

## **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)  
Professor (2002 - present), 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**

Ralph B. Peck Award, American Society of Civil Engineers (2015)  
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 Service and Special Assignments***

Vice-Chair (2009 - present) and Core Member (2006-2009), 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, 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 and Electric Co. Member, Dam Risk Panel for seismic risk evaluation of hydro generation facilities, San Francisco, CA (2015 - present)
- Bechtel Canada Co. Technical review and consultation regarding site characterization and seismic evaluation for a proposed marine facility, BC, Canada (2015 - present)
- Grant County Public Utility District No. 2. Member, Board of Consultants for the seismic evaluation of embankments, Priest Rapids Project, WA (2015 - present)
- East Bay Municipal Utility District. Member, Technical Review Board for the seismic upgrades of Chabot Dam, San Leandro, CA (2015 - present)
- U.S. Army Corps of Engineers. Independent Expert Project Review (IEPR) Panelist for review of the Isabella Lake Dam Safety Modification Project, CA (2015 - present)
- 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 - present)
- New Zealand Ministry of Business, Innovation, and Employment. Peer review of ground improvement guidelines for Christchurch, New Zealand (2014 - present)
- Earthquake Commission of New Zealand. Peer review of ground improvement trials and land damage work, Christchurch, New Zealand (2014 - present)
- Geosyntec Consultants, Inc. Technical review and consultation regarding seismic deformation analyses of the Blue Ridge Dam, Fannin County, GA (2014 - present)
- Los Angeles Department of Water and Power. Member, Board of Consultants for technical review and consultation regarding seismic assessment and improvement projects: Haiwee Dam, Stone Canyon Dam, Upper Stone Canyon Dam, Bouquet Canyon Reservoir, Tinemaha Dam, CA (2013 - present)
- Los Angeles Department of Water and Power. Member, Technical Review and Advisory Panel, Headworks Reservoir Project, Los Angeles, CA (2009 - present)
- California Department of Water Resources, Division of Engineering. Technical support for seismic evaluation of B. F. Sisk Dam, CA (2007 - present)
- 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)
- 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)
- 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)
- 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, 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)
- U.S. Department of the Interior, Bureau of Reclamation. Member, Consulting Review Board, Scoggins Dam, Tualatin Project, OR (2011 - 2012)
- URS Corporation. Technical review of seismic evaluations for Gatun Dam, Panama (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)

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

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)

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)

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

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

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)

### **Professional Affiliations**

Fellow, American Society of Civil Engineers (ASCE)  
Member, International Society of Soil Mechanics and Geotechnical Engineering (ISMGE)  
Member, Earthquake Engineering Research Institute (EERI)  
Member, United States Society on Dams (USSD)  
Member, Association of State Dam Safety Officials (ASDSO)

### **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**

82. van Ballegooy, S., Wentz, F., and Boulanger, R. W. (2015). "Evaluation of a CPT-based liquefaction procedure at regional scale." *Soil Dynamics and Earthquake Engineering*, in press.
81. Boulanger, R. W., and Idriss, I. M. (2015). "CPT-based liquefaction triggering procedure." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 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*, 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. Brandenburg, 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. Brandenburg, 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.
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#### ***Data Reports and Archived Datasets***

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