



TECHNICAL UNIVERSITY OF CRETE

School of Environmental Engineering

Polytechnioupolis, 73 100 Chania, GREECE

Tel: +302821037792 - Fax: +302821037846

George P. Karatzas
Professor and Associate Dean
School of Environmental Engineering
Laboratory of Geoenvironmental Engineering
Technical University of Crete
Polytechnioupolis, 73100 Chania, GREECE
karatzas@mred.tuc.gr

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 – Combined Ph.D program with **Princeton University**.

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. Morianou, G., V. Ziogas, N.N. Kourgialas, and **G.P. Karatzas**, "Effect of irrigation practices upon yield and fruit quality of four grapefruit (*Citrus paradisi* Mac.) cultivars", *Water Supply*, Vol. 21(6), 2735-2747, 2021.
2. Varouchakis, E.A., Hristopoulos, D.T., **Karatzas, G.P.**, Perez, G.A.C., Diaz, V., "Spatiotemporal geostatistical analysis of precipitation combining ground and satellite observations", *Hydrology Research*, Vol. 52(3), 804-820, 2021.
3. 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 Bissonnais, 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.
4. 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.
5. 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.
6. 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.
7. 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.

8. 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-Gonzalez, O. Kairis, **G.P. Karatzas**, S. Klotz, C. Kosmas, N. Lana-Renault, T. Lasanta, J. Latron, R. Lazaro, Y. Le Bissonnais, 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.
9. 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.
10. 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.
11. Varouchakis, E.A., G.A. Corzo, **G.P. Karatzas**, and A. Koutsopoulou, "Spatio-temporal analysis of annual rainfall in Crete, Greece", *Acta Geophisica*, Vol. 66, 319-328, doi.org/10.1007/s11600-018-0128-z, 2018.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
 17. 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.
 18. 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.
 19. 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.
 20. **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.
 21. 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.
 22. 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.
 23. 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.
 24. 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.
 25. 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.
 26. 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.
27. 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.
 28. 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.
 29. 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.
 30. 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.
 31. 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.
 32. 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.
 33. 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.
 34. 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.
 35. Stratis P.N., **G.P. Karatzas**, E.P. Papadopoulou, M.S. Zakythinaki, 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
 36. 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.

37. 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. Varouchakis, E.A., K. Spanoudaki, D.T. Hristopulos, **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.
44. 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.
45. 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.
46. 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.
47. 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.
48. 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.
 49. 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.
 50. 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.
 51. **Karatzas G.P.** and Dokou Z., "Optimal management of saltwater intrusion in the coastal aquifer of Malia, Crete using Particle Swarm Optimization", *Hydrogeology Journal*, DOI: 10.1007/s10040-015-1286-6, Vol. 23, 1181-1194, 2015.
 52. Kourgialas N.N. and **G.P. Karatzas**, "A modeling approach for agricultural water management in citrus orchards: Cost-effective irrigation scheduling and agrochemical transport simulation", *Environmental Monitoring and Assessment*, Vol. 187(7), Article 462, 2015.
 53. Kourgialas N.N., Z. Dokou, and **G.P. Karatzas**, "Statistical analysis and ANN modeling for predicting hydrological extremes under climate change scenarios", *Journal of Environmental Management*, DOI: 10.1016/j.jenvman.2015.02.034, Vol. 154, 86-101, 2015.
 54. Varouchakis E.A., **G.P. Karatzas**, and G.P. Giannopoulos, "Impact of irrigation scenarios and precipitation projections on the groundwater resources of Viannos basin in the island of Crete, Greece", *Environmental Earth Sciences Journal*, DOI:10.1007/s12665-014-3913-2, Vol. 73(11), 7359-7374, 2015.
 55. Kourgialas N.N., **G.P. Karatzas**, and Morianou G., "Water management plan for olive orchards in a semi-mountainous area of Crete, Greece", *Global Nest Journal*, Vol. 17(2), 72-81, 2015.
 56. Kourgialas N.N. and **G.P. Karatzas**, "An integrated approach for the assessment of groundwater contamination risk/vulnerability using analytical and numerical tools within a GIS framework", *Hydrological Sciences*, DOI:10.1080/02626667.2014.885653, Vol. 60(1), 111-132, 2015.
 57. Lilli M.A., D. Moraetis, N.P. Nikolaidis, **G.P. Karatzas**, and N. Kalogerakis, "Characterization and mobility of geogenic chromium in soils and riverbed

sediments of Asopos basin", *Journal of Hazardous Materials*, DOI: 10.1016/j.jhazmat.2014.07.037, Vol. 281, 12-19, 2015.

58. Dimitroula H., E. Syranidou, E. Manousaki, N.P. Nikolaidis, **G.P. Karatzas**, and N. Kalogerakis, "Mitigation measures for chromium-VI contaminated groundwater – The role of endophytic bacteria in rhizofiltration", *Journal of Hazardous Materials*, DOI: 10.1016/j.jhazmat.2014.08.005, Vol. 281, 114-120, 2015.
59. Tapoglou E., **G.P. Karatzas**, I.C. Trichakis, and E.A. Varouchakis, "A spatio-temporal hybrid neural network-kriging model for groundwater level simulation", *Journal of Hydrology*, online, DOI: [10.1016/j.jhydrol.2014.10.040](https://doi.org/10.1016/j.jhydrol.2014.10.040), Vol. 519, 3193-3203, 2014.
60. Psarropoulou E.T. and **G.P. Karatzas**, "Pollution of Nitrates - Contaminant transport in heterogeneous porous media: a case study of the coastal aquifer of Corinth, Greece", *Global Nest Journal*, Vol. 16(1), 9-23, 2014.
61. Kourgialas N.N. and **G.P. Karatzas**, "A hydro-sedimentary modelling system for flash flood propagation and hazard estimation under different agricultural practices", *Natural Hazards and Earth System Sciences*, DOI: 10.5194/nhess-14-625-2014, Vol. 14, 625-634, 2014.
62. Tapoglou E., I.C. Trichakis, Z. Dokou, I.K. Nikolos, and **G.P. Karatzas**, "Groundwater Level Prediction under various Climate Change Scenarios using an Artificial Neural Network Trained with Particle Swarm Optimization Algorithm", *Hydrological Sciences*, online, DOI: 10.1080/02626667.2013.838005, Vol. 59(6), 12255-1239, 2014.
63. Kourgialas, N.N., and **G.P. Karatzas**, "A Hydro-Economic Modeling Framework for Flood Damage Estimation and the Role of Riparian Vegetation", *Hydrological Processes*, DOI: 10.1002/hyp.9256, Vol. 27, 515-531, 2013.
64. Dokou Z., and **G.P. Karatzas**, "Multi-objective Optimization for Free Phase LNAPL Recovery using Evolutionary Computation Algorithms", *Hydrological Sciences*, DOI: 10.1080/02626667.2012.754103, Vol. 58(3), 671-685, 2013.
65. Pisinaras V., C. Petalas, V.A. Tsihrintzis, and **G.P. Karatzas**, "Integrated Modeling as a Decision-Aiding Tool for Groundwater Management in a Mediterranean Agricultural Watershed", *Hydrological Processes*, DOI: 10.1002/hyp.9331, Vol. 27(14), 1973-1987, 2013.
66. Seferou E., P. Soupios, N.N. Kourgialas, Z. Dokou, **G.P. Karatzas**, E. Candasayar, N. Papadopoulos, V. Dimitriou, A. Sarris, and M. Sauter, "Olive Oil Mill Waste Transport in Unsaturated and Saturated Laboratory Conditions using Geophysical Techniques and the FEFLOW Model", *Hydrogeology Journal*, DOI 10.1007/s10040-013-0996-x, Vol. 21(6), 1219-1234, 2013.
67. Varouchakis, E.A., D.T. Hristopoulos, and **G.P. Karatzas**, "Improving Kriging of Groundwater Level Data Using Non-Linear Normalizing

Transformations – A field application", *Hydrological Sciences*, DOI: 10.1080/02626667.2012.717174, Vol. 57(7), 1404-1419, 2012.

68. Kourgialas N.N., **G.P. Karatzas**, and N.P. Nikolaidis, "Development of Thresholds Methodology for Real-Time Flash Flood Prediction in Complex Geomorphological River Basins", *Hydrological Processes*, Vol. 26(10), 1478-1494, 2012.
69. Moraetis D., N.P. Nikolaidis, **G.P. Karatzas**, Z. Dokou, N. Kalogerakis, L. Winkel, and A. Palaioyianni-Bellou, "Origin and Mobility of Hexavalent Chromium in North-Eastern Attica, Greece", *Applied Geochemistry*, Vol. 27(6), 1170-1178, 2012.
70. Dokou Z., and **G.P. Karatzas**, " Saltwater Intrusion Estimation in a Karstified Coastal System using Density-Dependent Modelling and Comparison with the Sharp-Interface Approach", *Hydrological Sciences*, DOI: 10.1080/02626667.2012.690070, Vol. 57(5), 985-999, 2012.
71. Vozinaki A.E.K., N.N. Kourgialas, and **G.P. Karatzas**, "Estimation of Agricultural Flood Loss in the Koiliaris River Basin in Crete, Greece", *European Water*, Vol.39, 53-63, 2012.
72. Vozinaki A.E.K., N.N. Kourgialas, and **G.P. Karatzas**, "Estimating Flood Inundation and the Consequent Economic Losses in the Koiliaris River Basin in Crete, Greece", *Global Nest Journal*, Vol.14(3), 284-293, 2012.
73. Psarropoulou E.T. and **G.P. Karatzas**, "Transient Groundwater Modeling with Spatio-Temporally Variable Fluxes – New Approach in Defining Boundary Conditions for a Transient Flow Model", *Civil Engineering and Environmental Systems*, Vol. 29(1), 1-21, 2012.
74. Trichakis I.C., I.K. Nikolos, and **G.P. Karatzas**, "Artificial Neural Network (ANN) Based Modeling for Karstic Groundwater Level Simulation", *Water Resources Management*, Vol. 25(4), 1131-1141, 2011.
75. Kourgialas N.N. and **G.P. Karatzas**, "Flood Management and a GIS Modeling Method to assess the Flood hazard areas - A Case Study", *Hydrological Sciences*, Vol. 56(2), 212-225, 2011.
76. Trichakis I.C., I.K. Nikolos, and **G.P. Karatzas**, "Comparison of Bootstrap Confidence Intervals for an ANN Model of a Karstic Aquifer Response", *Hydrological Processes*, Vol. 25(18), 2827-2836, 2011.
77. Kourgialas N.N., **G.P. Karatzas**, and N.P. Nikolaidis, "An Integrated Framework for the Hydrologic Simulation of a Complex Geomorphological River Basin", *Journal of Hydrology*, 381(3-4), 308-321, 2010.
78. Papadopoulou M.P., E.A. Varouchakis, and **G.P. Karatzas**, "Terrain Discontinuities Effects in the Regional Flow of a Complex Karstified Aquifer", *Environmental Modeling and Assessment*, Vol. 15(5), 319-328, 2010.

79. Papadopoulou M.P., I.K. Nikolos, and **G.P. Karatzas**, "Computational Benefits using Artificial Intelligent Methodologies for the Solution of an Environmental Design Problem: Saltwater Intrusion", *Water Science and Technology*, Vol. 62(7), 1479-1490, 2010.
80. Nikolos I.K., M.P. Papadopoulou, and **G.P. Karatzas**, "Artificial Neural Network and Differential Evolution Methodologies used in Single – and Multi – Objective Formulations for the Solution of Subsurface Water Management Problems", *International Journal of Advanced Intelligence Paradigms*, Vol.2(4), 365-377, 2010.
81. Trichakis I.C., I.K. Nikolos, and **G.P. Karatzas**, "Optimal Selection of Artificial Neural Network parameters for the Prediction of a Karstic Aquifer's Response", *Hydrological Processes*, Vol. 23(20), 2956-2969, 2009.
82. Ricciardi K., G.F. Pinder, and **G.P. Karatzas**, "Efficient Groundwater Remediation System Designs with Flow and Concentration Constraints Subject to Uncertainty", *Water Resources Planning and Management*, Vol. 135(2), 128-137, 2009.
83. Papadopoulou M.P., E.A. Varouchakis, and **G.P. Karatzas**, "Simulation of Complex Aquifer Behavior Using Numerical and Geostatistical Methodologies", *Desalination*, Vol. 237, 42-53, 2009.
84. **G.P. Karatzas**, Papadopoulou, M.P., and K.P. Tsagarakis, "Water Resources Management: New Approaches and Technologies", *Desalination*, Vol. 237, pp. 1, 2009.
85. Nikolos I.K., M. Stergiadi, M.P. Papadopoulou, and **G.P. Karatzas**, "Artificial Neural Networks an Alternative Approach to Groundwater Numerical Modeling and Environmental Design", *Hydrological Processes*, Vol. 22(17), 3337-3348, 2008.
86. Nikolos I.K., M. Stergiadi, M.P. Papadopoulou, and **G.P. Karatzas**, "Groundwater Numerical Modeling and Environmental Design using Artificial Networks and Differential Evolution", Book series "Lecture Notes in Computer Sciences", Vol. 5178, 34-41, 2008.
87. Koukadaki M.A., **G.P. Karatzas**, M.P. Papadopoulou, and A. Vafidis, "Identification of the Saline Zone in a Coastal Aquifer using Electrical Tomography Data and Simulation", *Water Resources Management*, Vol.21,1881-1898, 2007.
88. Karterakis S.M, **G.P. Karatzas**, I.K. Nikolos and M.P. Papadopoulou, "Application of Linear Programming and Differential Evolutionary Optimization Methodologies for the Solution of Coastal Subsurface Water Management Problems Subject to Environmental Criteria", *Journal of Hydrology*, Vol. 342/3-4, 270-282, 2007.
89. Ricciardi K., G.F. Pinder, and **G.P. Karatzas**, "Groundwater Remediation Design under Uncertainty", *Water Resources Planning and Management*, Vol. 133, No 3, 253-263, 2007.

90. Papadopoulou, M.P., G.F. Pinder, and **G.P. Karatzas**, "Flexible Time-Varying Optimization Methodology for the Solution of Groundwater Management Problems", *European Journal of Operational Research*, Vol. 180, No 2, 770-785, 2007.
91. Papadopoulou M.P., **G.P. Karatzas**, G.G. Bougioukou, "Numerical modeling of the environmental impact of landfill leachate leakage on groundwater quality - A field application", *Environmental Modeling and Assessment*, Vol. 12, No 1, 43-54, 2007.
92. Aivalioti M.V. and **G.P. Karatzas**, "Modeling the Flow and Leachate Transport in the Vadose and Saturated Zone - A Field Application", *Environmental Modeling and Assessment*, Vol. 11, 81-87, 2006.
93. Papadopoulou M.P., **G.P. Karatzas**, M.A. Koukadaki and Y. Trichakis, "Modeling the Saltwater Intrusion in Coastal Aquifers – Case Study in the Industrial Zone of Herakleio in Crete" *Global Nest the International Journal*, Vol.7, No 2, 197-203, 2005.
94. Spiliotopoulos, A.A., **G.P. Karatzas**, and G.F. Pinder, "A Multiperiod Approach to the Solution of Groundwater Management Problems Using the Outer Approximation Method", *European Journal of Operational Research*, Vol. 157, 514-525, 2004.
95. Papadopoulou, M.P., G.F. Pinder, and **G.P. Karatzas**, "Enhancement of the Outer Approximation Method for Solution of Concentration-Constrained Optimal-Design Groundwater-Remediation Problem", *Water Resources Research* Vol.39, no 7, 1185-1194, 2003.
96. **Karatzas G.P.**, G.F. Pinder and D. Ahlfeld, "Computer-Facilitated Groundwater Remediation Design" *Technology*, (Formally Journal of the Franklin Institute- Engineering and Applied Mathematics), Vol.6, no.4-6, 453-473, 1999.
97. Tucciarelli T., **G.P. Karatzas**, and G.F. Pinder, "A Primal Method for the Solution of the Groundwater Quality Management Problem", *Journal of Operations Research*, vol.46, no. 4, 463-473, 1998.
98. Criminisi A., T. Tucciarelli, and **G.P. Karatzas**, "A Methodology to Determine Optimal Transmissivity Measurement Locations in Groundwater Quality Management Models with Scarce Field Information", *Water Resources Research*, vol.33, no. 6, 1265-1274, 1997.
99. **Karatzas G.P.** and G.F. Pinder, "The Solution of Groundwater Quality Management Problems with a Nonconvex Feasible Region Using a Cutting Plane Optimization Technique", *Water Resources Research*, vol.32, no. 4, 1091-1100, 1996.
100. **Karatzas G.P.** and G.F. Pinder, "Solving Groundwater Management Problems Using a New Methodology", *Advanced Methods for Groundwater Pollution Control*, *CISM Courses and lectures, No. 364*, International

Centre for Mechanical Sciences, Springer, 115-129, 1995.

101. **Karatzas G.P.** and G.F. Pinder, "Groundwater Management Using Numerical Simulation and the Outer Approximation Method for Global Optimization", *Water Resources Research*, vol. 29, no. 10, 3371-3378, 1993.

CONFERENCE PROCEEDINGS

1. Dokou Z., **G.P. Karatzas**, N.P. Nikolaidis and N. Kalogerakis "Modeling the groundwater flow and hexavalent chromium transport in the Asopos River basin", Proceedings CRETE 2018, Sixth International Conference on Industrial & Hazardous Waste Management, ISSN:2241-3146, 2018.
2. Lilli M.A., N.P. Nikolaidis, N. Kalogerakis and **G.P. Karatzas**, "Extent, mobility, and impact of geogenic chromium in soils of Asopos basin", Proceedings CRETE 2018, Sixth International Conference on Industrial & Hazardous Waste Management, ISSN:2241-3146, 2018.
3. Tapoglou E., E.A. Varouchakis and **G.P. Karatzas**, "Uncertainty estimation in different components of a Hybrid ANN-fuzzy – kriging Model for water table level simulation", Proceedings of the 13th International Conference on Hydroinformatics, HUC 2018, paper #395, 2018.
4. Varouchakis E.A., P.G. Theodoridou and **G.P. Karatzas**, "Spatiotemporal geostatistical modeling of aquifer levels using physically based tools", Proceedings of the Protection and Restoration of the Environment XI Conference, 615-621, 2018.
5. Theodoridou P.G., E.A. Varouchakis, and **G.P. Karatzas**, "Regression analysis and risk assessment of groundwater levels" e-Proceedings of the 3rd International Conference EWaS (Efficient & Sustainable Water Systems), 2018.
6. Varouchakis E.A., P.G. Theodoridou and **G.P. Karatzas**, "Space-time modeling of aquifer level using novel geostatistical tools", Proceedings of the 10th World Congress of EWRA 'Panta Rhei', Vol.1, 1813-1818, 2017.
7. 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", Proceedings of the 10th World Congress of EWRA 'Panta Rhei', Vol.1, 1965-1971, 2017
8. Siaka M., Z. Dokou, and **G.P. Karatzas**, "A study of groundwater flow and saltwater intrusion at the alluvial aquifer of Katapola at the island of Amorgos, Greece", Proceedings of the 2nd International Conference EWaS (Efficient & Sustainable Water Systems) ID 026, 2016.
9. Pappa A., T.N. Olsthoorn, Z. Dokou, and **G.P. Karatzas**, "Simulation and management of saltwater intrusion at a coastal aquifer in Crete, Greece", Proceedings of the 2nd International Conference EWaS (Efficient &

Sustainable Water Systems) ID 094, 2016.

10. Theodoridou P.G., E.A Varouchakis , and **G.P Karatzas**, "Geostatistical analysis of groundwater level using non-euclidean distance metrics", Proceedings of the 2nd International Conference EWaS (Efficient & Sustainable Water Systems) ID 112, 2016.
11. Gamvroudis C.C., N.P. Nikolaidis, **G.P Karatzas** and Z. Dokou, "Simulating the spatio-temporal distribution of groundwater levels under climate change scenarios using an integrated surface-groundwater model", Proceedings of the 2nd International Conference EWaS (Efficient & Sustainable Water Systems) ID 121, 2016.
12. Kavouri K., **G.P. Karatzas** and D. Moraetis, "Evaluation of temporal storage zones in karstic aquifers using hydrogeochemical analysis", Proceedings of the 2nd International Conference EWaS (Efficient & Sustainable Water Systems) ID 137, 2016.
13. Dokou Z, A. Stampouli, **G.P. Karatzas**, A.D Sarikurt, and N.K Copty, "Modeling ethanol-enhanced DNAPL remediation in a two dimensional experimental setting", Proceedings of the 14th International Conference on Environmental Science and Technology, CEST2015_00058, 2015.
14. Kourgialas N.N., **G.P. Karatzas**, and G.C. Koubouris, "A decision-making system for agricultural water management in three cultivations", Proceedings of the 14th International Conference on Environmental Science and Technology, CEST2015_00058, 2015.
15. Morianou G.G., N.N. Kourgialas, **G.P. Karatzas**, and N.P. Nikolaidis, "2D simulation of water depth and flow velocity using the MIKE 21C model", Proceedings of the 14th International Conference on Environmental Science and Technology, CEST2015_00058, 2015.
16. Stratis P.N., Z.A.Dokou, **G.P. Karatzas**, E.P. Papadopoulou and Y.G. Saridakis, "Stochastic Optimization and Numerical Simulation for Pumping Management of the Hersonissos Freshwater Coastal Aquifer in Crete", Proceedings of the 19th International Conference on Circuits Systems, Communications and Computers (CSCC), pp. 329-334, 2015
17. Kavouri K.P., and **G.P. Karatzas**, "Spatially Distributed Recharge in Karst Groundwater Modeling", Proceedings of the *9th World Congress of EWRA, 'Water Resources Management in a Changing World: Challenges and Opportunities'*, Istanbul, Turkey, CD, 2015.
18. Chatzakis A., E. Tapoglou, and **G.P. Karatzas**, "Groundwater Simulation using Artificial Neural Networks (ANNs) and the Princeton Transport Code (PTC) – Performance Comparison", Proceedings of the Protection and Restoration of the Environment XII Conference, 2014.
19. Kourgialas N.N. and **G.P. Karatzas**, "Flood and Groundwater Management for the Mountain Plateau of Omalos Based on Geoinformatics and Numerical Techniques", Bulletin of the Geological Society of Greece, vol.

XLVII 2013, Proceedings of the 13th International Congress, Chania, CD, Sept. 2013.

20. Dokou Z., **Karatzas G.P.**, Nikolaidis N.P., and Kalogerakis N., "Mapping of chromium in the greater area of Asopos river basin", Proceedings of the 13rd International Conference on Environmental Science and Technology (CEST 2013), CD, CEST2013_0605, 2013.
21. Lilli M.A., Moraetis D., Nikolaidis N.P., **Karatzas G.P.**, and Kalogerakis N., "Characterization and mobility of hexavalent chromium in soils and sediments", Proceedings of the 13rd International Conference on Environmental Science and Technology (CEST 2013), CD, CEST2013_0612, 2013.
22. Lilli M.A., Nikolaidis N.P., **Karatzas G.P.**, Kalogerakis N., and Mueller M., "Mitigation measures for chromium-VI contaminated groundwater and soil using zero valent iron technologies", Proceedings of the 13rd International Conference on Environmental Science and Technology (CEST 2013), CD, CEST2013_0613, 2013.
23. Manousaki E., Dimitroula E., Nikolaidis N.P., **Karatzas G.P.**, and Kalogerakis N., "Mitigation measures for chromium-VI contaminated groundwater and soil using a phytoextraction pilot", Proceedings of the 13rd International Conference on Environmental Science and Technology (CEST 2013), CD, CEST2013_0604, 2013.
24. Kourgialas N.N., Dokou Z., and **G.P. Karatzas**, "An ANN Technique for Flood and Drought Forecasting in a Mediterranean River Basin Using Global Changing Scenarios", Proceedings of the *8th International Conference of EWRA, 'Water Resources Management in an Interdisciplinary and Changing Context'*, Porto, Portugal, pp. 657-665, 2013.
25. Dokou Z., Kourgialas N.N., and **G.P. Karatzas**, "Spatial and Temporal Distribution of Groundwater Contamination in Greece based on Historical Data", Proceedings of the *8th International Conference of EWRA, 'Water Resources Management in an Interdisciplinary and Changing Context'*, Porto, Portugal, pp. 471-479, 2013.
26. Vozinaki A-E.K., Kourgialas N.N., and **G.P. Karatzas**, I. Sibetheros, "Flood Simulation and Estimation of Agricultural Flood Loss in ARCGIS Environment using PYTHON", Proceedings of the *8th International Conference of EWRA, 'Water Resources Management in an Interdisciplinary and Changing Context'*, Porto, Portugal, pp. 361-370, 2013.
27. G. Christodoulou, Z. Dokou, O. Tzoraki, P. Gaganis and **G. Karatzas**, "Attenuation Capacity of a Coastal Aquifer under Managed Recharge by Reclaimed Wastewater", Proceedings of the *First International Conference on Remote Sensing and Geoinformation of Environment*, Paphos, Cyprus, April 8-10, 2013.
28. Kavouri K.P., and **G.P. Karatzas**, "Simulation of the complex Karstic Hydrogeological System of Zakroç Crete Using the Finite Element Code

FEFLOW", *Proceedings of the Ressources et gestion des aquifers littoraux, Cassis, France, 2012.*

29. Giannopoulos G.P., E.A. Varouchakis, and **G.P. Karatzas**, "Assessment of Potential Climatic and Pumping Changes on Groundwater Resources of a Mediterranean Basin", *Proceedings of the Protection and Restoration of the Environment XI Conference*, 271-278, 2012.
30. Vozinaki A.E.K., N.N. Kourgialas, and **G.P. Karatzas**, "An Integrated Approach to Estimate Flood Damages – A Field Application in the Koiliaris River Basin in Chania, Greece", *Proceedings of the Protection and Restoration of the Environment XI Conference*, 116-125, 2012
31. Vozinaki A.E.K., N.N. Kourgialas and **G.P. Karatzas**, "An Integrated Surface and Groundwater Modeling System for Flood Loss Estimation. A Field Application in the Koiliaris River Basin in Crete – Greece", *Proceedings of the 12th International Conference on Environmental Science and Technology (CEST2011)*, CD pp. A-2003-2010, 2011.
32. Moraetis D., N.P. Nikolaidis, **G.P. Karatzas**, N. Kalogerakis, and W Winkel, "Geochemical Evidences of Geogenic Origin of Chromium in Oropos Plain, Attica", *2nd International Conference on Hazardous and Industrial Waste Management*, CD, 2010.
33. Kourgialas N.N. and **G.P. Karatzas**, "A Real Time Flood Forecasting System in the Koiliaris River Basin in Crete, Greece", *Protection and Restoration of the Environment X Conference*, CD, 2010.
34. Dokou Z. and **G.P. Karatzas**, "Employing Evolutionary Algorithms for Optimizing Free Phase LNAPL Recovery", *XVIII International Conference on Computational Methods in Water Resources*, USB, 2010.
35. Trichakis I.C, I.K. Nikolos, **G.P. Karatzas**, "On the Use of Random-walk Based Training Algorithms for Neural Networks Applied in Environmental Modeling", *XVIII International Conference on Computational Methods in Water Resources*, USB, 2010.
36. Papadopoulou M.P., I.K. Nikolos, **G.P. Karatzas**, "Optimal Geographic Well Positioning in Agricultural Polluted Areas", *XVIII International Conference on Computational Methods in Water Resources*, USB, 2010.
37. Trichakis I.C, **G.P. Karatzas**, and I.K. Nikolos, "Quantification of Artificial Neural Network Uncertainty with Bootstrap Percentile Intervals for the Prediction of a Karstic Aquifer's Response", *6th International Symposium on Environmental Hydraulics – ISEH VI*, Vol.2, 691-696, 2010.
38. Papadopoulou M.P., Z. Dokou, **G.P. Karatzas**, and C.I. Zachariadi, "Estimation of Seawater Intrusion Front in a Coastal Karstified System Using a Density-Dependent Flow Approach", *6th International Symposium on Environmental Hydraulics – ISEH VI*, Vol.2, 631-636, 2010.
39. Trichakis I.C, I.K. Nikolos, and **G.P. Karatzas**, "Simulation of a Karstic

Groundwater System using Artificial Neural Networks (ANNs). The example of Edwards aquifer", 7th *Conference of the European Water Resources Association (EWRA)*, Cyprus, 697-704, ISBN 978-9963-671-94-6, 2009.

40. Kourgialas N.N, and **G.P. Karatzas**, "The generation of karst flash floods and the analysis of their main hydrologic parameters; Case study of the Koiliaris river basin in Crete, Greece", 7th *Conference of the European Water Resources Association (EWRA)*, Cyprus, 403-410, ISBN 978-9963-671-94-6, 2009.
41. Papadopoulou M.P., I.K. Nikolos, **G.P. Karatzas**, and G. Kyritsakas "Artificial Intelligence Methodologies used for the Solutions of Environmental Water Resources Management Design Problems", *Proceedings of The 2nd International Conference on Water Economics, Statistics, and Finance*, International Water Association, Vol. II, 351-360, 2009.
42. Papadopoulou M.P., I.K. Nikolos, and **G.P. Karatzas**, "Soft-computing Methodologies for the Solution of Contamination Problems", *Proceedings of The First International Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering*, CDROM, ISBN 978-1-905088-34-8, 2009.
43. Trichakis I.C, I.K. Nikolos, and **G.P. Karatzas**, "Predicting the change in Hydraulic Head of a Karstic Aquifer using Neural Networks", *Proceedings of The First International Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering*, CDROM, ISBN 978-1-905088-34-8, 2009.
44. Kourgialas N.N., **G.P. Karatzas**, and N.N. Nikolaidis, "Simulation of the Flow in the Koiliaris River Basin (Greece) using a combination of GIS, the HSPF model and a Karstic-Snow melt Model", *iEMSs 2008: International Congress on Environmental Modelling and Software Integrating Sciences and Information Technology for Environmental Assessment and Decision Making*, 512-519, 2008.
45. **Karatzas G.P.**, M.P. Papadopoulou, and K.P. Tsagarakis, Editors, *Proceedings of "Water Resources Management: New Approaches and Technologies"*, European Water Resources Association Symposium (EWRA), Vol.1, Chania, 2007.
46. **Karatzas G.P.**, M.P. Papadopoulou and D. Mirasgentis, "Control of Nitrate Pollution using Optimization Techniques in Combination with Numerical Models", *Proceedings of the 3rd WSEAS/IASME International Conference on Energy, Environment, Ecosystems and Sustainable Development*, 10-15, 2007.
47. Papadopoulou M.P., E.A Varouhakis and **G.P. Karatzas** "A study of the complex karstification phenomenon in nature: an analysis of the flow in a fractured medium in Crete", *10th International Conference on Environmental Science and Technology*, in Vol1, 1109-1116, 2007.

48. Papadopoulou M.P., E.A. Varouchakis and **G.P. Karatzas**, "A Comparison Between Two Numerical Simulators Using Different Geostatistical Methodologies for the Solution of Complex Environmental Design Problems", *Water Resources Management: New Approaches and Technologies*, European Water Resources Association, Chania, Greece, 263 - 279, 2007.
49. Patrikalaki E., M.P. Papadopoulou, and **G.P. Karatzas**, "Modeling of Groundwater Flow and Transport of Nitrates in the Area of Malia, Crete (Greece)", *Water Resources Management: New Approaches and Technologies*, European Water Resources Association, Chania, Greece, 379 - 384, 2007.
50. Zahariadi C.I., M.P.Papadopoulou, **G.P.Karatzas**, "Density dependent modelling in a karstified coastal aquifer of Crete using finite element simulation model", *Advanced FEM Groundwater Modeling International FEFLOW User Conference, Proceedings pp.217-226*, Berlin, Germany, 2006.
51. Karterakis S.M, **G.P. Karatzas**, I.K. Nikolos and M.P. Papadopoulou, "Groundwater Management in Coastal Regions Using Linear Programming and Genetics Algorithms", *XVI International Conference on Computational Methods in Water Resources*, CD, 2006.
52. Theodossiou, N., P. Latinopoulos, **G.P. Karatzas** and E.A. Maria, "Delineation of Capture Zones in Groundwater Aquifers as a Tool for the Application of the "Polluter-Pays" Principle", *VIII Protection and Restoration of the Environment Conference*, CD, 2006.
53. Papadopoulou M.P., E. Vondikaki, M. Stergiadi and **G.P. Karatzas**, "Optimal fresh water management with emphasis in environmental quality constraints in the Northern part of Rhodes Island, Greece", *VIII Protection and Restoration of the Environment Conference*, CD, 2006.
54. Tzimas A., A. Andreadakis, M. Peskosta, M. Aggelopoulos, N. Kalogerakis, **G.P. Karatzas**, "Economic Evaluation of Alternative Tertiary Treatment Schemes Producing Effluents Suitable for Reuse", *VIII Protection and Restoration of the Environment Conference*, CD, 2006.
55. **G.P. Karatzas**, "Groundwater Protection from Salt Water Intrusion through Injection of Treated Industrial Water", *1st International Conference on Sustainable Urban Wastewater Treatment and Reuse*, SUWRT, CD –Section III, 2005.
56. Papadopoulou M.P. and **G.P. Karatzas**, "A combination of a non-linear optimization methodology with a simulation model applied to groundwater management problems", *1st International Conference on Experiments Process/System Modelling/Simulation/Optimization (1st IC-EpsMsO)*, CD, 2005.
57. Bougioukou G.G., M.P. Papadopoulou, and **G.P. Karatzas**, "Landfill Leachate Impacts on Groundwater Quality: The case study of municipal Landfill of Patras", *9th International Conference on Environmental Science*

and Technology, CD A-198-202, 2005.

58. Papadopoulou M.P., **G.P. Karatzas**, and M.A Koukadaki, "Modeling the Saltwater Intrusion Phenomenon in the Industrial Zone of Herakleio, Crete", *9th International Conference on Environmental Science and Technology*, CD A-1169-1174, 2005.
59. **Karatzas G.P.**, E.A. Maria, and F. Velegraki, "The Modeling of Groundwater Flow and Transport of Pollutants as a Tool of Specialization of the 'Polluter Pays' Principle", *9th International Conference on Environmental Science and Technology*, CD A-709-714, 2005.
60. Papadopoulou M.P., **G.P. Karatzas**, and G.F. Pinder, "Groundwater Optimal Remediation Design: A Multi-Period Strategy", *Proceedings of International Conference on Protection and Restoration of the Environment VII*, CD-ROM, 2004.
61. Aivalioti M.V. and **G.P. Karatzas**, "Modeling of Flow and Leachate Transport in the Vadose and Saturated Zone; Application on the Municipal Landfill, Amari, Rethymno" *Proceedings of International Conference on Protection and Restoration of the Environment VII*, CD-ROM, 2004.
62. **Karatzas G.P.** and K. Koltsida, "Modeling the Groundwater Flow and Mass Transfer of Nitrates and Chlorides in the Pinios River Delta Aquifer", *EWRA Symposium on Water Resources Management: Risks and Challenges for the 21st Century*, Ismir, Turkey, Vol. II 927-936, 2004.
63. Papadopoulou M.P., **G.P. Karatzas**, and G.F. Pinder, "Economic Parameters' Effects in the Optimal Design of a Groundwater Remediation System", *XVth International Conference on Computational Methods in Water Resources*, Elsevier, Vol. II, 1181-1191, 2004.
64. Dokou Z. A., A-S. A. Mouskeftara, D. K. Pagalou, and **G.P. Karatzas**, "Modeling Groundwater and Nitrate Transport in the Upper Aquifer of the Coastal Area of the Corinthian Gulf", *9th Conference of Hellenic Hydrotechnical Association*, Thessalonica, 345-352, 2003.
65. Pinder, G.F., Dougherty, D.E., Greenwald, R.M., **Karatzas, G.P.**, Kitanidis, P.K., Loaiciga, H.A., Maxwell, R.M., Mayer, A.S., McLaughlin, D.B., Peralta, R.C., Rizzo, D.M., Wagner, B.J., Yager, K.M., and Yeh, W. W-G., 2003, Optimization and modeling for remediation and monitoring, *in* Chien, C.C., and others, eds., *Contaminated Ground Water and Sediment: Modeling for Management and Remediation*: Boca Raton, Lewis Publishers, p. 107-178.
66. Pinder, G.F., Dougherty, D.E., Greenwald, R.M., **Karatzas, G.P.**, Kitandis, P.K., Loaiciga, H.A., Maxwell, R.M., Mayer, A.S., McLaughlin, D.B., Peralta, R.C., Rizzo, D.M., Wagner, B.J., Yager, K.M., and Yeh, W. W-G., 2002, Optimization and modeling for remediation and monitoring, *in* Chien, C.C., and others, eds., *Environmental Modeling and Management: Theory, Practice, and Future Directions: Dupont Workshop on Modeling and Management of Emerging Environmental Issues*, Philadelphia, 2000, p. 111-185.

67. Papadopoulou, M.P., G.F. Pinder, and **G.P. Karatzas**, "A Dynamic Approach to Groundwater Remediation Design", *XIVth International Conference on Computational Methods in Water Resources*, Elsevier Science, Vol. II, 1451-1458, 2002.
68. Ricciardi K., G.F. Pinder, and G.P. **Karatzas**, "The Modified Tunneling Method Applied to Groundwater Remediation", *XIVth International Conference on Computational Methods in Water Resources*, Elsevier Science, Vol. II, 1411-1418, 2002.
69. Psaropoulou E. and **G.P. Karatzas**, "Field Studies of Nitrate Mass Transfer in the Coastal Aquifer of Corinth, Greece", *Proceedings of the 7th International Conference on Environmental Science and Technology*, Vol. B', 732-738, Sept. 2001.
70. Kalogerakis, A, N. Frantzeskaki, E. Exarhou, G. Makripodis, J. Markonis, **G. Karatzas**, T. Tsoutsos, A. Pantidou, A. Oikonomopoulou, R. Mpolieraki "Protection and sustainability of the ecosystem of the Agia Lake at Chania", *Proceedings. 10^o Panellinio Synedrio Ichthyologon*, Chania, 18-20 Oct., pp. 253-256, 2001.
71. **Karatzas, G.P.**, "Combination of Pumping Wells, Impermeable Cap Layers and Drains for Aquifer Remediation", *Proceedings of International Conference on Protection and Restoration of the Environment V*, Vol.1, 91-98, 2000.
72. Spiliotopoulos, A.A., **G.P. Karatzas**, and G.F. Pinder, "A Biconcave-Decomposition Method for the Optimal Design of Pump-and-Treat Remediation Systems Including the Treatment Plant", *XIIIth International Conference on Computational Methods in Water Resources*, A.A. Balkema Publishers, Vol.1, 547-554, 2000.
73. Papadopoulou, M.P., G.F. Pinder and **G.P. Karatzas**, "Optimal Management of a Coastal Aquifer Using Least-Cost Design Technology" *XIIIth International Conference on Computational Methods in Water Resources*, A.A. Balkema Publishers, Vol.1, 561-566, 2000.
74. Pinder, G.F., **G.P. Karatzas**, and D.P. Ahlfeld, "Groundwater Flow and Transport Models: A Field Application", *Proceedings of 1995 SCOPE Workshop on Groundwater Contamination in China*, Editors: Fu, Qian and Shoemaker, Tsinghua University Press, 59-63, 2000.
75. **Karatzas, G.P.**, and G.F. Pinder, "Applications of Operations Research Theory to Groundwater Management Problems", *Proceedings of the 6th International Conference on Environmental Science and Technology*, Vol. B, 202-209, 1999.
76. **Karatzas, G.P.**, A.A. Spiliotopoulos, G.F. Pinder, "A Multiperiod Approach for Optimal Groundwater Remediation Design", *Proceedings of International Conference on Protection and Restoration of the Environment IV*, Halkidiki, Greece, Vol.1, 21-28, 1998.

77. Spiliotopoulos, A.A., **G.P. Karatzas**, and G.F. Pinder, "Optimal Design of Groundwater Remediation Systems with Treatment Plant Considerations", *XII International Conference on Computational Methods in Water Resources*, Computational Mechanics Publications, Vol.1, 75-82, 1998.
78. Pinder, G.F. and **G.P. Karatzas**, "Determination of the Most Cost-Effective Technology for Subsurface Remediation", Proceedings of the *Annual Water Resources Planning and Management Conference*, Merritt, D. H.(ed.), American Society of Civil Engineers, 406-407, 1997.
79. **Karatzas, G.P.**, and G.F. Pinder, "Optimal Groundwater Remediation Design in an Uncertain Physical Environment", Proceedings of the *Water Pollution 97 Conference*, Bled Slovenia, 231-237, 1997.
80. **Karatzas, G.P.**, and G.F. Pinder, "Combination of Pumping Wells and Drains for an Optimal Groundwater Remediation Design", Proceedings of the XIth International *Conference on Computational Methods in Water Resources*, Hidropromociones, A.C., vol.1, 367-373, Cancun, Mexico, 1996.
81. **Karatzas, G.P.**, and G.F. Pinder, "The Effects of Different Types of Constraints on the Optimal Solution of a Groundwater Management Problem", Proceedings of *the First International Conference on the Impact of Industry on Groundwater Resources*, Italy, Groundwater Geoengineering, IGEA, no. 6, 41-44, 1996.
82. **Karatzas, G.P.**, and G.F. Pinder, "A Least-cost Design for Groundwater Remediation", Proceedings of the *Coastal Environment 96 Conference*, Rio de Janeiro, Brazil, Computational Mechanics Publications, 3-9, 1996.
83. **Karatzas, G.P.**, A.A. Spiliotopoulos, and G.F. Pinder, "A Multiperiod Approach for the Solution of Groundwater Management Problems using the Outer Approximation Method", Proceedings of *the North American Water and Environment Congress '96*, American Society of Civil Engineers, CD-ROM, 1996.
84. **Karatzas, G.P.**, G.F. Pinder, and D. Ahlfeld, "Optimal Design of Solutions to Groundwater Contamination Problems", Proceedings of the *Third International Conference on Water Pollution, Model Measuring and Prediction*, Porto Carras, Greece, 13-19, 1995.
85. **Karatzas, G.P.**, and G.F. Pinder, "Comparison of Different Optimization Techniques for the Solution of the Groundwater Quality Management Problem", *Integrated Water Resources Planning for the 21st Century*, M.F. Domenica (ed.), American Society of Civil Engineers, 875-878, 1995.
86. **Karatzas, G.P.**, T. Tucciarelli and G.F. Pinder, "Groundwater Quality Management Using Numerical Simulation and a Primal Optimization Technique", Proceedings of the *Xth International Conference on Computational Methods in Water Resources*, Kluwer Academic Publishers, Vol. 2, 849-857, 1994.

87. **Karatzas, G.P.**, and G.F. Pinder, "Groundwater Quality Management Using a 3-D Numerical Simulator and a Cutting Plane Optimization Method", Proceedings of the *Xth International Conference on Computational Methods in Water Resources*, Kluwer Academic Publishers, Vol. 2, 841-848, 1994.
88. **Karatzas, G.P.**, and A.C. Demetracopoulos, "Dispersion Characteristics of Landfill Refuse", Proceedings of the *HELECO'93 Conference on New Prospects for the Environment*, Vol. 1, 193-202, 1993.
89. **Karatzas, G.P.**, and G.F. Pinder, "Combination of Groundwater Simulation with an Outer Approximation Method for Global Optimization", Proceedings of the *IXth International Conference on Computational Methods in Water Resources*, Computational Mechanics Publications and Elsevier Applied Science, Vol. 1, 337-344, 1992.

BOOKS

1. **Karatzas, G.** and Papadopoulou M., "Optimization Methods for Environmental Systems" (in Greek), Publisher DISIGMA, ISBN: 978-960-9495-01-1, Thessaloniki, Greece, 2016.

BOOK CHAPTERS

1. **Karatzas G.P** and N.N. Kourgialas, Advances on Watershed Hydrology, chapter 15, 'Hydrological impacts of agricultural management practices on flash flood wave characteristics, sediment load transfer, and resulting economical losses', Edited by T. Moramarco, S. Barbetta and L. Brocca, Water Resources Publications, LLC, Michigan, USA, pp. 287-315, 2015.
2. Soupios P., N. Kourgialas , Z. Dokou, **G.P. Karatzas**, G. Panagopoulos , A. Vafidis, and E. Manoutsoglou , Modeling Saltwater Intrusion at an Agricultural Coastal Area Using Geophysical Methods and the FEFLOW Model, Engineering Geology for Society and Territory - Volume 3, pp 249-252, 2015.
3. **Karatzas G.P.**, Book: Hydrology, Hydraulics and Water Resources Management, Chapter 8: Groundwater Optimal Management Using an Outer Approximation Approach, WIT Press, pp. 141-160, 2012.
4. **Karatzas G.P.** et al., Book: Contaminated Ground Water and Sediment, co-author, chapter 3, "Optimization and Modeling for Remediation and Monitoring", p. 107, CRC Press LLC, Lewis Publishers, USA, 2004.
5. **Karatzas G.P.**, co-author, Book: Environmental Modeling and Management, Theory, Practice, and Future Directions, co-author of chapter3, "Optimization and Modeling for Remediation and Monitoring", Prepared under the auspices of DuPont Company, Published by Today

Media, Inc, pp. 111- 185, 2002.

BOOK EDITOR

1. Water Resources Management: New Approaches and Technologies, Proceedings of European Water Resources Association Symposium, vol. 1, Editors, **G.P. Karatzas**, M.P. Papadopoulou, K.P. Tsagarakis, Chania, 2007.
2. Computational Methods in Water Resources XII, "Computational Methods in Contamination and Remediation of Water Resources", vol. 1, Editors: V.N. Burganos, **G.P. Karatzas**, A.C. Payatakes, C.A. Brebbia, W.G. Gray, G.F. Pinder, Computational Mechanics Publications, 1998.
3. Computational Methods in Water Resources XII, "Computational Methods in Surface and Ground Water Transport", vol. 2, Editors: V.N. Burganos, **G.P. Karatzas**, A.C. Payatakes, C.A. Brebbia, W.G. Gray, G.F. Pinder, Computational Mechanics Publications, 1998.

REFERRED ABSTRACT PROCEEDINGS

1. **Karatzas, G.**, Vozinaki, A.-E., Trichakis, I., Anyfanti, I., Stylianoydaki, C., Varouchakis, E., Goumas, C., Roggero, P. P., Mellah, T., Akrouf, H., and Jomaa, S.: Living Labs towards sustainable groundwater management: case study in Malia, Crete, Greece, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-7941, <https://doi.org/10.5194/egusphere-egu21-7941>, 2021.
2. Varouchakis, E., Azevedo, L., Pereira, J. L., Trichakis, I., **Karatzas, G. P.**, Jomaa, S., and Soupios, P.: 3D modelling of a hydrological structure combining spatial data science and geophysics: Application to a coastal aquifer system in the island of Crete, Greece, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-2601, <https://doi.org/10.5194/egusphere-egu21-2601>, 2021.
3. Kalaitzaki, E., Varouchakis, E., Corzo Perez, G. A., Diaz, V., Akoumianaki, O., and **Karatzas, G. P.**: An integrated method to study and plan aquifer recharge, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-3898, <https://doi.org/10.5194/egusphere-egu21-3898>, 2021.
4. Ben-Salem, N., Reinecke, R., Gómez-Hernández, J. J., **Karatzas, G.**, Rode, M., and Jomaa, S.: Groundwater assessment in the Mediterranean region: Regional modelling and in-situ data across scales, EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-9792, <https://doi.org/10.5194/egusphere-egu21-9792>, 2021.
5. Landros, I., Trichakis, I., Varouchakis, E., and **Karatzas, G. P.**: Large-scale Groundwater Simulation using Artificial Neural Networks in the Danube River Basin, EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-8212, <https://doi.org/10.5194/egusphere-egu2020-8212>, 2020.

6. Varouchakis, E. A. and **Karatzas, G. P.**: Gaussian process regression for spatiotemporal analysis of groundwater level variations., EGU General Assembly 2020, Online, 4–8 May 2020, EGU2020-6665, <https://doi.org/10.5194/egusphere-egu2020-6665>, 2020.
7. **Karatzas G.P.**, E.A Varouchakis, I. Trichakis and Kamisnska-Chuchmata A., "Blending satellite and ground precipitation observations using geostatistics and machine learning", *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol. 21, EGU2019-7126, 2019.
8. Varouchakis E.A, Kalaitzaki E., **G.P. Karatzas**, "Assessment of groundwater degradation and potential improvement using spatial analysis techniques", *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol. 21, EGU2019-7233, 2019.
9. Varouchakis E.A, **G.P. Karatzas**, G.A Corzo, "Detecting spatial and temporal trends in annual rainfall in Crete", *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol. 20, EGU2018-4890, 2018.
10. Dimitriadis P., E.A. Varouchakis, E. Iliopoulou, **G.P. Karatzas** and D. Koutsogiannis, "Stochastic investigation of the spatial variability of precipitation over Crete", *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol. 20, EGU2018-17155-1, 2018.
11. Pena-Angulo, D., Nadal-Romero, E., Gonzalez-Hidalgo, J.C., Albaladejo, J., Andreu, V., Bagarello, V., Barhi, H., Batalla, R., Bernal, S., Bienes, R., Campo, J., Campo-Bescos, M.A., Canatario, A., Canton, Y., Casali, J., Castillo, V., Cerda, A., Cheggour, A., Cid, P., Cortesi, N., Desir, G., Diaz-Pereira, E., Espigares, T., Estrany, J., Fernandez-Raga, M., Ferreira, C.S.S., Ferro, V., Gallart, F., Gimenez, R., Gimeno, E., Gomez, J.A., Gomez-Gutierrez, A., Gomez-Macpherson, H., Gonzalez-Pelayo, O., Hueso-Gonzalez, P., Kairis, O., **Karatzas, G.**, Keesstra, S., Klotz, S., Kosmas, C., Lana-Renault, N., Lasanta, T., Latron, J., Lazaro, R., Le Bissonnais, Y., Le Bouteiller, C., Licciardello, F., Lopez-Tarazon, J.A., Lucia, A., Marin, C., Marques, M.J., Martinez-Fernandez, J., Martinez-Mena, M., Martinez-Murillo, J.F., Mateos, L., Mathys, N., Merino-Martin, L., Moreno-de las Heras, M., Moustakas, N., Nicolau, J.M., Novara, A., Pampalone, V., Raclot, D., Rodriguez-Blanco, M.L., Rodrigo-Comino, J., Romero-Diaz, A., Roose, E., Rubio, J.L., Ruiz-Sinoga, J.D., Schnabel, S., Senciales-Gonzalez, J.M., Simonneaux, V., Sole-Benet, A., Taguas, E.V., Taboada-Castro, M.M., Taboada-Castro, M.T., Todisco, F., Ubeda, X., Varouchakis, E.A., Wittenberg, L., Zabaleta, A.5, Zorn, M. " Analysis of the spatial variability of the relationships between rainfall, runoff, erosion and sediment yield and synoptic atmospheric patterns around the Mediterranean basin" *Abstract Proceedings, TERRAENVISION Conference, Barcelona, Jan. 29-Feb.02, p. 41, 2018.*
12. Morianou G., N.N. Kourgialas, G. Psarras, G. Koubouris, G. Arampatzis, **G.P. Karatzas**, and E. Pavlidou, "Agricultural interventions for water saving and crop yield improvement, in a Mediterranean area - an experimental design", *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol. 19, EGU2017-1337-1, 2017.

13. Theodoridou G., E. A. Varouchakis, and **G.P. Karatzas**, "Development of novel geostatistical tools in space-time modelling of aquifer level", *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol. 19, EGU2017-6924, 2017.
14. Rani P, R. Di Maio, E. Piegari, K. Simyrdanis, N. Papadopoulos, Z. Dokou, N. Kourgialas, **G.P. Karatzas**, P. Soupios, "Application of time-lapse electrical resistivity tomography and groundwater simulation models to monitor the transport of organic contaminants under unsaturated and saturated conditions", 43th IAH Congress, Montpellier, France, 2016
15. **G.P. Karatzas** and E.A. Varouchakis, "Estimation of riverbank erosion probability using statistical modelling", Connecteur – 4th MC meeting and WG meetings, Prague, 21-23 September, 2016
16. **G.P. Karatzas** and E.A. Varouchakis, "Effect of soil properties on the determination of river bank erosion probability", *Geophysical Research Abstracts*, European Geophysical Union (EGU) Vol. 18, EGU2016-13635, 2016.
17. **G.P. Karatzas**, Z. Dokou and E. Varouchakis, "Saltwater intrusion research: Recent advances and future needs", Book of Abstracts of the 6th European Bioremediation Conference, p. 156, Chania, Greece, 2015.
18. Lilli M.A., N.P. Nikolaidis, **G.P. Karatzas**, and N. Kalogerakis, "Chromium uptake by carrots in Asopos basin", Book of Abstracts of the 6th European Bioremediation Conference, p. 141, Chania, Greece, 2015.
19. Sarikurt D.A, K. Yakşi, N.K. Copty, E. Tapoglou, Zoi Dokou, **G.P. Karatzas**, "Cosolvent flushing for remediation of groundwater contaminated with DNAPL", INTERPORE - 7th International Conference on Porous Media, Padova, Italy, 2015.
20. Katsanevaki S.M, E.A. Varouchakis and **G.P. Karatzas**, "Game Theory in water resources management", *Geophysical Research Abstracts*, European Geophysical Union (EGU), EGU2015-786, 2015.
21. Tapoglou E, **G.P. Karatzas**, I. C. Trichakis, and E.A. Varouchakis, "Uncertainty analysis of a combined Artificial Neural Network - Fuzzy logic - Kriging system for spatial and temporal simulation of Hydraulic Head", *Geophysical Research Abstracts*, European Geophysical Union (EGU), EGU2015-407, 2015.
22. Theodoridou P.G, **G.P. Karatzas**, E.A. Varouchakis and G.A. Corzo Perez, "Geostatistical analysis of groundwater level using Euclidean and non-Euclidean distance metrics and variable variogram fitting criteria", *Geophysical Research Abstracts*, European Geophysical Union (EGU), EGU2015-15340, 2015.
23. Nerantzaki S, K. Moirogiorgou, D. Efstathiou, G. Giannakis, S. Voutsadaki, M. Zervakis, I.A. Sibetheros, I. Zacharias, **G.P. Karatzas**, and N.P. Nikolaidis, "Development of an Integrated Suspended Sediment Sampling System -

- Prototype Results”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), EGU2015-698, 2015.
24. Ioannidou E, A Flori, E. A Varouchakis, G. Giannakis, A.E Vozinaki, **G.P Karatzas**, and N.P Nikolaidis, “Determination of riverbank erosion probability using Locally Weighted Logistic Regression”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), EGU2015-9265, 2015.
 25. Tapoglou E, **G.P. Karatzas**, I. C. Trichakis, and E. A Varouchakis, “Temporal and Spatial prediction of groundwater levels using Artificial Neural Networks, Fuzzy logic and Kriging interpolation”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol.16, EGU2014-773, 2014.
 26. Vozinaki, A.E.K, **G.P Karatzas**, I.A. Sibetheros and E.A. Varouchakis, “Development of synthetic velocity-depth damage curves using a Weighted Monte Carlo method and Logistic Regrassion analysis” *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol.16, EGU2014-804-2, 2014.
 27. Varouchakis E, N. Kourgialas, **G.P. Karatzas**, G. Giannakis, M. Lilli, and N.P. Nikolaidis, “Development of a statistical model for the determination of the probability of riverbank erosion in a Meditteranean river basin”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol.16, EGU2014-9787, 2014.
 28. Kavouri K., **G.P. Karatzas**, V. Plagnes, and E. Varouchakis, “A Combined Methodology of Vulnerability Mapping and Groundwater Flow Models for the Management of Karstic Aquifers”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol.15, EGU2013-8425, 2013.
 29. Kourgialas N.N., **G.P. Karatzas**, “A modeling system for the prediction of flood risk under changing land use practices”, International Conference on Advanced Methods for Flood Estimation in a Variable and Changing Environment, University of Thessaly, Volos, 24-26 Oct., 2012.
 30. Vozinaki, A.E.K., N.N. Kourgialas and **G.P. Karatzas**, “Flood Damage Assessment in the Koiliaris River Basin in Chania, Greece”, Implementing Flood Resilience, SMARTeST International Conference, Athens, Greece, p. 41, 2012.
 31. Tapoglou E., I.C. Trichakis, Z. Dokou, and **G.P. Karatzas**, “Groundwater Level Forecasting using and Artificial Neural Network Trained with Particle Swarm Optimization”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol.14, EGU2012-2405, 2012.
 32. Dettoraki M.D., Z. Dokou, E.A Varouchakis, and **G.P. Karatzas**, “Optimal Pumping Scenarios for the Estimation of the Saltwater Intrusion Front in the Coastal Aquifer of Tympaki, Crete-Greece”, *Geophysical Research Abstracts*, European Geophysical Union (EGU), Vol.14, EGU2012-3178, 2012.
 33. Varouchakis, EA, D.T. Hristopoulos, and **G.P. Karatzas**, “A Study of the Groundwater Level Spatial Variability in the Messara Valley of Crete”, *Geophysical Research Abstracts*, Vol. 11, EGU2009-9351-1, 2009.

34. Trichakis I, I.K. Nikolos and **G.P. Karatzas**, "Estimation of Well Hydraulic Heads in a Karstic Aquifer using a Neural Network Model", *Geophysical Research Abstracts*, Vol. 10, EGU2008-A-01886, 2008.
35. Papadopoulou M.P., and **G.P. Karatzas**, "Comparison of Two Different Modeling Approaches to Simulate Seawater Intrusion: Case study of Hersonissos coastal aquifer in Crete", *Geophysical Research Abstracts* Vol. 7, 10557, Vienna, Austria, 2005.
36. Papadopoulou M.P. and **G.P. Karatzas**, "Density- Dependent Groundwater Flow and Contaminant Transport - Simulation of a Coastal Aquifer in Hersonissos, Crete" *Geophysical Research Abstracts* – CD, Nice, France, 2004.
37. **Karatzas G.P.**, "Terms that affect the optimal remediation cost in groundwater management problems" *Geophysical Research Abstracts* – CD, Nice, France, 2003.
38. Papadopoulou M.P., G.F. Pinder and **G.P. Karatzas**, "An Outer Approximation Based Time-Varying Methodology", *Eos Trans. AGU*, Vol.83. No.47, Suppl. pp. F365, 2002.
39. **Karatzas G.P.**, "Groundwater Optimal Management Under Uncertainty", EGS, *Geophysical Research Abstracts* – CD, Nice, France, 2002.
40. Papadopoulou M.P., G.F. Pinder and **G.P. Karatzas**, "A Minimum Cost Groundwater Remediation Using a Dynamic Approach", *Eos Trans. AGU*, Vol. 80. No.45, Suppl. pp. F351, San Fransisco, 2001.
41. **Karatzas, G.P.**, G.F. Pinder and M.P. Papadopoulou "Optimal Groundwater Remediation Design with Variable Design Periods" *Sixth SIAM Conference on Mathematical and Computational Issues in the Geosciences*, Boulder, Colorado, USA, June, 2001.
42. **Karatzas G.P.**, "Applications of Operations Research Theory to Groundwater Management Problems", European Geophysical Society, *Geophysical Research Abstracts* – CD, Nice, France, 2001.
43. Papadopoulou M.P., G.F. Pinder and **G.P. Karatzas**, "Minimum Cost Groundwater Remediation Using a Multiple-Objective Strategy", *Eos Trans. AGU*, Vol. 80. No.45, Suppl. pp. F351, San Fransisco, December 2000.
44. Spiliotopoulos, A.A., **G.P. Karatzas** and G.F. Pinder, "Optimal Remediation Design Using a Combined Decomposition Outer Approximation Method", *Eos, Transactions, American Geophysical Union*, Vol.79, no. 45, p. F334, San Fransisco, December, 1998.
45. Ricciardi, K.L., G.F. Pinder and **G.P. Karatzas**, "A New Probability Density Function for Hydraulic Conductivity in Optimal Design", *Eos, Transactions, American Geophysical Union*, Vol.79, no. 45, p.F280, San Fransisco, December, 1998.

46. Spiliotopoulos, A.A., **G.P. Karatzas** and G.F. Pinder, "Optimal Groundwater Remediation Incorporating Pumping Wells and the Treatment Plant Design", *Eos, Transactions, American Geophysical Union*, Vol.79, no. 17, p. S119, Boston, May, 1998.
47. **Karatzas, G.P.**, "An Effective procedure to Incorporate Uncertainty into Subsurface Remediation Models Using a Multi-Scenario Approach" *Fourth SIAM (Society for Industrial and Applied Mathematics Conference on Mathematical and Computational Issues in the Geoscience*, p.58, Albuquerque, New Mexico, 1997.
48. Rizzo, D.M., and **G.P. Karatzas**, "Optimal Design of a Groundwater Remediation System at LLNL using Simulated Annealing and the Outer Approximation Method" *Fourth SIAM (Society for Industrial and Applied Mathematics} Conference on Mathematical and Computational Issues in the Geosciences*, p. 58, Albuquerque, New Mexico, 1997.
49. Criminisi, A., **G.P. Karatzas**, and T. Tucciarelli, "An Approach to Determine Optimal Locations for Transmissivity Measurements When Limited Aquifer Information Exists" *Eos, Transactions, American Geophysical Union*, Vol.77, no. 46, p. 278, San Francisco, California, 1996.
50. **Karatzas, G.P.**, and G.F. Pinder, "A Robust Optimization Approach for the Solution of Groundwater Management Problems", *Conference on Analysis to support public sector decision making, Supplement to Operations Research/Management Sciences Today*, Feb. Issue, p. 21, INFORMS Washington, D.C, 1996.
51. **Karatzas, G.P.**, and G.F.Pinder, "Cost Minimization of Groundwater Contamination Remediation at U.S. Air Force Plant 44", *Eos, Transactions, American Geophysical Union*, Vol.76, no. 46, p. 188, San Francisco, California, Dec. 11-15, 1995.
52. **Karatzas, G.P.**, and G.F.Pinder, "An Optimal Technique to Solve Groundwater Management Problems with a Non-Convex Feasible Domain. Theory and Applications", *Eos, Transactions, American Geophysical Union*, Vol.75, no. 44, p. 210, San Francisco, California, Dec. 5-9, 1994.
53. **Karatzas, G.P.**, and G.F.Pinder, "Groundwater Management Using a 3D Numerical Simulator and the Outer Approximation Method", *Eos, Transactions, American Geophysical Union*, Vol.74, no. 43, p. 313, San Francisco, California, 1993.
54. **Karatzas, G.P.**, and G.F. Pinder, "Alternative Groundwater Remediation Techniques Using Numerical Simulation and the Outer Approximation Method", *Eos, Transactions, American Geophysical Union*, Vol.73, no. 43, p. 240, San Francisco, California, 1992.
55. **Karatzas, G.P.**, and G.F.Pinder, "Optimal Utilization of Hydrodynamic Strategies for Ground Water Contaminant Remediation", *Eos, Transactions, American Geophysical Union*, Vol.72, no. 44, p. 200, San Francisco, California, 1991.

56. **Karatzas, G.P.**, and G.F.Pinder, "Groundwater Management Using the Outer Approximation Method for Global Optimization", *Eos, Transactions, American Geophysical Union*, Vol.72, no. 44, p. 201, San Francisco, California, 1991.

TECHNICAL REPORTS

1. **Karatzas, G.P.**, and G.F.Pinder, "Cost Minimization of Groundwater Contamination Remediation at U.S. Air Force Plant 44 Using Optimal Design Software", Research Center for Groundwater Remediation Design, *Report 95-19*, University of Vermont, 1995.
2. **Karatzas, G.P.**, S.A. Stothoff and G.F. Pinder, "Optimal Well Location Strategy for the Determination of Contaminant Plume Geometry", Research Center for Groundwater Remediation Design, *Report 92-1*, University of Vermont, 1992.
3. **Karatzas, G.P.**, and G.F. Pinder, "Optimal Well Location Strategy for the Determination of Contaminant Plume Geometry", *Report 101*, University of Vermont, 1990.
4. **Karatzas, G.P.**, and A.C. Demetracopoulos, "Production of Selected Contaminants from Municipal Solid Waste Landfills", *Final Report, prepared for New Jersey Department of Environmental Protection, Contract no. 1 C2W9309*, Department of Civil and Environmental Engineering, Rutgers University, 1987.
5. **Karatzas, G.P.**, and A.C. Demetracopoulos, "Chloride Release from Municipal Waste Landfills", *Final Report, prepared for the U.S. Geological Survey/Department of the Interior, 86-5540 USGS-Groundwater Contamination*, Department of Civil and Environmental Engineering, Rutgers University, 1986.

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