 4<sup>th</sup> International Conference on Earthquake Geotechnical Engineering – Invited Lectures, K. D. Pitilakis, ed., Springer, The Netherlands, 1-22.
66. Boulanger, R. W., Chang, D., Brandenburg, S. J., Armstrong, R. J., and Kutter, B. L. (2007). "Seismic design of pile foundations for liquefaction effects." Earthquake Geotechnical Engineering, 4<sup>th</sup> International Conference on Earthquake Geotechnical Engineering – Invited Lectures, K. D. Pitilakis, ed., Springer, The Netherlands, 277-302.
65. Chu, D. B., Stewart, J. P., Lin, P. S., and Boulanger, R. W. (2007). "Cyclic softening of low-plasticity clay and its effect on seismic foundation performance." Earthquake Geotechnical Engineering, 4<sup>th</sup> International Conference on Earthquake Geotechnical Engineering – Conference Presentations, Springer, The Netherlands, paper 1490.
64. Rix, G. J., Rathje, E. M., Gallagher, P. M., and Boulanger, R. W. (2007). "Large-scale geotechnical simulations to advance seismic risk management for ports." 4<sup>th</sup> International Conference on Earthquake Geotechnical Engineering, Workshop presentations, Aristotle University of Thessaloniki, Thessaloniki, Greece, paper W1-1008.
63. Idriss, I. M., and Boulanger, R. W. (2007). "Residual shear strength of liquefied soils." Proceedings, Modernization and Optimization of Existing Dams and Reservoirs, 27<sup>th</sup> Annual United States Society on Dams Conference, USSD, Denver, CO, 621-634.
62. Chu, D. B., Stewart, J. P., Lin, P. S., and Boulanger, R. W. (2006). "Cyclic softening of low-plasticity clay and its effect on seismic foundation performance." 4<sup>th</sup> International Conference on Earthquake Engineering, Taipei, Taiwan, Oct. 12-13, paper 287.
61. Kishida, T., Boulanger, R. W., Abrahamson, N. A., Wehling, T. M., and Driller, M. W. (2006). "Estimation of seismic wave amplification in Sacramento-San Joaquin Delta." Proceedings of New Zealand Workshop on Geotechnical Earthquake Engineering – 2006, M. Cubrinovski and M. Pender, eds., University of Canterbury, Christchurch, New Zealand, 89-98.
60. Kishida, T., Boulanger, R. W., Wehling, T. M., and Driller, M. W. (2006). "Variation of small strain stiffness for peat and organic soil." 8<sup>th</sup> U.S. National Conference on Earthquake Engineering, Earthquake Engineering Research Institute, Paper no. 1057.
59. Brandenburg, S. J., Boulanger, R. W., Kutter, B. L., and Chang, D. (2006). "Monotonic and cyclic pushover analyses of pile foundations in laterally spreading ground." 8th U.S. National Conference on Earthquake Engineering, Earthquake Engineering Research Institute, Paper no. 1480.
58. Boulanger, R. W., and Idriss, I. M. (2006). "Assessing the potential for strength loss and deformations in low plasticity silts and clays during earthquakes." Third International Conference on Urban Earthquake Engineering, Tokyo Institute of Technology, Tokyo, Japan, 77-84.
57. Boulanger, R. W., Chang, D., Gulerce, U., Brandenburg, S., and Kutter, B. L. (2006). "Evaluating pile pinning effects on abutments over liquefied ground." Seismic Performance and Simulation of Pile Foundations in Liquefied and Laterally Spreading Ground, R. W. Boulanger and K. Tokimatsu, eds., Geotechnical Special Publication No. 145, ASCE, 306-318.
56. Brandenburg, S. J., Boulanger, R. W., Kutter, B. L., and Chang, D. (2006). "Observations and analysis of pile groups in liquefied and laterally spreading ground in centrifuge tests." Seismic Performance and Simulation of Pile Foundations in Liquefied and Laterally Spreading Ground, R. W. Boulanger and K. Tokimatsu, eds., Geotechnical Special Publication No. 145, ASCE, 161-172.
55. Chang, D., Boulanger, R. W., Brandenburg, S. J., and Kutter, B. L. (2006). "Dynamic analyses of soil-pile-structure interaction in laterally spreading ground during earthquake shaking." Seismic Performance and Simulation of Pile Foundations in Liquefied and Laterally Spreading Ground, R. W. Boulanger and K. Tokimatsu, eds., Geotechnical Special Publication No. 145, ASCE, 218-229.

54. Boulanger, R. W., Wilson, D. W., Kutter, B. L., Brandenburg, S. J., Chang, D., and Gulerce, U. (2005). "Identifying interaction mechanisms for pile foundations in laterally spreading ground." Proceedings, 1<sup>st</sup> Greece-Japan Workshop on Seismic Design, Observation, and Retrofit of Foundations, G. Gazetas, Y. Goto, and T. Tazoh, eds., National Technical University of Athens, Greece, 69-76.
53. Boulanger, R. W., and Idriss, I. M. (2005). "Evaluating cyclic failure in silts and clays." Proceedings, Geotechnical Earthquake Engineering Satellite Conference on Performance Based Design in Earthquake Geotechnical Engineering: Concepts and Research. Prepared by TC4 Committee of ICSMGE, Japanese Geotechnical Society, Tokyo, 78-86.
52. Boulanger, R. W. (2005). "Technical Session 4b: Earthquake related problems." Proceedings, 16<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering, Preprints of the Practitioner/Academic Forum and General Reports, Millpress Science Publishers, Rotterdam, 201-208.
51. Malvick, E. J., Kutter, B. L., Boulanger, R. W., Kabasawa, K., and Kokusho, T. (2005). "Void redistribution research with 1-g and centrifuge modeling." Proceedings, 16<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering, Millpress Science Publishers, Rotterdam, Vol. 4, 2543-2546.
50. Chang, D., Boulanger, R. W., Kutter, B. L., and Brandenburg, S. J. (2005). "Inertia and spreading load combinations of soil-pile-structure system during liquefaction-induced lateral spreading in centrifuge tests." Proceedings, 16<sup>th</sup> International Conference on Soil Mechanics and Geotechnical Engineering, Millpress Science Publishers, Rotterdam, Vol. 4, 1967-1970.
49. Boulanger, R. W., and Idriss, I. M. (2005). "New criteria for distinguishing between silts and clays that are susceptible to liquefaction versus cyclic failure." Proceedings, Technologies to Enhance Dam Safety and the Environment, 25<sup>th</sup> Annual United States Society on Dams Conference, USSD, Denver, CO, 357-366.
48. Brandenburg, S. J., Boulanger, R. W., Chang, D., and Kutter, B. L. (2005). "Mechanisms of load transfer between pile groups and laterally spreading nonliquefied crust layers." Proceedings, International Symposium on Earthquake Engineering Commemorating Tenth Anniversary of the 1995 Kobe Earthquake (ISEE Kobe 2005), Japan Association for Earthquake Engineering, Japan, B153-B162.
47. Chang, D., Boulanger, R. W., Kutter, B. L., and Brandenburg, S. J. (2005). "Experimental observations of inertial and lateral spreading loads on pile groups during earthquakes." Earthquake Engineering and Soil Dynamics, Geotechnical Special Publication 133, ASCE.
46. Boulanger, R. W., and Brandenburg, S. J. (2004). "Neutral plane solution for liquefaction-induced down-drag on vertical piles." Proceedings, Geotechnical Engineering for Transportation Projects, Geotechnical Special Publication No. 126, M. K. Yegian and E. Kavazanjian, eds., ASCE, 403-410.
45. Boulanger, R. W., Wilson, D. W., Kutter, B. L., Brandenburg, S. J., and Chang, D. (2004). "Nonlinear FEM analyses of soil-pile interaction in liquefying sand." Proceedings, Geotechnical Engineering for Transportation Projects, Geotechnical Special Publication No. 126, M. K. Yegian and E. Kavazanjian, eds., ASCE, 470-478.
44. Wilson, D. W., Boulanger, R. W., Feng, X., Hamann, B., Jeremic, B., Kutter, B. L., Ma, K.-L., Santamarina, C., Sprott, K. S., Velinsky, S. A., Weber, G., and Yoo, S. J. B. (2004). "The NEES geotechnical centrifuge at UC Davis." Proceedings, 13<sup>th</sup> World Conference on Earthquake Engineering, Vancouver, B.C., Canada, paper no. 2497.
43. Brandenburg, S. J., Boulanger, R. W., Kutter, B. L., Wilson, D. W., and Chang, D. (2004). "Load transfer between pile groups and laterally spreading ground during earthquakes." Proceedings, 13<sup>th</sup> World Conference on Earthquake Engineering, Vancouver, B.C., Canada, paper no. 1516.
42. Idriss, I. M., and Boulanger, R. W. (2004). "Semi-empirical procedures for evaluating liquefaction potential during earthquakes." Proc., 11<sup>th</sup> International Conference on Soil Dynamics and Earthquake Engineering, and 3<sup>rd</sup> International Conference on Earthquake Geotechnical Engineering, D. Doolin et al., eds., Stallion Press, Vol. 1, 32-56.

41. Boulanger, R. W. and Idriss, I. M. (2004). "State normalization of penetration resistances and the effect of overburden stress on liquefaction resistance." Proc., 11<sup>th</sup> International Conference on Soil Dynamics and Earthquake Engineering, and 3<sup>rd</sup> International Conference on Earthquake Geotechnical Engineering, D. Doolin et al., eds., Stallion Press, Vol. 2, 484-491.
40. Malvick, E. J., Kutter, B. L., Boulanger, R. W., and Feigenbaum, H. P. (2004). "Post-shaking failure of sand slope in centrifuge test." Proc., 11<sup>th</sup> International Conference on Soil Dynamics and Earthquake Engineering, and 3<sup>rd</sup> International Conference on Earthquake Geotechnical Engineering, D. Doolin et al., eds., Stallion Press, Vol. 2, 447-455.
39. Idriss, I. M., and Boulanger, R. W. (2003). "Relating  $K_\alpha$  and  $K_\sigma$  to SPT blow count and to CPT tip resistance for use in evaluating liquefaction potential." Proceedings, Dam Safety 2003, Association of State Dam Safety Officials, Lexington, KY.
38. Malvick, E. J., Kulasingam, R., Boulanger, R. W., and Kutter, B. L. (2003). "Analysis of a void redistribution mechanism in liquefied soil." Proceedings, Soil and Rock America 2003, P. J. Culligan, H. H. Einstein, and A. J. Whittle, eds., Verlag Gluckauf GMBH, Essen, Germany, Vol. 1, 955-962.
37. Idriss, I. M., and Boulanger, R. W. (2003). "Estimating  $K_\alpha$  for use in evaluating cyclic resistance of sloping ground." Proc. 8th US-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Liquefaction, Hamada, O'Rourke, & Bardet, eds., Report MCEER-03-0003, MCEER, SUNY Buffalo, NY, 449-468.
36. Kutter, B. L., Malvick, E. J., Kulasingam, R., and Boulanger, R. W. (2003). "Interpretation and visualization of model test data for slope failure in liquefying soil." Proc. 8th US-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Liquefaction, Hamada, O'Rourke, & Bardet, eds., Report MCEER-03-0003, MCEER, SUNY Buffalo, NY, 359-370.
35. Brandenburg, S. J., Boulanger, R. W., and Kutter, B. L. (2002). "p-y behavior in liquefied and laterally spreading ground in centrifuge tests." Proceedings, US-Japan Seminar on Seismic Disaster Mitigation in Urban Area by Geotechnical Engineering, Anchorage, AK, June 26-27, University of Tokyo, Japan, pp. 725-737.
34. Boulanger, R. W. (2002). "Evaluating liquefaction resistance at high overburden stresses." Proceedings, 3<sup>rd</sup> US-Japan Workshop on Advanced Research on Earthquake Engineering for Dams, United States Society for Dams (USSD), San Diego, CA, June 22-23.
33. Mitchell, J. K., and Boulanger, R. W. (2002). "Post-liquefaction remediation of earthquake damaged sites – Some case histories." Proceedings of the 19<sup>th</sup> Geotechnical Seminar on Current Trends in Geotechnical Engineering, Pennsylvania Section of ASCE, Pennsylvania, PA.
32. Hutchinson, T. C., Curras, C. J., Boulanger, R. W., Chai, Y. H., and Idriss, I. M. (2002). "Dynamic response of bridge structures supported on extended reinforced concrete pile shafts." Proceedings of the Third National Seismic Conference and Workshop on Bridges and Highways, Report MCEER-02-SP04, MCEER, SUNY Buffalo, 521-525.
31. Singh, P., Brandenburg, S. J., Boulanger, R. W., and Kutter, B. K. (2002). "Behavior of pile foundations in liquefied and laterally spreading ground." Proceedings ASCE/AEG/UMKC Geotechnical Conference, Kansas City, MO, April 6, 2002.
30. Malvick, E. J., Kulasingam, R., Kutter, B. L., and Boulanger, R. W. (2002). "Void redistribution and localized shear strains in slopes during liquefaction." International Conference on Physical Modeling in Geotechnics – ICPMGE '02, R. Phillips, P. Guo, and R. Popescu, eds., Balkema, Rotterdam, 495-500.
29. Kulasingam, R., Malvick, E. J., Boulanger, R. W., and Kutter, B. K. (2001). "Void redistribution and localization of shear strains in model sand slopes with silt seams: Report on first year activities." Proceedings of the US-Japan Cooperative Research in Urban Earthquake Disaster Mitigation Workshop, Seattle, WA, August 15, 2001.

28. Wehling, T. M., Boulanger, R. W., Harder, L. F., Jr., and Driller, M. W. (2001). "Confinement and disturbance effects on dynamic properties of fibrous organic soil." Proceedings, Lessons Learned from Recent Large Earthquakes, Earthquake Geotechnical Engineering Satellite Conference, A. Ansal, ed., Istanbul, Turkey, 211-217.
27. Brandenberg, S. J., Singh, P., Boulanger, R. W., and Kutter, B. L. (2001). "Behavior of piles in laterally spreading ground during earthquakes." The Sixth Caltrans Seismic Research Workshop, Radisson Hotel, Sacramento, California, June 12-13, Paper 02-106.
26. Curras, C. J., Hutchinson, T. C., Boulanger, R. W., Chai, Y.-H., and Idriss, I. M. (2001). "Lateral loading and seismic response of CIDH pile supported bridge structures." Foundations and Ground Improvement, T. L. Brandon, ed., Geotechnical Special Publication No. 113, ASCE, 260-275.
25. Arulnathan, R., Boulanger, R. W., and Idriss, I. M. (2001). "Site response of organic soils." Proceedings, Fourth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, S. Prakash, ed., University of Missouri-Rolla, Rolla, Missouri, Paper 1.07.
24. Hutchinson, T. C., Curras, C. J., Boulanger, R. W., Chai, Y.-H., and Idriss, I. M. (2001). "Inelastic seismic response of bridge structures supported on extended pile shafts." Proceedings, Second U.S.-Japan Workshop on Soil-Structure Interaction, Building Research Institute, Ministry of Construction, Japan, Paper B-10.
23. Stewart, D. P., Idriss, I. M., Boulanger, R. W., Hashash, Y., and Schmidt, B. (1999). "Mitigation of earthquake liquefaction hazards: A review of physical modeling studies." Proceedings, 8<sup>th</sup> Australia New Zealand Conference on Geomechanics, N. Vitharana and R. Colman, eds., Australian Geotechnical Society, 1,337-343.
22. Kulasingam, R., Boulanger, R. W., and Idriss, I. M. (1999). "Evaluation of CPT liquefaction analysis methods against inclinometer data from Moss Landing." Proceedings, 7<sup>th</sup> US-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Liquefaction, Technical Report MCEER-99-0019, MCEER, SUNY, Buffalo, 35-54.
21. Finn, W. D. L., Thavaraj, T., Wilson, D. W., Boulanger, R. W., and Kutter, B. L. (1999). "Seismic response analysis of pile foundations at liquefiable sites." Proceedings, 7<sup>th</sup> US-Japan Workshop on Earthquake Resistant Design of Lifeline Facilities and Countermeasures Against Liquefaction, Technical Report MCEER-99-0019, MCEER, SUNY, Buffalo, 579-586
20. Curras, C. J., Boulanger, R. W., Kutter, B. L., and Wilson, D. W. (1999). "Seismic soil-pile-structure interaction in soft clay." Proceedings, 2<sup>nd</sup> International Conference on Earthquake Geotechnical Engineering, P. S. Seco e Pinto, ed., Balkema, Rotterdam, 3, 965-970.
19. Wilson, D. W., Boulanger, R. W., and Kutter, B. L. (1999). "Lateral resistance of piles in liquefying sand." OTRC '99 Conference on Analysis, Design, Construction and Testing of Deep Foundations, J. M. Roesset, ed., Geotechnical Special Publication No. 88, ASCE, 165-179.
18. Boulanger, R. W. (1999). "Void redistribution in sand following earthquake loading." Physics and Mechanics of Soil Liquefaction, Lade and Yamamura, eds., Balkema, Rotterdam, 261-268.
17. Boulanger, R. W., Curras, C. J., Kutter, B. L., Wilson, D. W., and Abghari, A. (1998). "Seismic soil-pile-structure interaction experiments and analyses." The Fifth Caltrans Seismic Research Workshop, Radisson Hotel, Sacramento, California, June 16-18.
16. Wilson, D. W., Boulanger, R. W., Kutter, B. L., and Abghari, A. (1998). "Lateral resistance of liquefying sand." The Fifth Caltrans Seismic Research Workshop, Radisson Hotel, Sacramento, California, June 16-18.
15. Boulanger, R. W., Idriss, I. M., Stewart, D. P., Hashash, Y., and Schmidt, B. (1998). "Drainage capacity of stone columns or gravel drains for mitigating liquefaction." Proceedings, Geotechnical Earthquake Engineering and Soil Dynamics III, P. Dakoulas, M. Yegian, and R. D. Holtz, eds., Geotechnical Special Publication No. 75, ASCE, 678-690.
14. Wilson, D. W., Boulanger, R. W., and Kutter, B. L. (1998). "Signal processing for and analyses of dynamic soil-pile-interaction experiments." Proceedings, Centrifuge 98, Kimura, Kusakabe and Takemura, eds., Balkema, Rotterdam, 1, 135-140.

13. Wilson, D. W., Boulanger, R. W., Kutter, B. L., and Abghari, A. (1997). "Aspects of dynamic centrifuge testing of soil-pile-superstructure interaction." *Observation and Modeling in Numerical Analysis and Model Tests in Dynamic Soil-Structure Interaction Problems*, T. Nogami, Ed., Geotechnical Special Publication No. 64, ASCE, 47-63.
12. Harder, L. F., and Boulanger, R. W. (1997). "Application of  $K_\sigma$  and  $K_\alpha$  correction factors." *Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils*, T. L. Youd and I. M. Idriss, Eds., Technical Report NCEER-97-0022, National Center for Earthquake Engineering Research, SUNY, Buffalo, 167-190.
11. Wilson, D. W., Boulanger, R. W., Kutter, B. L., and Abghari, A. (1996). "Soil-pile-superstructure interaction experiments with liquefiable sand in the centrifuge." *The Fourth Caltrans Seismic Research Workshop*, Radisson Hotel, Sacramento, California, July 9-11.
10. Boulanger, R. W. (1996). "Geotechnical aspects of the January 17, 1995 Hyogoken-Nanbu Earthquake." *The Fourth Caltrans Seismic Research Workshop*, Radisson Hotel, Sacramento, California, July 9-11.
9. Wilson, D. W., Boulanger, R. W., Kutter, B. L., and Abghari, A. (1995). "Dynamic centrifuge tests of pile-supported structures in liquefiable sand." *Proceedings, National Seismic Conference on Bridges and Highways, Progress in Research and Practice*, Sponsored by Federal Highway Administration and California Department of Transportation, San Diego, CA, December 10-13.
8. Mejia, L. H., and Boulanger, R. W. (1995). "A long-term test of compaction grouting for liquefaction mitigation." *Earthquake-Induced Movements and Seismic Remediation of Existing Foundations and Abutments*, S. L. Kramer and R. Siddharthan, eds., Geotechnical Special Publication No. 55, ASCE, 94-109.
7. Boulanger, R. W., Bray, J. D., and Seed, R. B. (1993). "Response of two dams in the 1987 Whittier Narrows Earthquake." *Proceedings, Third International Conference on Case Histories in Geotechnical Engineering*, S. Prakash, Ed., University of Missouri-Rolla, Rolla, MO, 1, 635-642.
6. Mejia, L. H., and Boulanger, R. W. (1993). "Calibrated dynamic response analysis of Stafford Dam." *Proceedings, Third International Conference on Case Histories in Geotechnical Engineering*, S. Prakash, Ed., University of Missouri-Rolla, Rolla, MO, 1, 321-328.
5. Kutter, B. L., and Boulanger, R. W. (1993). General report for Session 13, "Case histories of new solutions to traditional geotechnical problems." *Proceedings, Third International Conference on Case Histories in Geotechnical Engineering*, S. Prakash, Ed., University of Missouri-Rolla, Rolla, MO, 3, 1691-1693.
4. Boulanger, R. W., Mejia, L. H., Harder, L. F., Kanakari, H., and Rice, J. (1993). "Compaction grouting of liquefiable soils at the CWOC site." *Proceedings, Ground Improvement - 7th Annual Vancouver Geotechnical Society Symposium*, Bi-Tech Publishers Ltd., Richmond, B.C., Canada.
3. Boulanger, R. W., Bray, J. D., Merry, S. M., and Mejia, L. H. (1993). "Dynamic response analyses of Cogswell Dam during the 1991 Sierra Madre and 1987 Whittier Narrows earthquakes." *Proceedings, CSMIP93 Seminar on Seismological and Engineering Implications of Recent Strong-Motion Data*, Sacramento, CA, 91 - 104.
2. Bray, J. D., Boulanger, R. W., Chew, S. H., and Seed, R. B. (1991). "Finite element analysis in geotechnical engineering." *Proceedings ASCE 8th Computing in Civil Engineering Conference*, June 7-9, 1992, Dallas, TX.
1. Seed, R. B., Bray, J. D., Boulanger, R. W., and Seed, H. B. (1989). "Seismic response of the Puddingstone and Cogswell Dams in the 1987 Whittier Narrows Earthquake." *Proceedings, CSMIP89 Seminar on Seismological and Engineering Implications of Recent Strong Motion Data*, Sacramento, CA, 7-1 through 7-10.

## **Reports**

32. Boulanger, R. W., and Ziotopoulou, K. (2018). "PM4Silt (Version 1): A silt plasticity model for earthquake engineering applications." Report No. UCD/CGM-18/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 108 pp.
31. Boulanger, R. W., and Ziotopoulou, K. (2017). "PM4Sand (Version 3.1): A sand plasticity model for earthquake engineering applications." Report No. UCD/CGM-17/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 113 pp.
30. Bray, J. D., Boulanger, R. W., Cubrinovski, M., Tokimatsu, K., Kramer, S. L., O'Rourke, T., Rathje, E., Green, R. A., Robertson, P. K., and Beyzaei, C. Z. (2017). U.S.-New Zealand-Japan International Workshop, Liquefaction-induced ground movement effects. PEER Report 2017/02, Pacific Earthquake Engineering Research Center, University of California, Berkeley, CA, 278 pp.
29. Boulanger, R. W., and Ziotopoulou, K. (2015). "PM4Sand (Version 3): A sand plasticity model for earthquake engineering applications." Report No. UCD/CGM-15/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 112 pp.
28. Boulanger, R. W., and Idriss, I. M. (2014). "CPT and SPT based liquefaction triggering procedures." Report No. UCD/CGM-14/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 134 pp.
27. Montgomery, J., Boulanger, R. W., and Harder, L. F., Jr. (2012). "Examination of the  $K_{\sigma}$  overburden correction factor on liquefaction resistance." Report No. UCD/CGM-12/02, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 44 pp.
26. Boulanger, R. W., and Ziotopoulou, K. (2012). "PM4Sand (Version 2): A sand plasticity model for earthquake engineering applications." Report No. UCD/CGM-12/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 100 pp.
25. Boulanger, R. W., et al. (2011). "Geotechnical effects of the  $M_w$  9.0 Tohoku, Japan, Earthquake of March 11, 2011." EERI Special Earthquake Report, September, 12 pp.
24. Ashford, S. A., Boulanger, R. W., and Brandenberg, S. J. (2011). "Recommended design practice for pile foundations in laterally spreading ground." PEER Report 2011/04, Pacific Earthquake Engineering Research Center, University of California, Berkeley, June, 68 pp.
23. Ashford, S. A., Boulanger, R. W., Donahue, J. L., and Stewart, J. P. (2011). "Geotechnical Quick Report on the Kanto Plain Region during the March 11, 2011, Off Pacific Coast of Tohoku Earthquake, Japan, Geotechnical Extreme Events Reconnaissance Report No. GEER-025a, April 5, 20 pp.
22. Idriss, I. M., and Boulanger, R. W. (2010). "SPT-based liquefaction triggering procedures." Report UCD/CGM-10/02, Department of Civil and Environmental Engineering, University of California, Davis, CA, 259 pp.
21. Boulanger, R. W. (2010). "A sand plasticity model for earthquake engineering applications." Report No. UCD/CGM-10/01, Center for Geotechnical Modeling, Department of Civil and Environmental Engineering, University of California, Davis, CA, 77 pp.
20. Meehan, C. L., Duncan, J. M., Brandon, T. L., and Boulanger, R. W. (2006). "An experimental study of the dynamic behavior of slickensided surfaces." Center for Geotechnical Practice and Research, Virginia Polytechnic Institute and State University, April, 280 pp.
19. Boulanger, R. W., and Idriss, I. M. (2004). "Evaluating the potential for liquefaction or cyclic failure of silts and clays." Report No. UCD/CGM-04/01, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 129 pp.

18. Boulanger, R. W., Kutter, B. L., Brandenberg, S. J., Singh, P., and Chang, D. (2003). "Pile foundations in liquefied and laterally spreading ground: Centrifuge experiments and analyses." Report No. UCD/CGM-03/01, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 205 pp.
17. Hutchinson, T. C., Boulanger, R. W., Chai, Y. H., and Idriss, I. M. (2001). "Inelastic seismic response of extended pile shaft supported bridge structures." PEER Report 2002/14, Pacific Earthquake Engineering Research Center, University of California, Berkeley, 215 pp.
16. Technical Committee for Earthquake Geotechnical Engineering (2001). "Case Histories of Post-Liquefaction Remediation." Contributing authors: T. Kokusho, M. Okamura, S. Yasuda, N. Yoshida, R. W. Boulanger, J. K. Mitchell, J. I. Baez, M. Kazama, Y. Sasaki, J. Kuroiwa, and K. Ichii. Japanese Geotechnical Society, Tokyo, Japan, 117 pp.
15. Wehling, T. M., Boulanger, R. W., Harder, L. F., and Driller, M. W. (2001). "Dynamic properties of Sherman Island Peat: Phase II Study." Report No. UCD/CGM-01/05, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 135 pp., March.
14. Boulanger, R. W., Kutter, B. L., and Wilson, D. W. (1998). "The response of piles during earthquakes: Dynamic soil-pile-superstructure interaction." Report No. UCD/CGM-98/01, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 125 pp., February.
13. Boulanger, R. W., and Yu, H.-S. (1997). "Theoretical aspects of compaction grouting in sands." Research Report No. 149.07.1997, Department of Civil, Surveying and Environmental Engineering, The University of Newcastle, Australia.
12. Stewart, D. P., Boulanger, R. W., Idriss, I. M., Hashash, Y., and Schmidt, B. (1997). "Ground improvement issues for the Posey & Webster St. Tubes seismic retrofit project: Lessons from physical modeling studies." Report No. UCD/CGM-97/03, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 117 pp., April.
11. Boulanger, R. W., Stewart, D. P., Idriss, I. M., Hashash, Y., and Schmidt, B. (1997). "Ground improvement issues for the Posey & Webster St. Tubes seismic retrofit project: Lessons from case histories." Report No. UCD/CGM-97/02, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 78 pp., April.
10. Boulanger, R. W., Arulnathan, R., Harder, L. F., Jr., Torres, R. A., and Driller, M. W. (1997). "Dynamic properties of Sherman Island peat." Report No. UCD/CGM-97/01, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 80 pp., April.
9. Yu, H. S., Herrmann, L. R., and Boulanger, R. W. (1996). "Advanced numerical methods for the analysis of cone penetration in soils." Final report to the Waterways Experiment Station, Army Corps of Engineers.
8. NSF Reconnaissance Team (1995). "Geotechnical reconnaissance of the effects of the January 17, 1995, Hyogoken-Nanbu earthquake, Japan." Geotechnical Engineering Report No. UCB/GT/95-01, University of California, Berkeley, August.
7. Boulanger, R. W., Idriss, I. M., and Mejia, L. H. (1995). "Investigation and evaluation of liquefaction related ground displacements at Moss Landing during the 1989 Loma Prieta earthquake." Report No. UCD/CGM-95/02, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 231 pp., May.
6. Boulanger, R. W., Merry, S., Bray, J. D., and Mejia, L. H. (1994). "Three-Dimensional Dynamic Response Analyses of Cogswell Dam During the 1991 Sierra Madre and 1987 Whittier Narrows Earthquakes." Report No. UCD/CGM-94/02, Center for Geotechnical Modeling, Department of Civil & Environmental Engineering, University of California, Davis, 81 pp., November.

5. Boulanger, R. W., Seed, R. B., Chan, C. K., Seed, H. B., and Sousa, J. B. (1991). "Liquefaction behavior of saturated sands under uni-directional and bi-directional monotonic and cyclic simple shear loading." Geotechnical Engineering Report No. UCB/GT/91-08, University of California, Berkeley, 521 pp., August.
4. Boulanger, R. W., Bray, J. D., Chew, S. H., Seed, R. B., Mitchell, J. K., and Duncan, J. M. (1991). "SSCOMPPC - A finite element program for evaluation of soil-structure interaction and compaction effects: PC Version 1.0." Geotechnical Engineering Report No. UCB/GT/91-02, University of California, Berkeley, November.
3. Bray, J. D., Seed, R. B., and Boulanger, R. W. (1990). "Investigation of the response of Puddingstone and Cogswell Dams in the Whittier Narrows Earthquake of October 1, 1987. Volume I: Puddingstone Dam." Geotechnical Engineering Report No. UCB/GT/90-01, University of California, Berkeley, June. Also released as Data Utilization Report CSMIP/93-02, California Department of Conservation, Division of Mines and Geology, Office of Strong Motion Studies, December, 1993.
2. Boulanger, R. W., Seed, R. B., and Bray, J. D. (1990). "Investigation of the response of Puddingstone and Cogswell Dams in the Whittier Narrows Earthquake of October 1, 1987. Volume II: Cogswell Dam." Geotechnical Engineering Report No. UCB/GT/90-02, University of California, Berkeley, June. Also released as Data Utilization Report CSMIP/93-03, California Department of Conservation, Division of Mines and Geology, Office of Strong Motion Studies, December, 1993.
1. Seed, R. B., Boulanger, R. W., Bray, J. D., Dickenson, S. E., Kayen, R. E., Lysmer, J., Mitchell, J. K., Nicholson, P. G., Pender, M. J., Riemer, M. F., Schmertmann, G. R., and Sitar, N. (1989). "The Loma Prieta Earthquake of October 17, 1989: Geotechnical considerations." Chapter 2 of Report No. UCB/EERC-89/14, Earthquake Engineering Research Center, University of California, Berkeley, October.

#### ***Data Reports and Archived Datasets***

29. Price, A. B., Boulanger, R. W., and DeJong, J. T. (2018). Centrifuge modeling of variable rate cone penetration in low-plasticity silts. DesignSafe-CI [publisher], Dataset, [dx.doi.org/10.17603/DS2J67J](https://dx.doi.org/10.17603/DS2J67J).
28. Darby, K., Bronner, J., Boulanger, R. W., and DeJong, J. T. (2018). Effect of strain history on cone penetration resistance and cyclic strength of saturated sand. DesignSafe-CI [publisher], Dataset, [dx.doi.org/10.17603/DS24T25](https://dx.doi.org/10.17603/DS24T25).
27. Haugaard, S., Price, A., DeJong, J. T., and Boulanger, R. W. (2017). One-dimensional compression and consolidation test results. DesignSafe-CI [publisher], Dataset, [dx.doi.org/10.17603/DS24964](https://dx.doi.org/10.17603/DS24964).
26. Price, A. B., DeJong, J. T., Boulanger, R. W. (2017). Direct simple shear testing for silica silt and kaolin mixtures. DesignSafe-CI [publisher], Dataset, [dx.doi.org/10.17603/DS2SQ30](https://dx.doi.org/10.17603/DS2SQ30).
25. Khosravi, A., Khosravi, M., Yunlong, W., Pulido, A., Wilson, D. W., and Boulanger, R. W. (2016). Remediation of liquefaction effects for a dam using soil-cement walls: Data Report 1: Test AKH01. Report UCD/CGMDR-16/01, Center for Geotechnical Modeling, University of California, Davis, CA, October. Curated at DesignSafe-CI [publisher], Dataset, [dx.doi.org/10.17603/DS24H50](https://dx.doi.org/10.17603/DS24H50).
24. Parra Bastidas, A. M., Boulanger, R. W., Carey, T. J., and DeJong, J. T. (2016). Ottawa F-65 Sand Data from Ana Maria Parra Bastidas. Curated at NEES, Dataset, [dx.doi.org/10.17603/DS2MW2R](https://dx.doi.org/10.17603/DS2MW2R).
23. Khosravi, M., Wilson, D. W., Boulanger, R. W., Olgun, C. G., Tamura, S., Wang, Y. (2015). Test MKH02: Dynamic centrifuge tests of structures on soft clay reinforced by soil-cement grids. Curated at NEES, Dataset, [dx.doi.org/10.4231/D38P5VB1Q](https://dx.doi.org/10.4231/D38P5VB1Q).
22. Khosravi, M., Wilson, D. W., Boulanger, R. W., Olgun, C. G., Tamura, S., Wang, Y. (2015). Test MKH01: Dynamic centrifuge tests of soft clay reinforced by soil-cement grids. Curated at NEES, Dataset, [dx.doi.org/10.4231/D3HD7NT63](https://dx.doi.org/10.4231/D3HD7NT63).

21. Khosravi, M., Wilson, D. W., Boulanger, R. W., Olgun, C. G., Tamura, S., Wang, Y., Rayamajhi, D. (2015). 1-m radius centrifuge experiments: Seismic response of soft soil reinforced with soil-cement grid-construction procedure. Curated at NEES, Dataset, [dx.doi.org/10.4231/D3DN3ZX1Q](https://dx.doi.org/10.4231/D3DN3ZX1Q).
20. Rayamajhi, D., Tamura, S., Khosravi, M., Boulanger, R. W., Wilson, D. W., Ashford, S. A., and Olgun, C. G. (2014). Reinforcing effects of soil-cement columns in liquefiable sand. Report No. UCD/CGMDR-14/01, Center for Geotechnical Modeling, University of California, Davis. Curated at DesignSafe-CI, [dx.doi.org/10.4231/D33775W39](https://dx.doi.org/10.4231/D33775W39).
19. Howell, R., Kamai, R., Conlee, C., Rathje, E., Boulanger, R., Marinucci, A., Rix, G. (2009). Evaluation of the effectiveness of prefabricated vertical drains for liquefaction remediation: Centrifuge data report for RLH01. Report No. UCD/CGMDR-0801, Center for Geotechnical Modeling, University of California, Davis. Curated at NEES, Dataset, [dx.doi.org/10.4231/D3XS5JG5N](https://dx.doi.org/10.4231/D3XS5JG5N).
18. Kamai, R., Howell, R., Conlee, C., Boulanger, R., Marinucci, A., Rathje, E., and Rix, G. (2008). Evaluation of the effectiveness of prefabricated vertical drains for liquefaction remediation: Centrifuge data report for RNK01. Report No. UCD/CGMDR. Center for Geotechnical Modeling, University of California, Davis. Curated at NEES, Dataset, [dx.doi.org/10.4231/D3VX0628F](https://dx.doi.org/10.4231/D3VX0628F).
17. Kamai, R., Kano, S., Conlee, C. Marinucci, A., Rathje, E., Boulanger, R. and Rix, G. (2007). Evaluation of the effectiveness of prefabricated vertical drains for liquefaction remediation: Centrifuge data report for SSK01. Report No. UCD/CGMDR. Center for Geotechnical Modeling, University of California, Davis. Curated at NEES, Dataset, [dx.doi.org/10.4231/D32J6839J](https://dx.doi.org/10.4231/D32J6839J).
16. Gulerce, U., Armstrong, R., Brandenburg, S., Khosravifar, A., Boulanger, R., and Kutter, B. (2007). Pile pinning effects on a bridge abutment in laterally spreading ground during earthquakes: centrifuge data report for UGU02. Report No. UCD-CGMDR-06-03. Center for Geotechnical Modeling, University of California, Davis, 79 pp.
15. Gulerce, U., Armstrong, R., Khosravifar, A., Boulanger, R., and Kutter, B. (2007). Pile pinning effects on a bridge abutment in laterally spreading ground during earthquakes: centrifuge data report for UGU01. Report No. UCD-CGMDR-06-02. Center for Geotechnical Modeling, University of California, Davis, 51 pp.
14. Chang, D., Gulerce, U., Armstrong, R., Khosravifar, A., Boulanger, R., and Kutter, B. (2007). Pile pinning effects on a bridge abutment in laterally spreading ground during earthquakes: centrifuge data report for DDC03. Report No. UCD-CGMDR-06-01. Center for Geotechnical Modeling, University of California, Davis, 53 pp.
13. Meehan, C. L., Duncan, J. M., and Boulanger, R. W. (2005). "Collaborative Research: Dynamic Behavior of Slickensided Surfaces – Centrifuge Data Report for CLM02." Report No. UCD/CGMDR-05/04, Center for Geotechnical Modeling, University of California, Davis, 93 p.
12. Malvick, E. J., Feigenbaum, H. P., Boulanger, R. W., and Kutter, B. L. (2005). "Effects of void redistribution on liquefaction flow of layered soil – Centrifuge data report for EJM02." Report No. UCD/CGMDR-05/01, Center for Geotechnical Modeling, University of California, Davis, 70 pp.
11. Brandenburg, S. J., Chang, D., Boulanger, R. W., and Kutter, B. L. (2003). "Behavior of piles in laterally spreading ground during earthquakes – centrifuge data report for SJB03." Report No. UCD/CGMDR-03/03, Center for Geotechnical Modeling, University of California, Davis.
10. Kulasingam, R., Malvick, E. J., Boulanger, R. W., and Kutter, B. L. (2002). "Effects of void redistribution on liquefaction behavior of layered soils: Centrifuge data report for tests RKS01 – RKS11." Report No UCD/CGMDR-02/01, Center for Geotechnical Modeling, University of California, Davis, 176 pp.
9. Brandenburg, S. J., Singh, P., Boulanger, R. W., and Kutter, B. L. (2001). "Behavior of piles in laterally spreading ground during earthquakes – centrifuge data report for SJB02." Report No. UCD/CGMDR-01/06, Center for Geotechnical Modeling, University of California, Davis.
8. Brandenburg, S. J., Singh, P., Boulanger, R. W., and Kutter, B. L. (2001). "Behavior of piles in laterally spreading ground during earthquakes – centrifuge data report for SJB01." Report No. UCD/CGMDR-01/02, Center for Geotechnical Modeling, University of California, Davis.

7. Singh, P., Brandenberg, S. J., Boulanger, R. W., and Kutter, B. L. (2001). "Behavior of piles in laterally spreading ground during earthquakes – centrifuge data report for PDS03." Report No. UCD/CGMDR-01/01, Center for Geotechnical Modeling, University of California, Davis.
6. Singh, P., Boulanger, R. W., and Kutter, B. L. (2000). "Behavior of piles in laterally spreading ground during earthquakes – centrifuge data report for PDS02." Report No. UCD/CGMDR-00/06, Center for Geotechnical Modeling, University of California, Davis.
5. Singh, P., Subramanian, P. K., Boulanger, R. W., and Kutter, B. L. (2000). "Behavior of piles in laterally spreading ground during earthquakes – centrifuge data report for PDS01." Report No. UCD/CGMDR-00/05, Center for Geotechnical Modeling, University of California, Davis.
4. Wilson, D. W., Boulanger, R. W., and Kutter, B. L. (1997). "Soil-pile-superstructure interaction at soft or liquefiable soil sites - Centrifuge data report for Csp5." Report No. UCD/CGMDR-97/06, Center for Geotechnical Modeling, University of California, Davis.
3. Wilson, D. W., Boulanger, R. W., and Kutter, B. L. (1997). "Soil-pile-superstructure interaction at soft or liquefiable soil sites - Centrifuge data report for Csp4." Report No. UCD/CGMDR-97/05, Center for Geotechnical Modeling, University of California, Davis.
2. Wilson, D.W., Boulanger, R.W., and Kutter, B.L. (1997). Soil-pile-superstructure interaction at soft or liquefiable soil sites - centrifuge data report for Csp3. Report No. UCD/CGMDR-97/04, Center for Geotechnical Modeling, University of California, Davis.
1. Wilson, D.W., Boulanger, R.W., and Kutter, B.L. (1997). Soil-pile-superstructure interaction at soft or liquefiable soil sites - centrifuge data report for Csp2. Report No. UCD/CGMDR-97/03, Center for Geotechnical Modeling, University of California, Davis.

### ***Instructional & Other Media***

4. Wilson, D. W., and Boulanger, R. W. (2011). "Geotechnical earthquake engineering research using a large centrifuge." *Geo-Strata*, ASCE Geo-Institute, September/October, 48-52.
3. Bird, J. F., Boulanger, R. W., and Idriss, I. M. (2005). "Engineering geology; Liquefaction." *Encyclopedia of Geology*, R. C. Selley, L. R. M. Cocks, and I. R. Plimer, eds., Elsevier Academic Press, UK, Volume 1, 525-534.
2. Boulanger, R. W., and Duncan, J. M. (2000). "Geotechnical Engineering Photo Album." An instructional collection of photographs to complement textbooks. University of California, Davis, <https://ucdavis.box.com/s/jgsxuhr2rn64lg6j8caj2ejkpcjmbpgk>
1. DeJong, J., and Boulanger, R. W. (2000). "An introduction to drilling and sampling in geotechnical practice – 2<sup>nd</sup> Edition." An instructional video, Department of Civil and Environmental Engineering, University of California, Davis. <https://faculty.engineering.ucdavis.edu/boulanger/video/>

### ***Proceedings Edited***

6. Boulanger, R. W., Taiebat, M., Wijewickreme, D., Athanasopoulos-Zekkos, A. (2018). Editors, PBD-III Invited Papers, Special Issue of Soil Dynamics and Earthquake Engineering, Elsevier Ltd.
5. Taiebat, M., Wijewickreme, D., Athanasopoulos-Zekkos, A., and Boulanger, R. W. (2017). Editors, 3<sup>rd</sup> International Conference on Performance-based Design in Earthquake Geotechnical Engineering, ISSMGE Technical Committee TC203 on Earthquake Geotechnical Engineering, Vancouver, B.C., Canada, July 16-19.
4. Boulanger, R. W., and Tokimatsu, K. (2006). Editors, Seismic Performance and Simulation of Pile Foundations in Liquefied and Laterally Spreading Ground, Geotechnical Special Publication No. 145, ASCE.
3. Boulanger, R. W., Dewoolkar, M., Gucunski, N., Juang, C. H., Kalinski, M. E., Kramer, S. L., M. Manzari, and J. Pauschke (2005). Earthquake Engineering and Soil Dynamics, Geotechnical Special Publication 133, ASCE.

2. Towhata, I., and Boulanger, R. W. (2002). Editors, Proceedings of the U.S.-Japan Seminar on Seismic Disaster Mitigation in Urban Area by Geotechnical Engineering, Anchorage, Alaska, June 26-27, University of Tokyo, Japan.
1. Seed, R. B., and Boulanger, R. W. (1992). Editors, Stability and Performance of Slopes and Embankments -II, Proceedings of a Specialty Conference sponsored by Geotechnical Engineering Division of ASCE, Geotechnical Special Publication No. 31, ASCE.

### **Professional Course Instruction**

- PM4Sand and nonlinear dynamic modeling of liquefaction during earthquakes. A one-day short course by R. W. Boulanger and K. Ziotopoulou for the Vancouver Geotechnical Society, Vancouver, B.C., Canada, October 27, 2017.
- Prospect 247 Seismic Analysis of Embankments. Contributed lectures on fundamentals, liquefaction, and cyclic softening of soils for a five-day multi-instructor course to employees of the USACE, Risk Management Center, Lakewood, CO, May 16, 2017.
- Prospect 247 Seismic Analysis of Embankments. Contributed lectures on fundamentals, liquefaction, and cyclic softening of soils for a five-day multi-instructor course to employees of the USACE, Risk Management Center, Lakewood, CO, May 24, 2016.
- Soil liquefaction during earthquakes – Recent developments. Two-part short course by R. W. Boulanger and J. T. DeJong, Bechtel Corporation, San Francisco, January 8 & 14, 2016.
- Soil liquefaction during earthquakes. A one-day short course for ConeTec Investigations Ltd., Vancouver, B.C., Canada, January 5, 2016.
- Integrated site characterization and selection of design parameters. A one-day short course by R. W. Boulanger, J. T. DeJong, C. Goetz, and P. Lucia at the University of California, Davis, CA, October 23, 2015.
- Soil liquefaction during earthquakes. One-day short course by R. W. Boulanger and I. M. Idriss at the XII Congreso Nacional de Geotecnia, San Jose, Costa Rica, July 1-2, 2015.
- Soil liquefaction during earthquakes – Recent developments. A one-day short course by R. W. Boulanger, J. T. DeJong, and I. M. Idriss for the ASCE Seattle Section and Geo-Institute Chapter, Seattle, WA, May 1, 2015.
- Soil liquefaction during earthquakes – Recent developments. A one-day short course by R. W. Boulanger, J. T. DeJong, R. Hadidi, and I. M. Idriss at the University of California, Davis, CA, October 24, 2014.
- Soil liquefaction mini course. A 4-hour course for the Vancouver Geotechnical Society, Vancouver, November 18, 2010.
- Seismic deformation analyses of embankment dams considering liquefaction effects. A three-day short course by M. B. Beaty, R. W. Boulanger, and I. M. Idriss for the Federal Energy Regulatory Commission (FERC), Davis, CA, September 22-24, 2009.
- Seismic analysis of embankment dams for liquefaction effects. A four-day short course by M. B. Beaty, R. W. Boulanger, and I. M. Idriss for the Federal Energy Regulatory Commission (FERC), Davis, CA, July 29 – August 1, 2008.
- Soil liquefaction during earthquakes. A one-day short course by R. W. Boulanger, and I. M. Idriss at the ASCE Geo-Institute's Geotechnical Earthquake Engineering and Soil Dynamics IV Conference, Sacramento, CA, May 22, 2008.
- Seismic training. A five-day short course by J. Martin, I. M. Idriss, and R. W. Boulanger for the Federal Energy Regulatory Commission (FERC), Virginia Tech, August 8-12, 2005.