



TECHNICAL UNIVERSITY OF CRETE

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RESEARCH/PROFESSIONAL INTERESTS

Subsurface hydrology and contaminant transport, Groundwater management, subsurface remediation techniques, Global optimization techniques, Numerical simulation in porous media, surface water modeling and floods.

EDUCATION

Ph.D., Rutgers University

Department of Civil and Environmental Engineering, Piscataway, New Jersey, 1992

M.S., Rutgers University

Department of Civil and Environmental Engineering, Piscataway, New Jersey, 1987

Five year Diploma, Aristotle University of Thessaloniki

School of Forestry and Natural Environment, Thessaloniki, Greece, 1982

PROFESSIONAL RECORD

2017 -: Associate Dean, Technical University of Crete, School of Environmental Engineering

2013 - 2017: Dean, Technical University of Crete, School of Environmental Engineering

2013 : Chairman, Technical University of Crete, Department of Environmental Engineering

2006 -: Professor, Technical University of Crete, Department of Environmental Engineering, Laboratory of Geoenvironmental Engineering

2008-2011: Chairman, Technical University of Crete, Department of Environmental Engineering

1999-2006: Associate Professor, Technical University of Crete, Department of Environmental Engineering, Laboratory of Geoenvironmental Engineering

1994-1999: Research Assistant Professor, Department of Civil and Environmental Engineering, University of Vermont; also faculty member of the Research Center for Groundwater Remediation and Design at the University of Vermont

1992-1994: Post-Doctoral Fellow, Research Center for Groundwater Remediation and Design, University of Vermont

- Research in groundwater management techniques, combination of numerical simulation and global optimization theory
- Development of algorithms for the solution of large groundwater management problems that combine a 2-D numerical simulator with globally optimal optimization techniques
- Development of a groundwater management model using a 3-D numerical simulator and the Outer Approximation method

Instructor, Linear and Non-linear Programming with Applications to Groundwater Management Problems (using LINDO and MINOS), Department of Civil and Environmental Engineering, University of Vermont

1990-1994: Instructor, *Princeton Transport Code Short Course*

1989-1992: Research Assistant, under the direction of Dr. George F. Pinder, University of Vermont

- Research in finite element methods, linear/nonlinear programming and global optimization techniques

Instructor, *Wastewater Treatment*, Department of Civil and Environmental Engineering, University of Vermont

1988-1989: Research Assistant and Teaching Assistant, joint Princeton/Rutgers Ph.D. program

- Research in numerical methods in porous media, Department of Civil Engineering and Operations Research, Princeton University
- Implementation of an algorithm for the determination of the perimeter of a groundwater contaminant plume using a probabilistic approach

Instructor, *Fluid Mechanics Lab and Hydrology*, Department of Civil and Environmental Engineering, Rutgers University

1988-1989: Part Time Engineer, Sadat Associates, Princeton, New Jersey

- Design of water supply and wastewater treatment facilities; design of sanitary sewerage; design of landfills; implementation of groundwater remediation techniques

1987-1988: Teaching Assistant, Department of Civil and Environmental Engineering, Rutgers University
Instructor, *Fluid Mechanics Lab and Surveying Lab*, Department of Civil and Environmental Engineering, Rutgers University

1985-1987: Research Assistant, Department of Civil and Environmental Engineering, Rutgers University

AWARDS AND FELLOWSHIPS

- 2014** Best Teacher Award 2014, Technical University of Crete
1989 "Bourodimos Award" for excellence in Fluid Mechanics, Department of Civil and Environmental Engineering, Rutgers University
1989-1992 Teaching and Research Assistantships, Princeton University, USA.
1985-1989 Teaching and Research Assistantships Rutgers University, USA.
1979-1981 Fellowships from the Greek National Fellowship Foundation for best performance in my undergraduate studies

INTERNATIONAL RECOGNITION

- 2018** Invited speaker and member of the Steering Committee of the 13th International Hydroinformatics Conference, HIC 2018, Palermo, Italy.
- 2016** Associate Editor Journal of Hydroinformatics
- 2015** Expert evaluator for The Eurostars Programme is powered by EUREKA and the European Community
- 2015** Styliani Maria Katsanevaki was awarded the EGU Young Scientist Travel Award in association with the "Young Hydrologic Society" for her presentation titled "Game Theory in water resources management" submitted in session HS1.6 Water Sciences Pop-Ups, with co-authors E. A. Varouchakis and G. P. Karatzas. The session was held during the European Geosciences Union (EGU) General Assembly 2015.
- 2013** Invited speaker from the Research Institute for Geo-Hydrological Protection for the Florisa Melone International Memorial Conference in Assisi, Italy, October, 2013.
- 2012-** National representative in EU for action WG C - Groundwater, SPECIAL SECRETARIAT FOR WATER- MINISTRY OF ENVIRONMENT ENERGY AND CLIMATE CHANGE, GREECE
- 2012-15** Committee member of the National Scientific Qualification, Italy: recruiting process for positions of Full and Associate Professors/ Academic field 08/A1 – Hydraulics, Hydrology, Hydraulic and Marine Constructions
- 2003** Adoption of the "Outer Approximation Method" optimization technique developed by G.P. Karatzas by the US Federal Remediation Technologies Roundtable*
- *FRTR includes the US Department of Defense, Environmental Protection Agency, Department of Energy, Department of the Interior

- and the National Aeronautics and Space Administration (NASA)
- 2003-** Member of the Hydrological Sciences Committee, Sub-Division on Groundwater, European Geosciences Union (EGU)
- 1999** Adoption of the optimization algorithm for the Optimum Groundwater Management Design by the US Environmental Protection Agency, EPA/542/R-99/011B, "Hydraulic Optimization Demonstration for Groundwater Pump-and-Treat Systems", Volume II: Application of Hydraulic Optimization', Dec. 1999
- 1995** Adoption by the US Department of Defense of the Optimum Groundwater Remediation Design technology, Report of the Defense Science Board Task Force on Environmental Security
- 1995** The **Outer Approximation Method** by G.P. Karatzas and G.F. Pinder included in article "Recent Advances in Simulation-Optimization Groundwater Management Modeling" by Brian J. Wagner, Reviews in Geophysics, Vol. 33s, pp. 1021-1028, 1995
- 1999** Expert Evaluator for Research Program "Energy, Environment and Sustainable Development", Key Action "Sustainable Management and Quality of Water", European Commission, Brussels
- 1998-99** Member of the US Environmental Protection Agency (EPA), Optimal Hydraulic Gradient Remediation Design
- 1993-** Reviewer for the International Scientific Journals:
- Water Resources Research*
 - Journal of Hydrology*
 - Advances in Water Resources*
 - Contaminant Hydrology*
 - Hydrological Processes*
 - Hydrological Sciences*
 - Hydrology Research*
 - Hydroinformatics*
 - Water Resources Planning and Management*
 - Water Resources Management*
 - Hydrologic Engineering*
 - Environmental Processes*
 - Fresenius Environmental Bulletin*
 - Geology and Mining Research*
 - Hydrogeology*
 - Operations Research*
 - European Water*
 - Global Nest*

CONFERENCES ORGANIZED

- 05-09/7/2017** Member of the Organizing Committee of the European Water Resources Association Symposium on "Water Resources Management: New Approaches and Technologies", Athens, Greece
- 01-04/5/2016** Organizer of the 2nd International Conference EWaS on "Efficient & Sustainable Water Systems Management toward Worth Living Development", EWaS2, Chania, Greece.
- 14-16/6/2007** Organizer of the European Water Resources Association Symposium on "Water Resources Management: New Approaches and Technologies", Chania, Greece
- 14-16/6/2007** Organizer of the Greek Commission on Water Resource Management conference on the "Integrated management of Water Resources at the Basin Level", Chania, Greece
- 2-5/6/2001** Co-organizer of the First European Bioremediation Conference, Chania, Greece
- 15-19/6/1998** Co-organizer (with V.N. Bourganos, A.C. Payatakes, C.A. Brebbia, W.G. Gray, G.F. Pinder) of the XII International Conference on Computational Methods in Water Resources, Heraklion, Greece

RECENT RESEARCH PROJECTS

- Principal Investigator: InTheMED – Innovative and Sustainable Groundwater Management in the Mediterranean, PRIMA SECTION 1, 2020 - 2023, 220.000 €.
- Principal Investigator and Coordinator: Sustain-COAST – Sustainable management and pollution reduction through innovative governance in a changing climate, PRIMA SECTION 2, 2019 - 2022, 290.000 €.
- Principal Investigator: ERMIS-F: Web services for environmental risk-Floods. Funding: Interreg V-A Greece - Cyprus, 2017-2020, 220.000 €.
- Principal Investigator: Multi-objective Optimization of Cosolvent Flushing of NAPLs from Contaminated Groundwater.
Funding: General Secretariat for Research and Technology, Ministry of Education and Religious Affairs of Greece, Bilateral R & T Cooperation between Greece-Turkey 2013-2014, National Action " Bilateral, Multilateral and Regional R & T Partnerships", 2013-2015, 26.200 €.
- Principal Investigator: Hydrogeological Study and the Water Balance of the Itanos Municipality. Funding: Loyalward Ltd, 2013-2014, 16.950 €.

- Co-Investigator: RECARE: Preventing and Remediating degradation of soils in Europe through Land Care. (Coordinator I. Tsanis). Work programme topics addressed: ENV.2013.6.2-4 – FP7-ENV-2013-two-stage (2013-2017).
- Principal Investigator: Chromium in Asopos Groundwater System: Remediation Technologies and Measures (CHARM) (Coordinator Technical University of Athens)
Funded by LIFE+ Environment Policy and Governance 2010, (2011-2015), 2,708,267 €.
- Co-Investigator: High Frequency Monitoring System for Integrated Water Resources Management of Rivers (Coordinator N. Nikolaidis)
Funding: Hellenic Republic Ministry of Education, Lifelong Learning and Religious Affairs: "THALIS", European Union, NSRF 2007-2013, (2011-2014), 600,000 €.
- Co-Investigator: Advanced Mathematical Methods and Software Platform for Solving Multi-Physics, Multi-Domain Problems on Modern Computer Architectures: Application to Environmental Engineering and Medical Problems (Coordinator Y. Saridakis)
Funding: Hellenic Republic Ministry of Education, Lifelong Learning and Religious Affairs: "THALIS", European Union, NSRF 2007-2013, (2011-2014), 600,000 €.
- An integrated system to evaluate the risk and the impacts of flood phenomena – Ministry of Education under the program "HERAKLEITOS II", 2010-2013, 45,000 €
- Monitoring, forecasting and best practices for **FLOOD** Mitigation and prevention in the CADSES region (FLOODMED)- EU Community - INTERREG III B CADSES NEIGHBOURHOOD PROGRAMME –Measure 4.3 (2006-08), 200,000 €.
- A combined research of Geophysical Methods for the determination of the saline zone and the Groundwater Management in the area of Stilos, Chania, Crete.
Funded by the Ministry of Education (2005), Greece, 75,000 €.
- Aquifer Protection from Saltwater Intrusion using Artificial Recharge from Treated Industrial Wastewaters and Development of Tools and Technologies for Sustainable Management of Sludge from Waste Water Treatment Plants. Funded by the General Secretariat for Research & Technology, Greece (Program EPAN 2003 in collaboration with the National Technical University and ETBA BI.PE A.E.), 2003-2007, 200,000 €.
- Modeling the Groundwater Flow – Saltwater Intrusion Interception. Funded by General Secretariat for Research & Technology, Greece (Program EPAN 2003), 150,000 €

PUBLICATIONS

JOURNAL PUBLICATIONS

1. D. Peña-Angulo, E. Nadal-Romero, J.C. González-Hidalgo, J. Albaladejo, V. Andreu, H. Barhi, S. Bernal, M. Biddoccu, R. Bienes, J. Campo, M.A. Campo-Bescós, A. Canatário-Duarte, Y. Cantón, J. Casali, V. Castillo, E. Cavallo, A. Cerdà, P. Cid, N. Cortesi, G. Desir, E. Díaz-Pereira, T. Espigares, J. Estrany, J. Farguell, M. Fernández-Raga, C.S. Ferreira, V. Ferro, F. Gallart, R. Giménez, E. Gimeno, J.A. Gómez, A. Gómez-Gutiérrez, H. Gómez-Macpherson, O. González-Pelayo, O. Kairis, G.P. Karatzas, S. Keesstra, S. Klotz, C. Kosmas, N. Lana-Renault, T. Lasanta, J. Latron, R. Lázaro, Y. Le Bissonais, C. Le Bouteiller, F. Licciardello, J.A. López-Tarazón, A. Lucía, V.M. Marín-Moreno, C. Marín, M.J. Marqués, J. Martínez-Fernández, M. Martínez-Mena, L. Mateos, N. Mathys, L. Merino-Martín, M. Moreno-de las Heras, N. Moustakas, J.M. Nicolau, V. Pampalone, D. Raclot, M.L. Rodríguez-Blanco, J. Rodrigo-Comino, A. Romero-Díaz, J.D. Ruiz-Sinoga, J.L. Rubio, S. Schnabel, J.M. Senciales-González, A. Solé-Benet, E.V. Taguas, M.T. Taboada-Castro, M.M. Taboada-Castro, F. Todisco, X. Úbeda, E.A. Varouchakis, L. Wittenberg, A. Zabaleta, M. Zorn, "Relationship of weather types on the seasonal and spatial variability of rainfall, runoff and sediment yield in the western Mediterranean basin", *Atmosphere*, in print, 2020.
2. Tapoglou, E., E.A Varouchakis, I.C. Trichakis, G.P. Karatzas, "Hydraulic head uncertainty estimations of a complex artificial intelligence model using multiple methodologies", *Journal of Hydroinformatics*, Vol. 22(1) , 205-218, 2020.
3. Varouchakis E.M., P.G. Theodoridou, and G.P. Karatzas, "Decision-making tool for groundwater level spatial distribution and risk assessment geostatistics in R", *Journal of Hazardous, Toxic, and Radioactive Waste*", Vol. 24(1), Article number 04019031, 2020.
4. Varouchakis E.A., K. Yetilmezsoy and **G.P. Karatzas**, "A decision-making framework for sustainable management of groundwater resources under uncertainty: combination of Bayesian risk approach and statistical tools", *Water Policy*, Vol. 21, 602-622, 2019.
5. Varouchakis E.M., P.G. Theodoridou, and **G.P. Karatzas**, "Spatiotemporal geostatistical modeling of groundwater levels under a Bayesian framework using means of physical background", *Journal of Hydrology*, Vol. 575, 487-498, 2019.
6. D. Pena-Angulo, E. Nadal-Romero, J.C. Gonzalez-Hidalgo, J Albaladejo, V. Andreu, V. Bagarello, H. Barhi,, R.J. Batalla, S. Bernal, R. Bienes, J. Campo, M.A. Campo-Bescos, A. Canatario-Duarte, Y. Canton, J. Casali, V. Castillo, A. Cerda, A. Cheggour, P. Cid, N. Cortesi, G. Desir, E. Diaz-Pereira, T. Espigares, J. Estrany, M. Fernandez-Raga, C.S.S. Ferreira, V. Ferro, F. Gallarr, R. Gimenez, E. Gimeno, J.A. Gomez, A. Gomez-Gutierrez, H. Gómez-Macpherson, O. Gonzalez-Pelayo, P. Hueso-

- Gonza. Iez, O. Kairis, **G.P. Karatzas**, S. Klotz,, C. Kosmas, N. Lana-Renault, T. Lasanta, J. Latron, R. Lazaro, Y. Le Bissonais, C. Le Bouteiller, F. Licciardello, J.A. Lopez-Tarazon, A. Lucia, C. Marin, M.J. Marques, J. Martinez-Fernandez, M. Martinez-Mena, J.F. Martinez-Murillo, L. Mateos, N. Mathys, L. Merino-Martin, M. Moreno-de las Heras, N. Moustakas, J.M. Nicolau, A. Novara, V. Pampalone, D. Raclot, M.L. Rodriguez Blanco, J. Rodrigo-Comino, A. Romero-Diaz, E. Roose, J.L. Rubio, J.D. Ruiz-Sinoga, S. Schnabel, J.M. Senciales-Gonzalez, V. Simonneaux, A. Sole-Benet, E.V. Taguas, M.M. Taboada-Castro, M.T. Taboada-Castro, F. Todisco, X. Ubeda, E.A. Varouchakis, D. Vericat, L. Wittenberg, A. Zabaleta, M. Zom, "Spatial variability of the relationships of runoff and sediment yield with weather types throughout the Mediterranean basin", *Journal of Hydrology*, Vol. 571, 390-405, 2019.
7. Lilli, M.A., N.P. Nikolaidis, **G.P. Karatzas**, N. Kalogerakis, "Identifying the controlling mechanism of geogenic origin chromium release in soils", **Journal of Hazardous Materials**, Vol. 366, 169-176, 2019.
 8. Siaka M., Z. Dokou and G.P. Karatzas, "Management of the saltwater intrusion phenomenon in the alluvial aquifer of Katapola, Amorgos, Greece", *Water Science and Technology: Water Supply*, Vol. 18(3), 936-949, 2018.
 9. Varouchakis, E.A., G.A Corzo, **G.P. Karatzas**, and A. Koutsopoulou, "Spatio-temporal analysis of annual rainfall in Crete, Greece", *Acta Geophysica*, Vol. 66, 319-328, doi.org/10.1007/s11600-018-0128-z, 2018.
 10. Morianou G.G., N.N. Kourgialas, **G.P. Karatzas**, and N.P. Nikolaidis, "Assesing hydro-morphological changes in Mediterranean stream using curvilinear grid modeling approach – climate change impacts", *Earth Science Informatics*, Vol. 11(2), 205-2016, 2018.
 11. Tzoraki O, Z. Dokou, G. Christodoulou, P. Gaganis, and **G.P Karatzas**, "Assessing the efficiency of a coastal Managed Aquifer Recharge (MAR) system in Cyprus", *Science of the Total Environment*, doi.org/10.1016/j.scitotenv.2018.01.160 ,Vol. 626, 875-886, 2018.
 12. Kourgialas N.N, I. Anyfanti, **G.P Karatzas**, and Z. Dokou, "An integrated method for assessing drought prone areas - Water efficiency practices for a climate resilient Mediterranean agriculture", *Science of the Total Environment*, Vol. 625, 1290-1300, 2018.
 13. Kourgialas N.N, **G.P Karatzas**, Z. Dokou, and A. Kokorogiannis, "Groundwater footprint methodology as policy tool for balancing water needs (agriculture & tourism) in water scarce islands – The case of Greece, Crete", *Science of the Total Environment*, Vol. 615, 381-389, 2018.
 14. Pappa A., Z. Dokou, and **G.P. Karatzas**, "Saltwater intrusion management using the SWI2 model: application in the coastal aquifer of Hersonissos, Crete, Greece", *Desalination and Water Treatment*, Vol. 99, 49-58, 2017.

15. Goumas C., Z. Dokou, G.G. Morianou, N.N. Kourgialas and **G.P. Karatzas**, "Using groundwater flow simulation of the Chania Plain area to propose a proper irrigation plan", *European Water*, Vol. 57, 467-473, 2017.
16. Theodoridou P.G., E.A Varouchakis, and **G.P Karatzas**, "Spatial analysis of groundwater levels using fuzzy logic and geostatistical tools" *Journal of Hydrology*, Vol. 55, 242-252, 2017.
17. Kanakoudis V. and **G.P. Karatzas**, "Efficient and sustainable water systems management toward worth living development", *Environmental Science and Pollution Research*, Vol. 24(25), 20119-20121, 2017.
18. **Karatzas G.P.**, "Developments of modeling groundwater flow and mass transport", doi: 10.1007/s11269-017-1729-z, *Water Resources Management*, Vol. 31(10), 3235-32-44, 2017.
19. P. N. Stratis, Z. A. Dokou, **G.P. Karatzas**, E. P. Papadopoulou, and Y. G. Saridakis, "PTC simulations, stochastic optimization and safety strategies for groundwater pumping management: case study of the Hersonissos Coastal Aquifer in Crete", *Applied Water Science*, Vol. 7(5), 2425–2435, 2017.
20. Gamvroudis C., Z. Dokou, N.P. Nikolaidis, and **G.P. Karatzas**, "Impacts of surface and groundwater variability response to future climate change scenarios in a large Mediterranean watershed", doi:10.1007/s12665-017-6721-7, *Environmental Earth Sciences*, Vol. 76(11), Article no. 385, 2017.
21. Kourgialas N.N. and **G.P Karatzas**, "A national scale flood hazard mapping methodology: The case of Greece – Protection and adaptation policy approaches", *Science of the Total Environment*, Vol. 601-602, 441-452, 2017.
22. Dokou Z., M. Dettoraki, **G.P. Karatzas**, E.A. Varouchakis, A. Pappa, "Utilizing successive linearization optimization to control the saltwater intrusion phenomenon in unconfined coastal aquifers in Crete, Greece", *Environmental Modeling and Assessment*, Vol. 22(2), 115-128, 2017.
23. Dokou Z., **G.P. Karatzas**, I. Panagiotakis and D. Dermatas D. "Groundwater modeling and remediation scenarios of a hexavalent chromium plume released from an industrial site", *Bulletin of Environmental Contamination & Toxicology (BECT)*, Vol. 98, 338-346, 2017.
24. Lilli, M.A., E. Syranidou, A. Palliou, N.P. Nikolaidis, **G.P. Karatzas**, N. Kalogerakis, "Assessing the impact of geogenic chromium uptake by carrots (*Daucus carota*) grown in Asopos river basin", *Environmental Research*, Vol.152 (1), 96-101, 2017.
25. Kourgialas N.N., **G.P. Karatzas**, and G.C. Koubouris, "A GIS policy approach for assessing the effect of fertilizers on the quality of drinking and irrigation water and wellhead protection zones (Crete, Greece)", *Journal of Environmental Management*, Vol. 189, 150-159, 2017.

26. Kavouri K.P., **G.P. Karatzas**, and V. Plagnes, "A coupled groundwater flow modelling and vulnerability mapping methodology for karstic terrain management", *Hydrogeology Journal*, Vol.25(5), 1301-1317, 2017.
27. Dokou Z., **G.P. Karatzas**, Aydin Sarikurt D., and N.K. Copty, "Optimizing ethanol enhanced NAPL remediation using evolutionary algorithms", *Procedia Engineering*, DOI: 10.1016/j.proeng.2016.11.068, Vol.162, 317-323, 2016.
28. Staboultzidis A., Z. Dokou, and **G.P. Karatzas**, "Delineation of wellhead protection areas in Crete, Greece using an analytic element model", *Procedia Engineering*, DOI: 10.1016/j.proeng.2016.11.070, Vol.162, 324-331, 2016.
29. Morianou G.G., N.N. Kourgialas, **G.P. Karatzas**, "Comparison between curvilinear and rectilinear grid based hydraulic models for river flow simulation", *Procedia Engineering*, DOI: 10.1016/j.proeng.2016.11.102, Vol.162, 568-575, 2016.
30. Morianou G.G., N.N. Kourgialas, **G.P. Karatzas**, and N.P. Nikolaidis, "Hydraulic and sediment transport simulation of Koiliaris River using the MIKE 21C Model", *Procedia Engineering*, DOI: 10.1016/j.proeng.2016.11.089, Vol.162, 463-470, 2016.
31. Aydin-Sarikurt D., Z. Dokou, N.K. Copty, and **G.P. Karatzas**, "Experimental investigation and numerical modeling of enhanced DNAPL solubilization in saturated porous media", *Water, Air, & Soil Pollution*, DOI 10.1007/s11270-016-3136-0, Vol.227(12), Article 441, 2016.
32. Kavouri K. and **G.P. Karatzas**, "Integrating diffuse and concentrated recharge in karst models", *Water Resources Management*, DOI 10.1007/s11269-016-1528-y, Vol. 30(15), 5637-5650, 2016.
33. Stratis P.N., **G.P. Karatzas**, E.P. Papadopoulou, M.S. Zakyntinaki, Y.G. Saridakis, "Stochastic optimization for an analytical model of saltwater intrusion in coastal aquifers", *PLOS one*, DOI: 10.1371/journal.pone.0162783, Vol. 11(9), Article Number: e0162783, 2016
34. Daliakopoulos I.N., I.K. Tsanis, A. Koutroulis, N.N. Kourgialas, A.E. Varouchakis, **G.P. Karatzas**, C.J. Ritsema, "The threat of soil salinity: A European scale review", *Science of the Total Environment*, Vol. 573, 727-739, 2016.
35. Stratis P.N., Z.A. Dokou, **G.P. Karatzas**, E.P. Papadopoulou and Y.G. Saridakis, "PTC simulations, stochastic optimization and safe strategies for groundwater pumping management: case study of the Hersonissos Coastal Aquifer in Crete", *Applied Water Science*, DOI 10.1007/s13201-016-0438-8, 1-11, 2016.
36. Tapoglou E., A. Chatzakis and **G.P. Karatzas**, "Comparison of a black-box

model to a traditional numerical model for hydraulic head prediction", *Global Nest Journal*, Vol. 18(4), 761-770, 2016.

37. Nerantzaki S.D., G.V. Giannakis, N.P. Nikolaidis., I. Zacharias, **G.P. Karatzas**, I.A. Sibetheros, "Assessing the impact of climate change on sediment loads in a large Mediterranean watershed", *Soil Science Journal*, DOI: 10.1097/SS.000000000000164, Vol. 181(7), 306-314, 2016.
38. Kourgialas N.N., **G.P. Karatzas**, "Flood risk fruit tree areas in Crete (Greece) using GIS; climate change effects and flood-tolerant fruit trees", *Environmental Science and Policy*, doi.org/10.1016/j.envsci.2016.05.020, Vol. 63, 132-142, 2016.
39. Kourgialas N.N., G.C. Koubouris, **G.P. Karatzas**, and I. Metzidakis, "Assessing water erosion in Mediterranean tree crops using GIS techniques and field measurements; the effect of climate change", *Journal of Natural Hazards*, DOI: 10.1007/s11069-016-2354-5, Vol. 83, S65-S81, 2016.
40. Varouchakis E.A., K. Kolosionis, **G.P. Karatzas**, "Spatial variability estimation and risk assessment of the aquifer level at sparsely gauged basins using geostatistical methodologies", *Earth Science Informatics*, DOI: 10.1007/s12145-016-0265-3, Vol. 9(4), 437-448, 2016.
41. Varouchakis, E.A., K. Spanoudaki, D.T. Hristopoulos, **G.P. Karatzas**, G.A. Corzo, "Stochastic modelling of aquifer level temporal fluctuations based on the conceptual basis of the soil-water balance equation", *Soil Science Journal*, DOI: 10.1097/SS.000000000000157, Vol. 181(6), 224-231, 2016.
42. Varouchakis, E.A., I. Palogos, **G.P. Karatzas**, "Application of Bayesian and cost benefit risk analysis in water resources management", *Journal of Hydrology*, DOI: 10.1016/j.jhydrol. 2016.01.007, Vol. 534, 390-396, 2016.
43. Dokou Z., V. Karagiorgi, **G.P. Karatzas**, N.P. Nikolaidis, N. Kalogerakis, "Large scale groundwater flow and hexavalent chromium transport modeling under current and future climatic conditions: The case of Asopos River Basin", *Environmental Science and Pollution Research*, DOI: 10.1007/s11356-015-5771-1, Vol. 23(6), 5307-5321, 2016.
44. Varouchakis E.A., G. V. Giannakis, M. A. Lilli, E. Ioannidou, N. P. Nikolaidis, and **G. P. Karatzas**, "Development of a statistical tool for the estimation of riverbank erosion probability", *Soil*, DOI: 10.5194/soil-2-1-2016, Vol.2, 1-11, 2016.
45. Kourgialas, N.N., Z. Dokou, **G.P. Karatzas**, G. Panagopoulos, P. Soupios, A. Vafidis, E. Manoutsoglou, M. Schafmeister, "Saltwater intrusion in an intensively irrigated agricultural area: combining density-dependent modeling and geophysical methods", *Environmental Earth Sciences Journal*, DOI: 10.1007/s12665-015-4856-y, Vol. 75(1), Article number 15, 2016.
46. Dokou Z, Kourgialas, N.N., **G.P. Karatzas**, "Assessing groundwater quality in Greece based on spatial and temporal analysis", *Environmental Monitoring and Assessment*, DOI: 10.1007/s10661-015-4998-0, Vol.

187(12), Article number 774, 2015.

47. Nerantzaki S.D., G.V. Giannakis, D. Efstathiou, N.P. Nikolaidis., I.A. Sibetheros, **G.P. Karatzas**, I. Zacharias, "Modeling sediment transport and assessing impact of climate change in a karstic mediterranean watershed", *Science of the Total Environment*, Vol. 538, 288-297, 2015.
48. Vozinaki A.E.K, **G.P. Karatzas**, I.A. Sibetheros, and E.A. Varouchakis, "An agricultural flash flood loss estimation methodology: the case study of the Koiliaris basin (Greece), February 2003 flood", *Journal of Natural Hazards*, DOI: 10.1007/s11069-015-1882-8, Vol. 79, 899-920, 2015.
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CONSULTING WORK

The Toms River Aquifer in New Jersey. Simulation and Animation of the results for several scenarios. ENVIRON Corporation - Princeton, NJ.

The San Fernando Site in California. Simulation and Animation of the results. ENVIRON Corporation - Princeton, NJ.

Instructor: Princeton Transport Code short course, organized by ENVIRON Corporation at the Environmental Protection Agency - Kerr Laboratory in Ada, Oklahoma, June 13-16, 1995.

PROFESSIONAL AFFILIATIONS

- Member of the United States Environmental Protection Agency Panel for Optimal Hydraulic Gradient Remediation Design
- American Society of Civil Engineers
- American Geophysical Union
- Order of the Engineer
- Tau Beta Pi - National Engineering Honor Society
- Chi Epsilon - Honor Society for Civil Engineers