

CURRICULUM VITAE
Dr STEIAKAKIS EMMANUEL
Engineering Geologist

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Education

- 2003: Ph.D. in Engineering Geology (TUC)
1987: M.Sc in Engineering Geology (University of Leeds)
1985: Bachelor Degree in Geology (A.U.TH.)

Research Interests

- Engineering properties of soils and soft rocks
- Geohazard effects on constructions. Landslides.
- Mining geotechnics. Rehabilitation of surface mining excavations.
- Evaluation of Exploitable Groundwater Reserves. Water Management Projects.
- Groundwater Vulnerability and Protection Zones Delineation.

Working experience

- 1989 – 2008: Research Assistant at Applied Geology Laboratory, Technical University of Crete. Attended more than 15 projects on geotechnical investigation projects and exploitation of the underground water.
- 2004 - 2008: Teaching Assistant at Mineral Resources Engineering Department, TUC.
- 2008 – 2012: Lecturer, Mineral Resources Engineering Department, TUC.
- 2012 – 2018: Assistant Professor at Mineral Resources Engineering Department, TUC.
- 2018 – present: Associate Professor at Mineral Resources Engineering Department, TUC.

Teaching and Research Experience

Undergraduate courses:

- "Engineering Geology - Soil Mechanics". 5th semester (MRED303).
- *Hydrogeology and Water Management Projects*. 6th semester (MRED 312).
- *Geotechnical Site Investigation and Field tests*. 8th semester (MRED 800).
- *Drilling and Wells construction..* 8th semester (MRED 409)

Postgraduate courses:

- *Special topics in Applied Geology*. Program of Graduate Studies «Geotechnology and the Environment» (Γ&Π-209).
- *Engineering Geology and the Environment*. Program of Graduate Studies «Geotechnology and the Environment».
- *Clays for geotechnical and civil engineering applications*». Program of Graduate Studies «International Master in Advanced clay Science (IMACS). (Erasmus Mundus Masters Course).
- *Special Topics in Applied Geology*. Program of Graduate Studies «Erasmus+ program».

Reviewers for following journals

- Engineering Geology
- Environmental Engineering Science
- Canadian Geotechnical Journal
- Water
- Arabian journal of Geoscience
- Hydrology
- Mining, Metallurgy and Exploration

Research Projects (Selected)

- 3D geological structure modelling of Samaria Gorge, aiming at the investigation of hydrogeological conditions and water reservoir levels in the core of Samaria National Park (Lefka Ori), Western Crete. Financially supported by the Green Fund “Forest Protection and Upgrading 2019” under “Other Nationals. Green Fund”.
- Simulation of ground water flow and salination in Messara aquatic section - Subsystem EL 1300080. (Funded by: Geosynolo S.A.).
- Slope stability analyses of Achlada open pit mine. (Funded by: Achlada Lignite Mines S.A.).
- Risk Assessment of Final Pits during Flooding (RAFF project). Co-financed by the Research Fund for Coal and Steel (RFCS) under the Grant Agreement No-847299-RAFF.
- Geophysical based hydrogeological modelling to prevent pollution from sea water intrusion at coastal areas, in the frame of the BLACK SEA ERA.NET. Project number BSERANET-065. (Funded by: ESPA).
- Geo-characterization: Geotechnical characterization at selected sites on Crete island using geophysical and geotechnical methods. This research has been financed by Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) - Research Funding Program: THALES. Investing in knowledge society through the European Social Fund.
- Sustainable Aggregates Planning in South East Europe. SNAP. (Programme co-funded by the European Union).
- Hydrogeological investigation of Malia Aquifer and simulation of groundwater flow under different stresses of exploitation. (Funded by: HYDROAIOLIKH AIGAIQY S.A.).
- Hydrogeological investigation in construction sites of hydro-electric projects. (Funded by: Energy Technique S.A.).
- Sustainable Aggregates Resource Management (2009-2011). Sarma. (Programme co-funded by the European Union).
- Exploitation of Almiros River springs (Iraklion) (Funded by Deyah).
- Quality control and rational use of the water resources of Crete (043- STRIDE HELLAS). (Programme co-funded by the European Union).
- Development of exploitation methods of the underground water in West Crete. PENED 87ED53 (Programme co-funded by the European Union): GSRI, OADYK and TUC.
- Geotechnical investigation and slope stability analysis of "Tomeas 6" (Open Pit Lignite Mine in Ptolemais area) (Funded by PPC).

Special knowledge and skills

- Languages
Greek, English
- Computer/ Technical Skills
Computer aided investigation design and analysis: Geotechnical software-PLAXIS, SLOPE/W, SEEP/W, ROCKWORKS

Membership of Professional Bodies

- ✓ Fellow of the International Association for Engineering Geology and the Environment (IAEG).
- ✓ Member of the Association of Greek Geologists.
- ✓ Fellow of Geological Society of Greece.

Publications

Journal papers (Selected)

- Monopolis D., Stiakakis E., Agioutantis Z., Kavouridis K. (1999). Geotechnical Investigation at lignite mines. Mineral Resources Engineering, Vol 8, No 4, pp. 405 - 418.
- Stiakakis E., Kavouridis K., Monopolis D. (2009). Large scale failure of the external waste dump at the "South Field" lignite mine, Northern Greece. Engineering Geology 104 (2009) pp. 269-279.
- Stiakakis E., Agioutantis Z. (2010). A kinetic behavior model at a surface lignite mine, based on geotechnical investigation. Simulation Modelling Practice and Theory. Volume 18, Issue 5, May 2010, Pages 558–573. <http://dx.doi.org/10.1016/j.simpat.2009.12.011>.
- Stiakakis E., Gamvroudis C., Komodromos A. and Repouskou E. (2012). Hydraulic conductivity of compacted kaolin - sand specimens under high hydraulic gradients. EJ Geotechnical Engineering. Vol. 17 [2012], Bund. F, p.p. 783-799.
- Stiakakis E., Gamvroudis C., Alevizos G. (2012). Kozeny - Carman equation and hydraulic conductivity of compacted clayey soils. Geomaterials Vol. 2. No. 2, pp. 37-41.
- Voudouris K., Christodoulakos Y., Stiakakis E. and Angelakis A. (2013). Hydrogeological Characteristics of Hellenic Aqueducts-Like Qanats. Water 2013, 5, 1326-1345; doi: 10.3390/w5031326
- Stiakakis E., Vavadakis D. and Kritsotakis M. (2015). Simulation of springs discharge from a karstic aquifer (Crete, Greece), using limited data. Environ Earth Sci, Volume 74, Issue 5, pp 4303-4315. DOI: 10.1007/s12665-015-4496-2.
- Galetakis M., Piperidi C., Alevizos G., Stiakakis E. and Komnitsas K. (2016). Experimental investigation of the utilization of quarry dust for the production of microcement-based building elements by moulding casting. Construction & Building Materials 107, 247–254.
- Stiakakis, E., Vavadakis, D., Kritsotakis, M. and Anagnostopoulou C. (2016). Drought impacts on the fresh water potential of a karst aquifer in Crete, Greece. Environ Earth Sci 75(6), 507; <https://doi.org/10.1007/s12665-016-5509-5>.
- Kaklis, K., S. Mavrigiannakis, Z. Agioutantis, E.K. Stiakakis, F.K. Stathogianni (2017). Experimental investigation of the mechanical properties of Alfás stone. Journal of Fracture and Structural Integrity, 2017, 40, pp. 18-31, <http://dx.doi.org/10.3221/IGF-ESIS.40.02>

- Stiakakis, E., A. Lazaropoulos, A. Vafidis, Z. Agioutantis, G. Kritikakis (2017). Determination of shear wave velocities in sediment deposits. *International Journal of Geotechnical Engineering*, 2017; <http://dx.doi.org/10.1080/19386362.2017.1374494>.
- Stiakakis E. (2018). Evaluation of Exploitable Groundwater Reserves in Karst Terrain: A Case Study from Crete, Greece. *Geosciences* 2018, 8, 19; doi: 10.3390/geosciences8010019.
- Arvanitidis C., Steiakakis E., Agioutantis Z. (2019). Peak Friction Angle of Soils as a Function of Grain Size *Geotech Geol Eng* 37, 1155–1167. <https://doi.org/10.1007/s10706-018-0675-8>
- Galetakis, M.; Deligiorgis, V.; Steiakakis, E.; Raka, S.; Alheib, M. Risk Assessment Methodology for Pit Lakes Instabilities. *Mater. Proc.* 2021, 5, 92. <https://doi.org/10.3390/materproc2021005092>
- Manoutsoglou, E.; Lazos, I.; Steiakakis, E.; Vafeidis, A. (2022). The Geomorphological and Geological Structure of the Samaria Gorge, Crete, Greece—Geological Models Comprehensive Review and the Link with the Geomorphological Evolution. *Appl. Sci.* 2022, 12, 10670. <https://doi.org/10.3390/app122010670>
- Stiakakis, E.; Vavadakis, D.; Mourkakou, O. (2023). Groundwater Vulnerability and Delineation of Protection Zones in the Discharge Area of a Karstic Aquifer - Application in Agyia's Karst System (Crete, Greece). *Water* 2023, 15, 231. <https://doi.org/10.3390/w15020231>
- Komnitsas K., Vathi D., Steiakakis E., Bartzas G., Perdikatsis V. (2023). Insights on stabilization of marly soils through alkali activation with the use of slag and metakaolin as additives, Case Studies in Chemical and Environmental Engineering. doi: <https://doi.org/10.1016/j.cscee.2023.100400>.

Conference peer reviewed proceedings (Selected)

- Agioutantis Z., Kalogirou E., Stiakakis E. (2003). Comparison of slope stability factors obtained via Finite Element Methods and Limit Equilibrium Methods. *Proceedings of the International Workshop on Prediction and Simulation Methods in Geomechanics*. Technical Committee 24 of ISSMGE. Athens 2003, pp. 97 -100.
- Stiakakis E., Agioutantis Z. and Monopolis D. (2004). An investigation of the kinetic behavior of a deep excavation at an open pit mine using finite elements analysis. *Advances in Mineral Resources Management and Environmental Geotechnology*, Hania 2004, pp. 51 – 56.
- Stiakakis E. and Agioutantis Z. (2005). Stiffness and strength parameters of the Ptolemais calcareous marls. *International Workshop in Geoenvironment and Geotechnics*, September 2005, Milos Island, pp. 51-57.
- Stiakakis E., Kalogirou I., Agioutantis Z., Kourkoutis S. (2006). An investigation on the stability of a deep open pit lignite mine using finite elements analysis. *Advances in Mineral Resources Management and Environmental Geotechnology*, Hania 2006, pp. 431 - 437.
- Voudouris K., Georgiou P., Stiakakis E., Monopolis D. (2010). Comparative analysis of stochastic models for simulation of discharge and chloride concentration in Almyros karstic spring in Greece. *The 14th Annual Conference of the International Association for Mathematical Geosciences*, Budapest, Hungary, 29 August - 2 September 2010.
- Stiakakis E., Monopolis D., Vavadakis D., Manutsoglu E. (2011). Hydrogeological research in Trypali carbonate Unit (NW Crete). 9th International Hydrogeological Congress. 5-8 October 2011. N. Lambrakis et al. (Eds.), *Advances in the Research of Aquatic Environment*, Vol. 1. DOI 10.1007/978-3-642-19902-8, Springer-Verlag Berlin Heidelberg 2011. pp. 561-567.
- Stiakakis E., Monopolis D., Vavadakis D., Lambrakis N. (2011). Effective infiltration assessment in Kourtaliotis karstic basin (S. Crete). 9th International Hydrogeological Congress. 5-8 October 2011. N. Lambrakis et al. (Eds.), *Advances in the Research of Aquatic Environment*, Vol. 1. DOI 10.1007/978-3-642-19902-8, Springer-Verlag Berlin Heidelberg 2011, pp. 485-492.

- Agioutantis Z., Athousaki A., Steiakakis E. (2011). Effect on best practices by the lack of mineral policy. Aachen International Mining Symposia. Sustainable Development in the Minerals Industry from primary production to sustainable supply chains. 14-17 June, 2011 Aachen, Germany.
- Savvaidis A., Margaritis B., Theodoulidis N., Lekidis V., Karakostas Ch., Mangriotis M-D., Kalogeras I., Koutrakis S., Vafidis A., Steiakakis M., Agioutantis Z., Rozos D., Loupasakis C., Rondoyanni Th., Tsangaratos P., Dikmen U., Papadopoulos N., Sarris A., Soupios P., Kokkinou E., Papadopoulos I., Kouli M., and Vallianatos F. (2013). Geo-characterization according to recent advances of Eurocode (EC8). Proceedings of First International Conference on Remote Sensing and Geoinformation of Environment (RSCy2013). (*Best Paper Award*).
- Stiakakis E., Vafidis A., Manoutsoglou E., and Vavadakis D. (2013). Influence of geological and geotechnical conditions to design of a water reservoir in karst area. Bulletin of the Geological Society of Greece, vol. XLVII 2013. Proceedings of the 13th International Congress, Chania, Sept. 2013.
- Panagopoulos G., Giannakakos E., Manoutsoglou E., Steiakakis E., Soupios P. & Vafidis A. Definition of inferred faults using 3d geological modeling techniques: a case study in Tympaki basin in Crete, Greece. Bulletin of the Geological Society of Greece, vol. XLVII 2013. Proceedings of the 13th International Congress, Chania, Sept. 2013.
- Stiakakis E., Vavadakis D. and Lazaropoulos A. (2014). Geotechnical investigation related to the potential use of weathered phyllite formation as a natural landfill liner (Crete, Greece). Proceedings of the 12th International Conference on Protection and Restoration of the Environment June 29 – July 3, 2014, Skiathos island, Greece.
- Stiakakis E., Manoutsoglou E., Agioutantis, Z., Galetakis M. and Vavadakis D. (2014). Karst aquifers and quarrying: A case study at the Platyvola-Zou area in eastern Crete. 10th International Hydrogeological Congress of Greece. Thessaloniki, 2014.
- Stiakakis E., Vavadakis D., Kritsotakis M. and Voudouris K. (2014). Hydrogeological investigation of Malia aquifer and simulation of groundwater flow under different stresses of exploitation. 10th International Hydrogeological Congress of Greece. Thessaloniki, 2014.
- Galetakis M., Alevizos G., Stiakakis E., Leventakis K., Vasiliou A., Piperidi C. and Stavroulakis N. (2014). Characterization and preliminary evaluation of quarry dust for its utilization in construction applications. 4th International Conference on Industrial and Hazardous Waste Management. September 2nd-5th 2014.
- Vafidis A., Soupios P., Kritikakis G., Andronikidis N., Economou N., Hamdan H., Manoutsoglou E., Steiakakis E., Candansayar E., Schafmeister M. T., Kritsotakis M. (2014). Salt water intrusion imaging at Tybaki (Greece) using geophysical methods. Near Surface Geoscience 2014 – 20th European Meeting of Environmental and Engineering Geophysics. Athens, 14-18 September 2014.
- Kaklis K., Maurigiannakis S., Agioutantis Z., Stathogianni F. and Steiakakis E. (2015). Experimental investigation of the size effect on the mechanical properties on two natural building stones. 8th GRACM International Congress on Computational Mechanics. Volos, 12 July – 15 July 2015.
- Loupasakis C., Tsangaratos P., Rozos D., Rondoyanni Th., Vafidis A., Kritikakis G., Steiakakis M., Agioutantis Z., Savvaidis A., Soupios P., Papadopoulos I., Papadopoulos N., Sarris A., Mangriotis M-D. and Dikmen U. (2015). Cross validation of geotechnical and geophysical site characterization methods. Near surface data from selected accelerometric stations in Crete (Greece). Third International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2015). Proc. of SPIE Vol. 9535 95351T-1 doi: 10.1117/12.2192673.
- Loupasakis C., Tsangaratos P., Rozos D., Vafidis A., Steiakakis M., Savvaidis A., Soupios P., Papadopoulos I., Papadopoulos N., Sarris A., Mangriotis M.-D., Dikmen U. (2015). Site characterization of selected accelerometric stations' sites in Crete island (Greece) founded on rock and soft rock formations. 11th EURO-conference on Rock Physics and Geomechanics 2015. September 6 - 11, 2015 University of Cumbria Conference Centre, Ambleside, Lake District, UK.

- Steiakakis E., Thalassinakis J., Agioutantis Z., Galetakis M. (2016). Failure process of the external waste dump of a Lignite mine using finite element method (FEM). 13th International Symposium Continuous Surface Mining ISCSM 2016, Belgrade, Serbia, 11-14 September 2016.
- Steiakakis E., Vavadakis D. and Kritsotakis M. (2017). Agia's springs regulation: Preliminary design and expected results. 11th International Hydrogeological Congress of Greece. 4-6 October 2017, Athens..
- Steiakakis E., Syllignakis G, Galetakis M, Vavadakis D (2021). Water level variation and slope stability analysis in a pit lake. Proceedings of 3rd European Regional Conference of IAEG. Athens. Greece/ 6-10 October 2021
- Galetakis M., Vasiliou A., Steiakakis E., Soutana A. and Deligiorgis V. (2021). Applications of fuzzy inference systems in mineral industry-an overview. MATEC Web of Conferences 342, 05006 (2021) <https://doi.org/10.1051/mateconf/202134205006>.
- Steiakakis E., Vavadakis D., Kritsotakis M., Pavlidou S. (2022). Delineation of protection zones in Agyia's karst aquifer (Chania, Crete). 12th International Hydrogeological Conference Greece and Cyprus. 20-22 March, 2022 Nicosia, Cyprus.

Chania, June 2023