

Professor Konstantinos Modis (List of publications)

BOOKS / BOOK CHAPTERS

B1. Κ. Μόδης, Κ. Παναγόπουλος: λήμμα “Γεωστατιστική”, Εκπαιδευτική Ελληνική Εγκυκλοπαίδεια- τόμος Τεχνολογία και Πληροφορική, Εκδοτική Αθηνών, Αθήνα 1994, σελ 108.

B2. Κ. Μόδης, Σταματάκη, Σ., “Εισαγωγή στη Μεταλλευτική Έρευνα”, Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών, Αθήνα, ISBN: 978-960-603-291-2, 2016.

B3. K. Modis, H-L. Yu, G. Christakos, R. Stewart and G. Papantonopoulos, “BME- Generated Temperature Maps of the Nea Kessani Geothermal Field” (Chapter 1) στο βιβλίο “Geothermal Energy Research Trends” (H. I. Ueckermann ed.) Nova Science Publishers Inc, ISBN: 978-1-60021-683-1, pp. 3-17, 2008

B4. K. Modis and K. Komnitsas, “How Many Data Are Enough? Estimation of an Optimum Sampling Density in Mining and Environmental Applications”, (Chapter 7) στο βιβλίο “Mine Drainage and Related Problems” (B. C. Robinson ed.) Nova Science Publishers Inc, ISBN: 978-1-60741-285-4, pp. 1-12, 2010

B5. Modis K. "Bayes's Theorem". In: Daya Sagar B., Cheng Q., McKinley J., Agterberg F. (eds) Encyclopedia of Mathematical Geosciences. Encyclopedia of Earth Sciences Series. Springer, Cham. https://doi.org/10.1007/978-3-030-26050-7_440-1, 2021

B6. Μόδης, Κ., Βαλάκας, Γ., & Σίδερη, Δ. Γεωστατιστική και Υπολογισμός Μεταλλευτικών Αποθεμάτων. Κάλλιπος, Ανοικτές Ακαδημαϊκές Εκδόσεις. ISBN: 978-618-5726-77-5, 2023.

B7. Modis, K. and G. Valakas: "Introduction to Mining Geostatistics: Intuitive Applications with Excel and R". Elsevier, ISBN: 9780443314803. <https://shop.elsevier.com/books/introduction-to-mining-geostatistics/modis/978-0-443-31480-3#full-description>. 2025

PUBLICATIONS

a) In Scientific Journals

Π1. Κ. Μόδης: "Ένα πακέτο προγραμμάτων μικροϋπολογιστή για την γεωστατιστική μελέτη και οικονομική ανάλυση κοιτάσματος", Μεταλλειολογικά και Μεταλλουργικά Χρονικά, 61, Ιούνιος 1986, σελ. 61 - 64

Π2. Κ. Μόδης, Κ. Παναγόπουλος: "The role of conditionally positive definite functions in the development of flexible structural models in Geostatistics", Ορυκτός Πλούτος, Νοέμβριος - Δεκέμβριος 1992, σελ 21.

Π3. Κ. Μόδης, Κ. Παναγόπουλος: "Δομική ανάλυση γεωλογικών σχηματισμών σε περιβάλλον τεχνητού γραφείου. Εφαρμογή σε κοιτάσματα του ελληνικού χώρου", υποβλήθηκε στην Ακαδημία Αθηνών και βραβεύθηκε με το Γεωλογικό Βραβείο Κωνσταντίνου Κτενά, Αθήνα 1992.

Π4. Κ. Μόδης, Κ. Παναγόπουλος: "Δομές δεδομένων για την εφαρμογή Γεωστατιστικής σε περιβάλλον CAD", Ορυκτός Πλούτος, Μάϊος- Ιούνιος 1993, σελ 19.

Π5. Κ. Modis, K. Adam, K. Panagopoulos, A. Kontopoulos: "Development and validation of a geostatistical model for prediction of acid mine drainage in underground sulphide mines", trans IMM section A, Vol 107, pp. 102- 107, 1998.

Π6. K. Modis, D. Kaliampakos, D. Labrakis: "A new approach to surface roughness characterization using geostatistics", Canadian Metallurgical Quarterly, Vol 41, pp. 243- 248, 2002.

Π7. Serre M.L., A. Kolovos, G. Christakos, K. Modis: "An application of the holistochastic human exposure methodology to naturally occurring Arsenic in Bangladesh drinking water", Risk Analysis, Vol 23, No 3, pp. 515- 528, 2003.

Π8. Papantonopoulos G., K. Modis, "A BME solution of the stochastic three-dimensional Laplace equation representing a geothermal field subject to site-specific information", Stochastic Environmental Research and Risk Assessment, Springer, Vol 20, pp. 23- 32, 2005.

Π9. K. Modis, K. Papaodysseus: "Theoretical Estimation of the Critical Sampling Size for Homogeneous Ore Bodies with Small Nugget Effect", Mathematical Geology, Springer, Vol 38, (8), pp. 489- 501, 2006.

Π10. Κ. Μόδης, Γ. Παπαντωνόπουλος: "Παρεμβολή ελαχίστων τετραγώνων, kriging, σύγχρονη γεωστατιστική: διαφορετικές όψεις της ίδιας φιλοσοφίας;", Μεταλλειολογικά και Μεταλλουργικά Χρονικά, σελ. 61- 74, Ιανουάριος 2006

Π11. K. Komnitsas, K. Modis: "Soil risk assessment of As and Zn contamination in a coal mining region using geostatistics", Science of the Total Environment, Elsevier, Vol 371, pp. 190- 196, 2006.

Π12. K. Modis, G. Papantonopoulos, K. Komnitsas, K. Papaodysseus: "Mapping optimization based on sampling size in earth related and environmental phenomena", Stochastic Environmental Research and Risk Assessment, Springer, Vol 22 (1), pp. 83- 93, 2008.

Π13. H- L. Yu, G. Christakos, K. Modis, G. Papantonopoulos: "A composite solution method for physical equations and its application in the Nea Kessani geothermal field (Greece)", Journal of Geophysical Research, Vol 112, B06104, doi: 10.1029/2006JB004900, 11 p., 2007.

Π14. Κ. Μόδης: "Καταπολέμηση του θορύβου (με θόρυβο) κατά την χαρτογράφηση φυσικών μεταβλητών στις γεωεπιστήμες", Μεταλλειολογικά και Μεταλλουργικά Χρονικά, 17 (1-2), σελ. 95- 107, 2007

Π15. Κ. Modis, K. Komnitsas: "Optimum sampling density for the prediction of acid mine drainage in an underground sulphide mine", Mine Water and the Environment, Springer, Vol 26, pp. 237- 242, 2007

Π16. Κ. Modis, K. Komnitsas: "Dimensionality of heavy metal distribution in waste disposal sites using nonlinear dynamics", Journal of Hazardous Materials, Elsevier, Vol. 156, pp. 285- 291, 2008

Π17. Κ. Modis, S. Stavrou, N. Terezopoulos, D. Vattis: "Geostatistics versus inverse distance squares in ore reserves estimation: comparative case study in copper ore body in Cyprus", Mining Technology, Institute of Materials Minerals and Mining, Maney Publishing, Vol. 117 (1), pp. 48- 52, 2008

Π18. Κ. Komnitsas, K. Modis: "Geostatistical risk estimation at waste disposal sites in the presence of hot spots", Journal of Hazardous Materials, Elsevier, Vol. 164, pp. 1185- 1190, 2009

Π19. Κ. Modis, K. Vatalis, G. Papantonopoulos, Ch. Sachanidis: "Uncertainty management of a hydrogeological data set in a Greek lignite basin, using BME", Stochastic Environmental Research and Risk Assessment, Springer, Vol. 24, pp. 47-56, 2010

Π20. A. Kolovos, J.M. Angulo, K. Modis, G. Papantonopoulos, J.-F. Wang and G. Christakos: "Model- driven development of covariances for spatiotemporal environmental health

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Π21. K. Modis, K. Vatalis, Ch. Sachanidis: "Spatiotemporal risk assessment of soil pollution in a lignite mining region, using BME approach". International Journal of Coal Geology, Elsevier, 112, pp. 173- 179, 2013

Π22. K. Modis, D. Sideri: "Geostatistical Simulation of Hydrofacies Heterogeneity of the West Thessaly Aquifer Systems in Greece". Natural Resources Research, Springer, Vol. 22 (2), pp. 123-138, 2013

Π23. K. Modis, K. Vatalis: "Assessing the Risk of Soil Pollution around an Industrialized Mining Region Using a Geostatistical Approach", Soil and Sediment Contamination, Taylor & Francis, 23, pp 63–75, 2014

Π24. D. Sideri, K. Modis, D. Rozos: "Multivariate geostatistical modelling of geotechnical characteristics of the alluvial deposits in West Thessaly, Greece", Bulletin of Engineering Geology and the Environment, Springer, Vol. 73 (3), pp 709-722, 2014

Π25. K. Modis, D. Sideri: "Spatiotemporal estimation of land subsidence and ground water level decline in West Thessaly basin, Greece", Natural Hazards, Springer, Vol. 76 (2), pp 939-954, 2015

Π26. K. Komnitsas, K. Modis, M. Doula, V. Kavvadias, D. Sideri & D. Zaharaki: "Geostatistical estimation of risk for soil and water in the vicinity of olive mill wastewater disposal sites", Desalination and Water Treatment, 57 (7), pp 2982-2995, 2016

Π27. D. Sims, A. Hudson, J. Keller, K. Vatalis, K. Modis: "Trace Element Scavenging in Dry Wash Surficial Sediments in an Arid Region of Southern Nevada, USA", Mine Water and the Environment, 36 (1), pp 124-132, 2015

Π28. Valakas, G. and K. Modis: “Using informative priors in facies inversion: The case of C-ISR method”, *Advances in Water Resources*, Vol. 94, pp 23–30, 2016

Π29. Athanassas, C., K. Modis, M. Alçiçek, K. Theodorakopoulou: “Contouring the Cataclysm: A Geographical Analysis of the Effects of the Minoan Eruption of the Santorini Volcano”, *Environmental Archaeology*, DOI: 10.1080/14614103.2017.1288885, 2017

Π30. Seferli, S., K. Modis and K. Adam: “Interpretation of groundwater hydrographs in the West Thessaly basin, Greece, using principal component analysis”, *Environmental Earth Sciences*, 78:257, 2019

Π31. Sideri, D., C. Roumpos, F. Pavloudakis, N. Paraskevis and K. Modis: “Multivariate Geostatistical Modeling of Lower Calorific Value in Multi-Seam Coal Deposits”, *Applied Sciences*, 10 (18): 6208, 2020

Π32. Modis, K., Sideri, D., Roumpos, C., Binet, H., Pavloudakis, F., Paraskevis, N.: *Geostatistical Modeling of Overburden Lithofacies to Optimize Continuous Mining in the Ptolemais Lignite Mines, Greece. Minerals*, 12, 1109, 2022.

Π33. Valakas, G., Modis, K., *GeoSim: An R-package for plurigaussian simulation and Co-simulation between categorical and continuous variables*, *Applied Computing and Geosciences*, 19, 100130, 2023

Π34. Valakas, G., Seferli, M., Modis, K.: *Co-simulation of hydrofacies and piezometric data in the West Thessaly basin, Greece: A geostatistical application using the GeoSim R package*, *Applied Computing and Geosciences*, 20, 100139, 2023

b) In peer-reviewed international conference proceedings

Σ1. J. Mastoris, E. Topuz, M. Karmis, P. Schilizzi, K. Modis: "An Application of geostatistical modeling and 3-D optimization of the final pit limits for a lignite deposit", third international symposium on mine planning and equipment selection, Istanbul, Turkiye, October 1994

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Σ3. Modis K., A. Sofianos and A. Kolovos: "Bayesian maximum entropy solution of the stochastic axisymmetric displacements problem around an excavation, in light of site specific information", in "Proceedings of 1st International Conference on Advances in Mineral Resources Management and Environmental Geotechnology", edited by Z. Agioutandis and K. Komnitsas, Hania, Greece, pp. 145- 150, 2004.

Σ4. Modis K., G. Papantonopoulos and Ch. Roumpos: "Determination of the optimum sampling density for a multi-seam lignite deposit", in "Proceedings of 2nd International Conference on Advances in Mineral Resources Management and Environmental Geotechnology", edited by Z. Agioutandis and K. Komnitsas, Hania, Greece; pp. 163-175, 2006.

Σ5. Modis K., A. Kolovos and K. Vatalis: "An application of spatiotemporal BME analysis to the estimation of rainfall in north-western Greece", in StatGIS 09 "GeoInformatics for Environmental Surveillance", Milos, Greece, 2009.

Σ6. Modis K., G. Papantonopoulos, K. Vatalis and Ch. Sachanidis: "Formulating a hydrogeological data set to fit the random field model", in "Proceedings of 3rd International Conference on Advances in Mineral Resources Management and Environmental Geotechnology", edited by Z. Agioutandis and K. Komnitsas, Athens, Greece; pp. 297-301, 2009.

Σ7. Modis K., S. Stavrou, A. Christoforidis: "How Many Samples are Enough? Theoretical Determination of the Critical Sampling Density for a Greek Clay Quarry", in "Proceedings of 34th International Conference on Applications of Computers and Operations Research in the Mineral Industry- APCOM 09", organized by the Canadian Institute of Mining, Metallurgy and Petroleum, Vancouver, Canada; pp. 3-10, 2009.

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Σ9. Modis K., K. Vatalis: "Determination of the optimum spatiotemporal sampling density to map soil pollution in an intensive mining area", in "Proceedings of the 3rd International CEMEPE & SECOTOX Conference", edited by A. Kungolos, A. Karagiannidis, K. Aravossis, P. Samaras and K.W. Schramm, Skiathos, ISBN 978-960-6865-43-5; pp. 1063- 1068, 2011.

Σ10. Modis K., M. Menegaki: "Sampling Density Optimization for a Nickelferous Deposit in Greece", in "proceedings of the International Symposium on Mine Planning & Equipment Selection -MPES 2011", Almaty, Kazakhstan, pp. 223 – 232, 2011.

Σ11. Vatalis, K., K. Modis, F. Pavloudakis and Ch. Sachanidis: "Environmental associations of heavy and trace elements concentrations in Sarigiol ground water coal basin area", in "proceedings of the 9th International Hydrogeological Congress, Kalavrita, pp. 401 – 408, 2011.

Σ12. Menegaki, M., K. Modis: "Validation of a sampling grid density in a limestone deposit in Cyprus", in "proceedings of the International Symposium on Mine Planning & Equipment Selection -MPES 2012", New Delhi, India, pp. 438 – 446, 2012.

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Σ15. Modis, K., K. Adam, D. Pallas and G. Panagiotou: "Design Optimization for the Environmental Monitoring of ground waters in a Lignite mining area in Greece", in "proceedings of the International Symposium on Mine Planning & Equipment Selection -MPES 2016", Istanbul, Turkey, 2016.

Σ16. Seferli, S., D. Sideri, K. Modis: " Can geostatistical predictions be trusted for groundwater level fluctuations? An addendum to published results with discussion", 11th International Hydrogeological Congress of Greece, Vol. (2), pp. 465-472, Athens, Greece, 2017.

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Σ18. Valakas, G. and Modis, K. "Co-simulation of Geological Facies and Ore Grades in the Molaoi Polymetallic Orebody, Greece: A Geostatistical Application Using Advanced Modeling

Techniques." In Proceedings of the 14th International Conference on Geostatistics for Environmental Applications (geoENV2024), Chania, Crete, 2024.

c) In abstract proceedings of international conferences

P1. Modis K., K. Vatalis, G. Papantonopoulos and Ch. Sachanidis: "Uncertainty management of a hydrogeological data set in a lignite basin, using BME", EGU 2008 General Assembly, Vienna, 2008

P2. Modis K.: "How many samples are enough? A theoretical determination of optimal sampling density in environmental/ health applications", EGU 2008 General Assembly, Vienna, 2008

d) Other scholarly works

Δ1. Κ. Μόδης: "Πτολεμαΐδα: Monte Carlo προσομοίωση υπερκειμένων", Τομέας Μεταλλευτικής, Τμήμα Μηχανικών Μεταλλείων - Μεταλλουργών Μηχανικών, ΕΜΠ, Μεταλλευτική Άσκηση, Αθήνα 1985.

Δ2. Κ. Μόδης: "Υπολογισμός αποθεμάτων του κοιτάσματος Μολάων με γεωστατιστική", Τεχνική Έκθεση 100, ΜΕΤΒΑ ΑΕ, Αθήνα 1986.

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Δ4. Κ. Μόδης, Κ. Παναγόπουλος, Α. Παπαϊωάννου: "Διερεύνηση γραμμικών εκτιμητών μεταλλικής περιεκτικότητας- εφαρμογή μέσω ολοκληρωμένου πακέτου προγραμμάτων Η/Υ", Τελική Έκθεση ερευνητικού προγράμματος, ΕΛΕΒΜΕ ΑΕ, Αθήνα 1991.

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