CIVIL AND ENVIRONMENTAL ENGINEERING

University of Hawai'i at Manoa

Horst G. Brandes

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Horst G. Brandes

Professor of Civil and Environmental Engineering
Office: Holmes Hall 345
Phone: (808) 956-8969
E-mail: horst@hawaii.edu [mailto://horst@hawaii.edu]

Areas of Specialty and Research Interest

Geotechnical engineering: Marine geotechnics, theoretical and numerical soil mechanics, seismic engineering, landslides, geologic engineering

Education

- Ph.D., Ocean Engineering, University of Rhode Island, Kingston, RI, 1992
- M.S., Ocean Engineering, University of Rhode Island,

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Professional Credentials

- Registered Professional Engineer (PE), Civil Engineering, Hawaii, since 1997
- Fellow, American Society of Civil Engineers (2010)

Experiences

- Professor of Geotechnical Engineering, University of Hawaii, 2011- current.
- Associate Professor of GeotechnicalEngineering, University of Hawaii, 2000- 2011
- Assistant Professor of Geotechnical Engineering, University of Hawaii, 1996- 2000.
- Assistant Research Professor of Ocean and Civil Engineering, University of Rhode Island, Narragansett, RI, 1994-1996.
- Post-Doctoral Research Associate, University of Rhode Island, Narragansett, RI, 1992-1994.
- Geotechnical and Ocean Engineering Consultant, 1991-Present.

Professional Service Positions

- Organizer and Founder, Yearly OMAE/ASME Offshore Geotechnics Symposium (2009-Present)
- Member, ASCE Raise the Bar Committee (2013-2019)
- Member, ASCE Committee on Civil Engineering Body of Knowledge 3 (2016-2018)
- Member, ASCE Committee on Civil Engineering Technologist Body of Knowledge (2015-2017)

- Associate Editor, *International Journal of Offshore and Polar Engineering* (2007-2016)
- Editorial Board, *Journal of Geotechnical and Geological Engineering* (2003-2017)
- Board of Governors, ASCE Region 8 (2011-2014)
- President, ASCE Hawaii Section (2002-2003)
- Reviewer for journals, conferences, publishers and private/government agencies

Courses Taught (in the last five years)

- CEE 270: Applied Mechanics I – Statics
- CEE355: Geotechnical Engineering I (S'15, S'16, S'17, F'19)
- CEE455: Geotechnical Engineering II (F'15, F'16, F'17, S'18)
- CEE650: Seepage, Drainage, Dewatering (F'16, S'20)
- CEE653: Advanced Soil Mechanics (F'15, S'19)
- CEE655: Slope and Earth Structures (S'19)
- CEE656: Marine Geotechnics (F'17)
- CEE691: Seminar in Civil and Environmental Engineering (F'17)

Research Grants

1. Horst G. Brandes (P. I.) "Analysis of subsurface seepage flows on UH Manoa campus", funded by University of Hawaii Office of Facilities and Grounds, 2010-2012, $202,904
2. Horst G. Brandes (P. I.) "Characterization of voids and

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and testing guidelines for Hawaii", funded by Federal Highways Administration and HI-DOT, 2006-2011, $206,075.

4. Ian Robertson (P.I.) and Horst G. Brandes (Co-P.I.) "Soil investigation and soil-structure interaction modeling of the Kealakaha Bridge," funded by Federal Highway Administration and Hawaii State DOT, 04-06.
5. Horst G. Brandes (P. I.) and H.R. Riggs (Co-P.I.) "Modeling of sediment mechanics for mine burial prediction", funded by Office of Naval Research, 01-04.
6. Horst G. Brandes (P. I.) "Correlation of aggregate properties to performance of asphalt pavements in Hawaii", funded by Federal Highway Administration and Hawaii State DOT, 00-05.
7. Horst G. Brandes (P. I.) "Hawaii Superpave demonstration project: Measurement of asphalt mix design parameters using image analysis", funded by Federal Highway Administration and Hawaii State DOT, 99-03.
8. Horst G. Brandes (P. I.) "Creep characterization of residual tropical soils for engineering design and analysis", funded by Federal Highways Administration and HI-DOT, 98-01.
9. Horst G. Brandes (P. I.) "Relationship between quantitative microstructure and macrostructural deformation in calcareous sediments", funded by University of Hawaii Research Council, 97-98.
10. Horst G. Brandes (Co-P.I.) "Variability of seabed

various Naval Research Laboratory projects, funded by Office of Naval Research, 96.

Selected Publications

1. Brandes, H.G. (2013). Effectiveness of geophysical methods in calcareous harbor fills. *32nd International Conference on Ocean, Offshore and Arctic Engineering*, OMAE2013-10400, pp. 1-8.
2. Brandes, H.G. (2012). Permeability of marine sediments and tropical volcanic soils. *31st International Conference on Ocean, Offshore and Arctic Engineering*, OMAE2012-83543, pp. 1-8.
3. Brandes, H.G., Ripple, J.W.K. and Nicholson, P.G. (2012). Permeability measurement and seepage modeling of tropical volcanic island soils. *22nd International Offshore and Polar Engineering Conference*, 2:812-818.
4. Brandes, H.G. (2011). Engineering properties of carbonate marine sediments. *30th International Conference on Ocean, Offshore and Arctic Engineering*, OMAE2011-49422, pp. 1-7.
5. Brandes, H.G., Felkel, A.J. and Domrique, J.D. (2011). Nuclear gauge assessment for marine carbonate and volcanic soils. *International Journal of Offshore and Polar Engineering*, 21(3):225-232
6. Brandes, H.G., Robertson, I.N. and Johnson, G.P. (2011). Soil and rock properties in a young volcanic deposit, Island of Hawaii. *ASCE Journal of Geotechnical and Geoenvironmental Engineering,*

8. Nicholson, P.G. and Brandes, H.G. (2011). Investigation and identification of subsidence problems in Hilo Harbor, Hawaii, using geophysical methods. *Geo-Frontiers 2011: Advances in Geotechnical Engineering*, ASCE GTP 211:2803-2811.
9. Brandes, H.G. (2011). Seismic analysis of a volcanic earth dam on Maui, Hawaii. *Proceedings, 5th International Conference on Earthquake Geotechnical Engineering*, 1.7-SAOBR:1-10.
10. Brandes, H.G. (2011). Geotechnical characteristics of deep-sea sediments from the North Atlantic and North Pacific oceans. *Ocean Engineering, Special Issue: Offshore Geotechnics* (Editors: D-S. Jeng and H.G. Brandes), 38(7):835-848.
11. Brandes, H.G. (2011). Simple shear behavior of calcareous and quartz sands. *Geotechnical and Geological Engineering*, 29(1):113-126.
12. Brandes, H.G., Felkel, A.J. and Domrique, J.D. (2010). Evaluation of nuclear gauge for use with coastal calcareous and volcanic soils. *20th International Offshore and Polar Engineering Conference*, 2:731-738.
13. Brandes, H.G. (2010). Properties of North Atlantic abyssal plain sediments from high-quality long piston cores. *29th International Conference on Ocean, Offshore and Arctic Engineering*, OMAE2010-20663, pp. 1-8.
14. Brandes, H.G. and Nicholson, P.G. (2010). Comparison of geophysical methods for detection of voids and other buried features. *Hawaiian*

volcanic soils. *Geotechnique*, LX(4):233-243.

16. Brandes, H.G. and Hirata, J.G. (2009). An automated image analysis procedure to evaluate compacted asphalt sections. *International Journal of Pavement Engineering*, 10(2):87-100.
17. Brandes, H.G. and Kulikowski, J.J. (2009). Investigation of the Ka Loko Dam failure, Kauai, Hawaii. *Engineering Forensic Report*, Prepared for Department of the Attorney General, State of Hawaii, (Genterra Consultants, Inc. and Applied Geosciences, LLC), 501p.
18. Brandes, H.G., Felkel, A.J. and Domrique, J.D. (2009). Nuclear gauge calibration and testing guidelines for Hawaii. *Hawaiian Connections, The Hawaii Local Technical Assistance Program*, 11(4):6-7.
19. Brandes, H.G. and Seidman, J. (2008). Dynamic and static behavior of calcareous sands. *18th International Offshore and Polar Engineering Conference*, 2:573-578.
20. Brandes, H.G., Nicholson, P.G. and Robertson, I. (2008). Damage assessment and seismic modeling of dams in connection with the 2006 Hawaii earthquakes. *Geotechnical Earthquake Engineering and Soil Dynamics*, ASCE GTP 181:1-10.
21. Brandes, H.G., Nicholson, P.G. and Robertson, I. (2007). Liquefaction of Kawaihae Harbor and other effects of 2006 Hawaii earthquakes. *17th International Offshore and Polar Engineering Conference*, 2:1169-1176
22. Brandes, H.G. and Wang, S. (2006). The role of the

aggregate test parameters to HMA pavement performance. *ASCE Journal of Transportation Engineering,* 132(1):86-95.

24. Robertson, I.N., Nicholson, P.G. and Brandes, H.G. (2006). Reconnaissance following the October 15th, 2006 earthquakes on the Island of Hawaii. *Research Report* UHM/CEE/06-07, October 26, 2006.
25. Robertson, I.N., Brandes, H.G. and Wang, S. (2006). Soil-structure interaction modeling of the Kealakaha Bridge. *Hawaiian Connections, The Hawaii Local Technical Assistance Program*, 8(2):2-3.
26. Brandes, H.G. and Wang, S. (2005). OpenSees modeling of the 3D plastic behavior of underwater slopes: achievements and limitations. *Frontiers in Offshore Geotechnics, ISFOG 2005, Proceedings of the 1st International Symposium on Frontiers in Offshore Geotechnics, Eds: S. Gourvenec and M. Cassidy*, New York: Taylor & Francis, pp. 897-902.
27. Brandes, H.G., Seidman, J. and Wang, S. (2005). Cyclic simple shear testing and modeling of an offshore fine sand. Proceedings, *15th International Offshore and Polar Engineering Conference*, 2:679-689.
28. Brandes, H.G. (2005). Time dependency of deep sea and island clays at room and elevated temperature. *International Journal of Offshore and Polar Engineering,* 15(1):65-70
29. Brandes, H.G. (2004). Hawaii dam safety guidelines: seismic analysis & post-earthquake inspections. *Circular C131, Department of Land and Natural Resources, Engineering Division*, State of Hawaii, 71

Offshore Mechanics and Arctic Engineering, OMAE 2004-51141, pp. 1-8.

31. Brandes, H.G. (2004). Time dependency of deep sea and island clays at room and elevated temperature. Proceedings, *14th International Offshore and Polar Engineering Conference*, **2**:607-612.
32. Brandes, H.G. and Johnson, T. (2003). Effect of volcanic fines and gradation on the deformation and strength properties of detrital marine sediments in Hawaii. *Proceedings, 22nd International Conference on Offshore Mechanics and Arctic Engineering*, OMAE2003-37266, pp. 1-6.
33. Wan, Y., Kwong, J., Brandes, H.G. and Jones, R.C. (2002). Influence of amorphous clay-size materials on soil plasticity and shrink-swell behavior. *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, 128(12):1026-1031.
34. Brandes, H.G. (2002). Chapter 7: Geotechnical and Foundation Aspects. In *CRC Earthquake Engineering Handbook*, W.-F. Chen and C. Scawthorn (Eds.). Boca Raton, FL: CRC Press LLC, 61 p.
35. Brandes, H. G. and Riggs, H.R. (2002). Modeling of seabed liquefaction and other processes responsible for mine burial. *Proceedings of OMAE'02, 21st International Conference on Offshore Mechanics and Arctic Engineering*, OMAE2002-28242, pp. 1-8.
36. Brandes, H. G. and Riggs, H.R. (2002). Numerical modeling of seabed liquefaction due to surface water waves. *Proceedings of the 12th International Offshore and Polar Engineering Conference*,

38. Brandes, H.G. (2002). Creep characterization of residual tropical soils for engineering design and analysis. *Hawaiian Connections, The Hawaii Local Technical Assistance Program*, 4(3):6-7.

39. Veyera, G.E., Brandes, H.G. and Silva, A.J. (2001). Geotechnical characterization of calcareous sediments from the Dry Tortugas and Marquesas Keys CBBL SRP study sites, Lower Florida Keys. *Geo-Marine Letters*, 21(3):131-148.

40. Brandes, H.G. (2001). Geotechnical characteristics of shallow-water Hawaiian sediments. In: *Recent Advances in Marine Science and Technology 2000*, N.K. Saxena (Ed.), pp. 145-154.