

# GEORGE D. BOUCKOVALAS

Professor, N.T.U.A  
*specialization in*  
**Geotechnics, Soil Dynamics  
& Earthquake Engineering**  
DATE AND

## C U R R I C U L U M V I T A E

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**PLACE OF BIRTH:** 1955, Lamia, Greece

**NATIONALITY:** Greek

### EDUCATION:

- 1978** Diploma in Civil Engineering, National Technical University (N.T.U.A.), Athens, Greece  
**1981** M.Sc. in Civil Engineering, Mass. Inst. of Technology (M.I.T.), Cambridge, MA, U.S.A.  
**1982** Sc.D. in Civil Engineering, Mass. Inst. of Technology (M.I.T.), Cambridge, MA, U.S.A.

### TEACHING:

- 1981-1983** Tutoring for graduate and undergraduate courses in Geotechnical Engineering at M.I.T.  
**1986-1987** Teaching at the Southeastern preparative College, Athens.  
**1987-2011** (a) Undergraduate teaching at N.T.U.A. (Soil Mechanics, Soil Dynamics, Special Topics in Geotechnical Engineering, Computer Methods in Geotechnics)  
(b) Graduate teaching at N.T.U.A. (Geotechnical Earthquake Engineering for the graduate programmes «Structural Design and Analysis of Structures» and «Design and Construction of Underground Works»).  
(c) Supervision of more than fifty (50) undergraduate and graduate Diploma Theses.  
(d) Supervision of seven (7) Ph.D. Dissertations at N.T.U.A., six completed and two in progress. Member of the supervision committee of many more Ph.D dissertations

### RESEARCH:

- 1978-1982** M.Sc. and Sc.D. dissertations at M.I.T. (Research Assistant during the period 1978-1981)  
**1984-1985** Research Fellow at the Norwegian Geotechnical Institute (N.G.I.)  
**1985-1987** Soils' Research Center of the Hellenic Ministry of Public Works (K.E.D.E.)  
**1987-2011** Geotechnical Division, Department of Civil Engineering, N.T.U.A.

**Project Coordinator or Principal Investigator, in 35 research projects**

### PUBLICATIONS:

- **In Journals** **50** (41 international & 9 Greek)
- **Invited Papers** **15** (12 international & 3 Greek)
- **In Conference Proceedings** **99** (65 international & 34 Greek)

[*Citations: Google Scholar: 490, h-factor 11 / Scopus (no self citations):189, h-factor=8*]

### ENGINEERING PROJECTS:

- **Geotechnical Explorations 23**
- **Geophysical Measurement of Dynamic Soil Properties 8** [for the Natural Gas Pipeline, the New Museum of Acropolis, the Athens Metro, the Athens Olympic Village, etc.]
- **Seismic Design of Dams and Embankments 8** [2 dams for the Greek Public Power Company (checker), the New Patras' Port breakwater, the offshore part of the New Runway of Heraclion airport, the railway embankment at Sperchios river, New Port of Patras-3<sup>rd</sup> section, Chontal dam at Equador, etc.]
- **Seismic Design of Offshore Oil Platforms and Bridges 8** [3 offshore platforms in the North Sea, participation in the preliminary study of the Rion-Antirion bridge, foundation of the new Strimonas Bridge of Egnatia Odos-evaluation of liquefaction effects (checker), pile foundation of Egnatia Odos bridge in Kleidi (checker), 5 bridges along Gouria – Astakos hwy, etc.]

- **Seismic Design of Foundations and Retaining Structures** 8 [residential compound at Xilocastro-evaluation of liquefaction effects, preliminary and final study of Zakynthos' Marina, pile foundation design of Egnatia Odos bridge in Kleidi, foundation of the Flexi-cocker tower of EL.PET., pile foundation of Sulphur Forming Package Shiploader of EL.PE., retrofit of Electric Power Plant in Syros Island, etc.]
- **Seismic Design of Natural Gas and Oil Pipeline** 47 [the main Natural Gas Pipeline of Greece, its branches as well as the majority of medium pressure networks, the Thes-niki to Skopje oil pipeline, the Megara-Corinth pipeline, the Stamata-Aliveri gas pipeline, Greek-Italy gas pipeline, Greece-Bulgaria pipeline, etc.]
- **Seismic Microzonation Studies of Urban Areas** 12 [Kalamata, Pirgos, Heraclion and Rethimno of Krete ( $\alpha'$  &  $b'$  phases), Thiva, Ano Liosia, Aigion, Corinthos Prefecture, West Attica, Elefsis Refinery of EL.PET., etc]

#### OTHER ACTIVITIES:

- Coordinator of the ETC-12 /ISSMFE international Committee for the evaluation of the geotechnical aspects of the European Seismic Code EC-8 (2003-2006)
- Director of the Construction Management Division, NTUA (2003-2004)
- Director of the Geotechnical Division, NTUA. (2000-2001 & 2008-2010)
- Director of the Foundation Engineering Laboratory, NTUA (2006-2008, 2010-)
- Lecturer in twenty two (22) International and eight (8) National Scientific Conferences
- Invited lecturer in thirteen (13) International and three (3) National Scientific Conferences
- Invited Lecturer in eight (8) research centers and Universities outside Greece (Japan, Norway, Austria, Portugal, U.S.A. Romania, Albania, Italy)
- Reviewer in six (6) International and one (1) National Scientific Journals
- Reviewer in three (3) International and eight (8) National Scientific Conferences
- Reviewer of research proposals for the General Secretariat for Research & Technology (GSRT) of Greece.
- Reviewer of research proposals for the National Science Foundatio (NSF) of U.S.A..
- Member of four (4) International and five (5) National Scientific Committees
- Member of the scientific committee for the Recognition of Foreign Academic Titles (DI.K.A.T.S.A.), for Civil Engineers (1994-1997)

#### PAPER TITLES:

##### A. International Journals

- A1. Bouckovalas G., Whitman R.V., Marr W.A. (1984), "Permanent Displacement of Sand with Cyclic Loading", JGED, ASCE, Voll 110(11).
- A2. Bouckovalas G. (1984), "Prediction of Earthquake- induced Deformations of earth dams", Soils and Foundations, Vol. 24 (2), DISCUSSION.
- A3. Bouckovalas G., Marr W.A., Christian J.T. (1986), "Analyzing Permanent Drift due to Cyclic Loads", JGED, ASCE, Vol. 112(6).
- A4. Bouckovalas G., Hoeg K. (1987), "Computational Model for Saturated Sand under Cyclic Loading", Soils and Foundations, Japan. Soc. of Soil Mech. and Found. Eng., Vol. 27(4).
- A5. Bouckovalas G. (1989), "Drained Permanent Deformation of Sand due to Cyclic Loading", JGED, ASCE, Vol. 114(10), DISCUSSION.
- A6. Stamatopoulos K., Bouckovalas G., Whitman R.V. (1991), "Analytical Prediction of Earthquake-induced Permanent Deformations", JGED, ASCE, Vol. 117(10).
- A7. Bouckovalas G., Stamatopoulos K., Whitman R.V. (1991), "Analysis of Seismic Settlements and Pore Pressures in Centrifuge Tests", JGED, ASCE, Vol. 117(10)
- A8. Bouckovalas G., Ting N-H., Whitman R.V. (1994), "Liquefaction Analysis of a Model Anchored Bulkhead in the Centrifuge", Soil Dynamics and Earthquake Engineering, Vol. 14, pp. 347-360.
- A9. Bouckovalas G. (1996), "Evaluation of Cyclic Model Tests on Anchor Piles in Clay", Soils and Foundations, Japan. Soc. of Soil Mech. and Found. Eng., Vol. 36, No. 4, December.
- A10. Bouckovalas G., Anagnostopoulos A. Kapenis A. Karantoni T. (1996), "Analysis of Soil Effects and Distribution of Damage from Pyrgos 1993 (Greece) Earthquake", Geotechnical & Geological Engineering, Vol. 14, pp. 111-128.
- A11. Karantoni T., Bouckovalas G. (1997), "Description and Statistical Analysis of Damage from Pyrgos 1993 (Greece) Earthquake", Soil Dynamics & Earthquake Engineering", Vol. 16, pp. 141-150.
- A12. Michaelides Od., Bouckovalas G., Gazetas G. (1996), "Non-linear Soil properties and Impedances for axially vibrating Pile Elements", Soils & Foundations, Japan. Soc. of Soil Mech. and Found. Eng., Vol. 38, No. 3, September.

- A13. Michaelides Od., Gazetas G., Bouckovalas G., Chryssikou T. (1996), "Approximate Nonlinear Dynamic axial Response of Piles", *Geotechnique*, Vol. 48, No. 1, pp. 33-53.
- A14. Bouckovalas G. (1996), "Prediction of Soil Effects on Seismic Motions: A comparative Case Study", *Earthquake Spectra*, Vol. 13, No. 3, August..
- A15. Christoulas St., Bouckovalas G., Giannaros Ch. (2000), "An experimental study on model stone columns", *Soils and Foundations*, Vol. 40, No. 6.
- A16. Marinos P., Bouckovalas G., et al. (2001), "Seismic classification of soils at West Athens", *Engineering Geology*, Vol. 62, No. 4, pp. 343-356.
- A17. Bouckovalas G., Kouretzis G. Kalogeras I. (2001), "Site specific analysis of strong motion data from the September 7, 1999 Athens (Greece) Earthquake", *Natural Hazards* 27, 105-131..
- A18. Papadimitriou Ach., Bouckovalas G., Dafalias Y. (2001), "A plasticity model for sand under small and large cyclic strains", *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 127(11), November.
- A19. Bouckovalas G., Kouretzis G. (2001), "Stiff soil amplifications effects in Athens 07/09/99 Greece earthquake", *Soil Dynamics and Earthquake Engineering*, Vol. 20, September.
- A20. Papadimitriou Ach., Bouckovalas G. (2001), "Modelling sand behavior for small, medium and large cyclic strains: The multiaxial Formulation", *Soil Dynamics and Earthquake Engineering*, Vol. 21, June.
- A21. Hasiotis T., Papatheodorou G., Bouckovalas G., Ferentinos G. (2001), "Earthquake – induced coastal sediment instabilities in the Western Gulf of Corinth, Greece", *Marine Geology*, 186 (319-335).
- A22. Bouckovalas G. D., Andrianopoulos K. I., Papadimitriou A. G. (2003), "A Critical State interpretation for the cyclic liquefaction resistance of silty sands", *Soil Dynamics and Earthquake Engineering*, February.
- A23. Bouckovalas G. D., Papadimitriou A. G. (2003), "Multi-variable relations for soil effects on seismic ground motion parameters", *Earthquake Engineering and Structural Dynamics*, October.
- A24. Loizos A., Bouckovalas G., Karlaftis A. (2003), "A dynamic stiffness modulus for pavement design evaluation", *Journal of Transportation Engineering*, ASCE, Vol. 130(1).
- A25. Bouckovalas G., Papadimitriou Ach. (2005), "Numerical evaluation of slope topography effects on seismic ground motions", *Soil Dynamics and Earthquake Engineering*, 25 (7-10):547-555.
- A26. Loizos A., Bouckovalas G. (2005), "Pavement Soil Characterization using a Dynamic Stiffness Model", *International Journal of pavement Engineering*, Vol. 6 (1),
- A27. Kouretzis G., Bouckovalas G., Gantes Ch. (2006), "3-D shell analysis of cylindrical underground structures under seismic shear (S) wave action", *Earthquake Engineering and Structural Dynamics*, 26: pp. 909-921.
- A28. Kouretzis G.P., Bouckovalas G.D. and Gantes C.J. (2007) *Analytical calculation of blast-induced buried pipeline strains*; *International Journal of Impact Engineering*, Vol. 34, pp 1683-1704
- A29. Karamitros D., Bouckovalas G., Kouretzis G. (2007), "Stress analysis of buried steel pipelines at strike-slip fault crossings", *Soil Dynamics and Earthquake Engineering*, 27: 200-211.
- A30. Yiouta-Mitra P., Kouretzis G., Bouckovalas G. and Sofianos A. (2007) *Effect of underground structures in earthquake resistant design of surface structures*; *Geotechnical Special Publications (160)*, American Society of Civil Engineers, ISBN 9781604237719.
- A31. Papadimitriou A. G., Antoniou A. A., Bouckovalas G. D., Marinos P. G. (2008), "Methodology for automated GIS-aided seismic microzonation studies", *Computers and Geotechnics*, 35(4): 505-523.
- A32. Loukidis D., Bouckovalas G. D., Papadimitriou A. G. (2009), "Analysis of fault rupture propagation through uniform soil cover", *Soil Dynamics and Earthquake Engineering*, 29(11-12): 1389-1404.
- A33. Andrianopoulos K. I., Papadimitriou A. G., Bouckovalas G. D. (2010), "Explicit integration of bounding surface model for the analysis of earthquake soil liquefaction", *International Journal for Numerical and Analytical Methods in Geomechanics*, DOI 10.1002/nag.875
- A34. Andrianopoulos K. I., Papadimitriou A. G., Bouckovalas G. D. (2010), "Bounding surface plasticity model for the seismic liquefaction analysis of geostructures", *Soil Dynamics and Earthquake Engineering*, 30 (10): 895-911
- A35. Valsamis A., Bouckovalas G. D., Papadimitriou A. G. (2010), "Parametric investigation of lateral spreading of gently sloping ground", *Soil Dynamics and Earthquake Engineering*, 30: 490-508
- A36. Kouretzis G.P. Bouckovalas G.D., Karamitros D. (2011), *Seismic Verification of Buried Pipelines and Tunnels Considering Rayleigh Wave Effects*; *Tunneling and Underground Space Technology*; Vol. 26, pp.789-794.
- A37. Karamitros D., Bouckovalas G., Kouregis G.P., Gesouli V. (2011), *Analytical verification of buried steel pipelines at normal fault crossings*, *Soil Dynamics and Earthquake Engineering*, Vol31, pp. 1452-1464
- A38. Bouckovalas G. D., Papadimitriou A. G., Niarchos D. N., Tsiapas Y. Z. (2011), "Sand fabric evolution effects on drain design for liquefaction mitigation", *Soil Dynamics and Earthquake Engineering*, 31(10): 1426-1439.

- A39. Valsamis A., Bouckovalas G. D., Chaloulos Y. (2012), "*Parametric analysis of single pile response in laterally spreading ground*", Soil Dynamics and Earthquake Engineering Vol. 34, pp. 99-100.
- A40. Karamitros D., Bouckovalas G., Chaloulos Y. (2012): "*Insight to the Seismic Liquefaction Performance of Shallow Foundations*", Journal of Geotechnical and Geoenvironmental Engineering, ASCE (in print)
- A41. Karamitros D., Bouckovalas G., Chaloulos Y. (2012): "*Numerical analysis of liquefaction-induced bearing capacity degradation of shallow foundations on a two-layered soil profile*", Soil Dynamics and Earthquake Engineering, (accepted for publication)

## **B. Greek Journals**

- B1. Christoulas S., Tsiambaos G. Sabatakais N, Bouckovalas G. (1986), "Correlation of Soil Conditions and Building Damage in Chalandri from the 1981 Earthquakes", Bulletin of Public Works Laboratories (KEDE), July (in Greek).
- B2. Bouckovalas G., Sabatakakis N. (1988), "Soil Conditions and Building Damage in Kalamata from the 1986 Earthquake", Bulletin of Public Works Laboratories (KEDE), December (in Greek).
- B3. Zervogiannis Ch., Bouckovalas G., Christoulas S. (1988), "Correlations for Mechanical Characteristics and Classification of Greek Soil Formations", Bulletin of Public Works Laboratories (KEDE), December (in Greek).
- B4. Kalteziotis N., Anagnostopoulos A., Bouckovalas G., et al. (1989), "Experience from the first Onshore Application of the Marcheti Dilatometer in Greece", Bulletin of KEDE, July.
- B5. Gazetas G., Bouckovalas G. (1993), "Aseismic Design of Retaining and Quay Walls", Journal of Hellenic Civil Engineering Society, Bull. 209 (in Greek).
- B6. Bouckovalas G. (1995), "Earthquake-induced Hydrodynamic Pressures on Retaining and Quay Walls", Journal of Hellenic Civil Engineering Society, Bull. 226 (in Greek).
- B7. Bouckovalas G., Kouretzis G. (2000), "Preliminary evaluation of the acceleration induced during the Athens 07/09/99 Greece earthquake at the nearby areas", Bulletin of the Technical Chamber of Greece (TEE), September.
- B8. Bouckovalas G. D., Papadimitriou A. G. (2005), "Multi-variable relations for soil effects on peak seismic motion parameters", Technika Chronika, Jan.-April.
- B9. Bouckovalas G. D., Papadimitriou A. G. (2005), "Multi-variable relations for soil effects on elastic response spectra", Technika Chronika, Jan. – April.

## **C. State-of-the-art or Invited**

- C1. Bouckovalas G. (1991), "Ekofisk Tank: Performance Prediction during the Storm of Nov. 6, 1973", X ECSMFE, Florence, May 26-30.
- C2. Bouckovalas G., Ting N-H., Whitman R.V. (1993), "Analytical Predictions for an Anchored Bulkhead with Liquefiable Backfill", VELACS Intern. Conf., Univ. of California Davis, Oct. 17-20.
- C3. Statham I., Bouckovalas G., Langer M.F.B. (1995), "The Identification and Monitoring of Geohazards", State of the Art Report, XI ECSMFE, Copenhagen, May 28-June 1.
- C4. Bouckovalas G. (1995), "Seismic Risk and Response assessment for the Preservation of Monuments", Intern. Seminar on Geotechn. Aspects of the Protection of Monuments, Limone sul Garda, Italy, Sept. 4-10.
- C5. Bouckovalas G., Gazetas G., Papadimitriou Ach.. (1999), "Geotechnical aspects of the Aegion (Greece) earthquake", 2<sup>nd</sup> Intern. Conference on Geotech. Earthq. Engineering, Lisbon, June.
- C6. Bouckovalas G., Kouretzis G. (2001), "A review of soil and topography effects in Athens 09/07/199 (Greece) earthquake", special lecture, 4<sup>th</sup> Intern. Conference on Recent Advances in Geotech. Earthq. Engineering and Soil Dynamics, San Diego, March.
- C7. Bouckovalas G., Loukides D., Antoniou K. (2001), "Active fault propagation through recent soil deposits", 9th Intern. Conference of the Hellenic Geological Society, Athens, September (in Greek).
- C8. Bouckovalas G.D., Papadimitriou A.G. (2007), "Earthquake-induced liquefaction: new evidence and prospects", Proceedings, 5th Hellenic Conference on Geotechnical and Geoenvironmental Engineering, May 2006, Xanthi, (in Greek).
- C9. Bouckovalas G., Dakoulas P. (2007), "Performance based design of footings on clay crust over liquefiable sand", Special Lecture, 4<sup>th</sup> ICEGE.
- C10. Bouckovalas G. D., Papadimitriou A. G., Niarchos D. (2009), "*Gravel drains for the remediation of liquefiable sites: the Seed & Booker (1977) approach revisited*", Keynote Lecture, IS-Tokyo 2009
- C11. Bouckovalas G. D., Andrianopoulos K. I., Papadimitriou A. G. (2009), "*On the numerical modeling of ground and foundation performance under severe seismic shaking and liquefaction*", Keynote Lecture, COMPDYN 2009, Rodos, Greece (CD-535).
- C12. Bouckovalas G., Dimitriadi V. (2009), "*Geotechnical Issues on the Seismic Protection of Monuments*", 3<sup>rd</sup> Greece – Japan Workshop on Seismic Design, Observation and Retrofit of Foundations with Special Issue on Protection of Cultural Heritages, Sept. 22 – 23, Santorini.

- C13. Bouckovalas G., Karamitros D. (2010), "Surface Foundation of Bridge Pier on Liquefiable Soil with Limited Ground Improvement", 6th Hellenic Conference on Geotechnical and Geoenvironmental Engineering, Sept. 29 – Oct. 1, Volos (in Greek).
- C14. Bouckovalas G. D., Papadimitriou A. G., Andrianopoulos K. I., Valsamis A., Karamitros (2011), "*Numerical modeling of liquefaction and related ground and foundation performance*", Keynote Lecture, MERCEA '08, May 2008, Reggio-Calabria, Italy (3<sup>rd</sup> Volume publ. in 2011)
- C15. Bouckovalas G., Chaloulos Y. (2012), "Numerical Analysis of Kinematic Interaction Performance of Single Piles in Laterally Spreading Ground", 2<sup>nd</sup> International Conference on Performance Based Design in Earthquake Geotechnical Engineering, Taormina, Italy.