

CURRICULUM VITAE

of

Dr. Economou Nikos

Table of Contents

1. Personal data.....	3
2. Education.....	3
3. Honors	3
4. Scientific community services	4
4A. Editorial work.....	4
4B. Conferences	5
5. Professional and scientific experience.....	5
5A. Academic experience.....	5
5B. On – going R&D activities (33)	5
6. Teaching experience.....	8
7. Academic work.....	9
7A. Thesis (3)	9
7B. Published work – Chapters in books (2).....	10
7C. Published work – Articles (27)	10
7D. Published work – Extended abstracts – Presentations (47)	12
7DA. Extended abstracts (37).....	12
7DB. Invited presentations with articles (4).....	16
7DC. Invited presentations without articles (3)	16
7DD. Presentations at conferences (abstracts) (3)	17
7E. Courses Creation and Development	17
7D. Citations	19

1. Personal data

Name: Economou Nikos (ID name: Oikonomou Nikolaos)
Date of birth: 10th July 1971
Place of birth: Thessaloniki, Greece.
Nationality: Greek
Army duties fulfilled: 1997-1998 Greek Navy
Marital status: Married to Trinta, we have 2 sons: Themistoklis and Thomas

2. Education

1998 B. Sc. Mineral Resources Engineering Department (MRED) Technical University of Crete (TUC), Greece. Title: “Geophysical research at the archaeological site of Itanos, Lasithi, Crete, Greece”.
2002 M.Sc., MRED, TUC, Greece. Title: “Presentation and interpretation of geophysical data using GIS”
2010 Doctor of Philosophy (Ph.D) in Applied Geophysics, MRED, TUC, Greece. Title: “Development of GPR data processing methods using S-transform”.

3. Honors

- 1999 Scholarship - Technical University of Crete, Greece, for M. Sc.
- 10/2021 Best Presentation Award at the 11th Balkan Geophysical Society Congress. Publication 7DA33.
- I have received **invitation** for
 - A) Presentation
 - 1) 2002- For the 11th meeting of Greek GIS users, ArcInfo-ArcView, Marathon Data Systems, Athens, November, 2002. Publication 7DC1.
 - 2) 2007- Two presentations in the conference “Liktos Euktimeni”, 9-11 November, Kastelli Pediados, Crete. Publications 7DB1, 7DB2.
 - 3) 2013 to 2015- Four (4) presentations at TU1208 Cost Action meetings at EGU and/or workshops, Publications 7DB3, 7DB4, 7DC2, 7DC3 respectively.
 - B) Submission of article at scientific journal:
 - 1) 2009 – From journal Near Surface Geophysics, after presentation to the GSG2009 conference. Publications 7C7, 7DA13.
 - 2) 2010-From Journal of Applied Geophysics, after the presentation at GPR2010. Publications 7C8, 7DA14.
 - 3) 2011-From journal NDT International, after the presentation at EGU2011. Publications 7C9, 7DD1.
 - 4) 2014-From journal First Break, at special issue regarding geophysics in Greece. Publication 7C14.
 - 5) 2018-From Journal of Applied Sciences, after the presentation at IEEE2018. Publication 7DA30.
 - 6) 2018-From journal Geosciences, in order to contribute to the special issue “Advances in Ground Penetrating Radar Research”. Publication 7C20.

- 7) 2021 – From journal “Applied Sciences”, in order to contribute to the special issue "Applications of Ground-Penetrating Radar to Geomorphology, Near-Surface Geology and Geoarchaeology". Publication 7C22.
 - 8) 2022 – From journal “The leading Edge”, in order to contribute to the special section "Engineering Geophysics". Publication 7C20.
 - 9) 2022 – From journal “Geosciences”, in order to contribute to the special issue “GPR velocities”. Publication 7C26.
- C) Authorship at sections in books
- 1) 2015-Section relevant to advanced GPR signal processing methods - Springer.
 - 2) 2017-Section in book relevant with the GPR activities in Greece-Arachne, Open access.
- D) Serving as guest Editor for the journals
- 2017-Signal Processing
 - 2021- Geophysics
 - 2022 –Geosciences
- (more details below at scientific community services section)
- E) 2020 – 2022 Serve as Topic Editor for the journal “Geosciences”.
- 2013-2017 Leader (with Prof. F. Benedetto from University of Roma) of the project “Development of advanced GPR data processing techniques”, TUD COST Action TU1208.
 - 9/2018 Elected, after open call, for teaching as a visiting professor the course “Environmental Geophysics” at Technological Institute of Crete, Greece, for the summer semester 2019.
 - 2/2021 Elected, after open call, for teaching as a visiting professor the course “Applied Geophysics” at University of Western Macedonia, Greece, Mineral Resources Engineering Dpt, for the summer semester 2021.

4. Scientific community services

4A. Editorial work

- 2011-today: I have reviewed articles for the following scientific journals *Geophysics, Signal Processing, Journal of Applied Geophysics, Nondestructive Testing and Evaluation International, Journal of Balkan Geophysical Society, Journal of Geophysics and Engineering, Environmental Earth Sciences, Construction & Building Materials, Research in Nondestructive Evaluation, Transactions on Geoscience and Remote Sensing, Pure and Applied Geophysics, Journal of King Saud University.*
- 2014: *Expert reviewer at 20th Near Surface Geosciences Conference.*
- 2017: *Expert reviewer at 9th International Workshop on Advanced Ground Penetrating Radar - IWAGPR2017.*
- 2017: *Expert reviewer at BCRRA 2017 Tenth International Conference on the Bearing Capacity of Roads, Railways and Airfield.*
- 2017: Chief-Guest-Editor, Special Issue in the journal “Signal Processing” by Elsevier, “Special issue - Ground penetrating radar signal processing”, Vol. 132.

- 2021: Guest-editor, special issue in the journal "Geophysics", by SEG, "GPR data imaging and interpretation", on-going for 2021-2022, with M. Bano, J. Bradford, E. Slob, A. Giannopoulos, G. Tsoflias, A. Klotzsche.
- 2022: Guest-Editor, Special issue in the journal "Geosciences", by MDPI, "Ground penetrating radar velocities", with M. Bano and Hai Liu.
- 2020-2022: Topic Editor for the journal "Geosciences".

4B. Conferences

2013 – Organizing committee of the 13th International Conference of the Greek Geological Society.

2014 – Chair for the GPR and Electromagnetics session at the 20th Near Surface Geosciences Conference.

2015 – Organizing committee of the 8th Conference of Balkan Geophysical Society.

2017-Scientific committee of the 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA 2017).

2021-Scientific committee of the 11th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA 2021).

5. Professional and scientific experience

5A. Academic experience

- 9/1998 to 1/2003: Researcher and Academic Associate at the Applied Geophysics Lab. of the Mineral Resources Engineering Department, under six month's sequential contracts.
- 8/2001: Visiting researcher at the University of Bochum, Germany, for seismological data processing, Professor Hans-Peter Harjes.
- 2/2003 to 7/2014: At Technical University of Crete as "Specific Technical and Laboratory Personnel" (STLP) for the Applied Geophysics Lab.
- 9/2013 to 12/2014: External advisor for Arab Center for Engineering Studies (ACES), Jeddah, Saudi Arabia.
- 2/2021-9/2021: At University of Western Macedonia, Greece, Mineral Resources Engineering Dpt. as a Visiting Professor in Applied Geophysics.
- 1/2022-1/2023: At Sultan Qaboos University as Associate Professor in Exploration, Engineering and Environmental Geophysics.
- 8/2014-today: At Technical University of Crete as "Specific Teaching and Laboratory Personnel" (STLP) in Applied Geophysics.

5B. On – going R&D activities (33)

PI: Principal Investigator (coordinator)

Participation in the projects below mainly includes partial involvement in initial proposal, geophysical measurements and preparation of the corresponding technical reports or deliverables

1. Geophysical survey at the ancient city of Itanos, Lasithi, Crete, Greece (1995-2001). Funded by the French Archaeological School of Athens. PI: A.Vafidis.
2. Passive and active seismics in Western and Central Crete, Greece (1996 – 2006). Funded by the German Science Foundation. PI: H-P Harjes.
3. Geophysical survey for antiquities at Alexandria, Egypt (6/2000). Resistivity mapping, sounding and tomography at the Old Jewish Cemetery of

- Alexandria, Egypt. Funded by the Foundation of Research and Technology, Greece (6/2000). PI: A. Sarris.
4. Geoelectrical prospecting at N. Marmara, Chalkidiki for ground water research (2001). Funded by GEOTEK. PI: A. Vafidis.
 5. Geophysical survey for hydrogeological purposes at Kalimnos island (2001). Funded by the Kalimnos Municipality. PI: G. Tsokas.
 6. Geological and geophysical survey of Vasilies village (2002). Funded by Heraklion Municipality PI: D. Monopolis.
 7. Artificial lakes in West Crete: Geophysical survey at Kountoura. Funded by the Pelekanos Municipality (2003-2004). PI: A. Vafidis.
 8. Geophysical research for the delineation of the ground water table at Herakleion, Crete (2003). Funded by EPAN (SMILES). PI: A. Vafidis.
 9. Hybrid Geophysical technology for the Evaluation of Insidious contaminated Areas (HYGEIA) (2001-2005). Funded by the European Union. PI: A. Vafidis.
 10. Monitoring of soil and groundwater pollution from petroleum products using modern geophysical methods (2004–2006). Funded by the General Secretariat of Research and Development, Greece. PI: A. Vafidis.
 11. Groundwater management and protection from saline water intrusion (2004 – 2005). Funded by the General Secretariat of Research and Development, Greece. PI: A. Vafidis.
 12. Hybrid geophysical survey for imaging the saline water front at Stilos, Chania Prefecture, Greece (2005-2006). Funded by the Ministry of Education. PI: A. Vafidis.
 13. “Geophysical survey on the E65 national road, Greece”. Applied Geophysics Lab and ISTRIA Ltd. (7/3/2006-6/4/2006). PI: A. Vafidis.
 14. Geophysical survey on Ionian national road, Greece”. Applied Geophysics Lab and ISTRIA Ltd. (2/7/2007-31/8/2007). PI: A. Vafidis.
 15. “Geophysical survey on the E55 national road Greece”. Applied Geophysics Lab and ISTRIA Ltd. (19/5/2008-18/12/2008). PI: A. Vafidis.
 16. Geophysical survey at Ofrynion Kavala, Greece, for the detection of saline-fresh water interface. Funded by GEOTEK. PI: A. Vafidis.
 17. “Geophysical survey at coastal areas on Crete and nearby small islands”,. LIFE+ Nature project “Actions for the conservation of coastal dunes with Juniperus spp. in Crete and the South Aegean (Greece)”, known as JUNICOAST, LIFE07NAT/GR/000296. Applied Geophysics Lab. Is a subcontractor of MAICH (1/5/2009-30/6/2010). PI: A. Vafidis.
 18. Geophysical survey at the Loutsia Remeri quarry”. Applied Geophysics Lab. and Titan AE (25/1/2010-24/4/2010). PI: A. Vafidis
 19. “Geophysical survey at the Kelefina dum, Sparti, Greece”, Applied Geophysics Lab and ISTRIA Ltd. (1/9/2010-30/12/2010). PI: A. Vafidis.
 20. “Geophysical survey at Mallia, Crete, Greece”, Applied Geophysics Lab and ISTRIA Ltd. (1/7/2011-30/10/2011). PI: A. Vafidis.
 21. “Geotechnical evaluation of carbonates at the Electrical Company of Greece mines”, Geomechanics Lab and Applied Geophysics Lab of TUC (7/2012-3/2013). PI: Z. Agioutantis.
 22. “geophysiCaL basEd hydrogeologicAL modeling to pRevent pollution from sea WATER intrusion at coastal areas- CLEARWATER”, BLACK SEA

- ERA.NET. Technical University of Crete, Chania, Ankara University, Ankara and Greifswald University, Greifswald (1/2/2012-30/1/2015). PI: A. Vafidis.
23. THALIS, Hellenic Republic, Ministry of Education and Religious Affairs, funded by ESPA. Acronym: GEOCHARACTERIZATION. Cooperation of TUC, NTUA, ITSAK, TEI-Crete and IMS-FORTH (1/2/2012 – 30/9/2015). PI: A. Vafidis.
 24. “Geophysical investigation using electrical tomography at the Loutsia-Remeri quarry”. Funded by TITAN cements ltd. Applied Geophysics Lab. (7/2012-10/2012). PI: A. Vafidis.
 25. “Additional works for the delineation of the Omalos polje dam, including the environmental effects estimation due to its construction”. Municipality of Innachorion and Technical University of Crete. PI: A. Vafidis (7/2012-10/2012).
 26. TUD COST Action TU1208 Civil Engineering Applications of Ground Penetrating Radar (4/4/2013-3/4/2017). This action consists of several working groups (WG) and “Projects”. I am the co-leader (with Prof. F. Benedetto from University of Roma) of the project “Development of advanced GPR data processing techniques”. PI: L. Pajewski.
 27. ISTRIA. Development of an integrated rock fall monitoring and prediction system. Synergasia 2011-Greek National Organization of Research and Technology. (5/2012-5/2015). PI: G. Exadaktylos.
 28. BEWEXMIN-Bucket wheel excavators operating under difficult mining conditions including unmineable inclusions and geological structures with excessive mining resistance. RFCR-CT-2015-00003 (1/09/2015- 31/08/2018). EUROPEAN COMMISSION. PI: G. Galetakis.
 29. DE.F.I.C.I.T.- DEcision system For Irrigation in Crete based on Innovative Technologies – 5028242 (2019-2022). RIS3Crete. PI: Dr. N. Kourgialas.
 30. Omani-Italian Archaeological Excavations Project in Al-Tikha/Rustaq in Oman. Joint archaeological mission of the Department of Archeology at Sultan Qaboos University and the University of Pisa, under the supervision of the Ministry of Heritage and Tourism (2022-today). PI: K. Douglas.
 31. Impact craters and meteorites at Oman, SQU (2012-today). PI: S. Nasir.
 32. Geophysical survey as a tool for a Mosque pre-construction assessment study at Nizwa Oman. A work for the Earth Sciences Consultancy Center (ESCC) at Oman (5/2022). PI: N. Economou.
 33. Geophysical research at Al Mirani Fort, Mutrah, Oman for the detection of buried antiquities using Ground Penetrating Radar, Ministry of Heritage and Culture of Oman (9/2022). PI: N. Economou.

6. Teaching experience

- Support of:
 - >5 MSc thesis, >10 Graduate thesis.
- Teaching the course “Gravity and Magnetic Exploration methods” at the Sultan Qaboos University, Department of Earth Sciences, Winter semester 2022-2023.
- Teaching the course “Earthquakes and Society” at the Sultan Qaboos University, Department of Earth Sciences, Winter semester 2022-2023.
- Teaching the course “Exploration Geophysics” at the Sultan Qaboos University, Department of Earth Sciences, Spring semester 2021-2022.
- Teaching the course “Field Geophysics” at the Sultan Qaboos University, Department of Earth Sciences, Spring semester 2021-2022: integrated geophysical surveys for the detection of buried antiquities, mapping of saltwater intrusion at coastal areas as well as research for wider geological interest.
- Teaching the course “Applied Geophysics” at University of Western Macedonia, Greece, Mineral Resources Engineering Dpt, for the Spring semester, 2020-2021.
- Teaching of exercises for the courses related to 1) seismics (1998-2008 and 2014-2020), 2) near surface geophysical methods (1998-2021) and 3) loggings (1998-2013). “Applied Geophysics I” (shallow and deep seismics – head and reflected seismic waves), “Applied Geophysics II” (near surface geophysics) and “Geological Formations Evaluation using Loggings”; courses under Dr. A. Vafidis. School of Mineral Resources Engineering. Technical University of Crete.
- Teaching of exercises for courses related to the Geology of Greece, under Dr. E. Manoutsoglou (from October 2013 until 2015). “Geology”, School of Mineral Resources Engineering.
- Teaching of exercises for courses related to the Geology of Greece, under Dr. E. Manoutsoglou (from October 2013 until 2015). “Environmental Geology” School of Environmental Engineering. Technical University of Crete.
- Teaching of exercises for courses related to the Geographical Information Systems (GIS), under Dr. P. Partsinevelos (from October 2019 until 2021). “Geographical Information Systems” School of Mineral Resources Engineering. Technical University of Crete.
- Teaching of exercises for the graduate courses “Seismic Imaging and well logging” related to Petroleum Engineering (PetEng), MSc program (2014-2015), courses under Dr. A. Vafidis. School of Mineral Resources Engineering. Technical University of Crete.
- At TUC - teaching MatLab non-regular seminars related to data processing at a graduate level since 2013: introductory seminars for geophysical signal processing.
- At TUC - Participation in all field works related to students exercises every year from 1998 until 2021: integrated geophysical surveys once a year within the frame of the course “Field work IV” of the School of Mineral Resources Engineering.

7. Academic work

7A. Thesis (3)

1. “Geophysical research at the archaeological site of Itanos, Lasithi, Crete, Greece”, **Diploma thesis**, Mineral Resources Engineering, Technical University of Crete, Greece, Chania 1998. Supervisor: A. Vafidis.

This thesis includes the results of an integrated geophysical research conducted at the archaeological site of Itanos, Lasithi, Crete, Greece, during 1995-2001, in order to detect buried antiquities. The methods employed were electrical resistivity mapping, electrical tomography, magnetics, GPR, electromagnetic mapping and seismic refraction. Processing for all the methods mentioned above was applied during the development of this thesis and the final results were presented to an open audience.

2. “Presentation and interpretation of geophysical data using GIS”, **MSc thesis** in the Environmental Geotechnology Post-Graduate Program, Department of Mineral Resources Engineering, Technical University of Crete, Greece, Chania 2002. Supervisor: A. Vafidis.

This thesis is related to the development of a GIS project (based on the ArcView GIS) dedicated to the presentation and integrated interpretation of different geophysical methods. A dedicated user interface was created, using the programming language “Avenue”, which permitted the user to view and interpret different geophysical, topographic and geological data. Its use and capability for relevant applications were presented to an open audience.

3. “Development of GPR data processing methods using S-transform”, **PhD thesis** in the Environmental Geotechnology Post-Graduate Program, Department of Mineral Resources Engineering, Technical University of Crete, Greece, Chania 2010. Supervisor: A. Vafidis.

In this PhD thesis, a methodology for efficient time-variant deconvolution for EM waves (GPR data) is proposed, which is mainly implemented in the t-f domain, using S-transform. In order to correct for attenuation effects, a spectral balancing technique, using the S-transform, is proposed. Furthermore, it is demonstrated that spectral balancing must be applied prior deconvolution, rather than being an alternative technique. After wavelet deconvolution a further correction of the residual phases is taking place using the maximization of kurtosis method. The technique’s efficiency is demonstrated first on synthetic data. Then, it is applied on a dataset acquired over a controlled experiment for buried in sand utilities detection and reflections from the water table and a capillary zone above it are revealed. The proposed methodology was also tested on a dataset acquired in the Bissen quarry, in Wisconsin, USA and its ability to delineate reflections buried in noise and wavelet ringing is demonstrated. Finally, the proposed methodology is applied on a dataset from an area where buried metallic tanks existed proving its efficiency in increasing the temporal resolution. The processing method’s steps and efficiency were presented to an open audience.

7B. Published work – Chapters in books (2)

Cross (+) indicates invitation

- 1) +**Economou, N.**, Vafidis, A., Benedetto, F., and Alani, A., 2015, GPR Data Processing Techniques, invited chapter in the book entitled “Civil Engineering Applications of Ground Penetrating Radar”, Springer ISBN 978-3-319-04812-3.
- 2) +Loizos, A., Plati, C., Vafidis, A., **Economou, N.**, Cuenca-García, C., and Diamanti, N., 2017, GPR activities in Greece, invited chapter in the book entitled “GPR activities in COST Countries”, Publishing House: Aracne, Rome, Italy, Open Access, in press.

7C. Published work – Articles (27)

Cross (+) indicates invited paper

- 1) Vafidis, A., Manoutsoglou, E., Hamdan, H., Andronikidis, N., Kritikakis, G., **Economou, N.**, and Spanoudakis, N., 2004, Geophysical survey at the Omalos Plateau, Chania, Crete, Bulletin of the Geological Society of Greece, 36(3), 1204–1213.
- 2) Vafidis, A., H. Hamdan, N. Andronikidis, A. Dasyras, G. Kritikakis, M. Koukadaki, E. Koumakis, S. Lampathakis, E. Manoutsoglou, N. **Economou**, K. Papakonstantinou, and N Spanoudakis, Contribution of electrical tomography and seismic refraction in site selection for a dam at Kountoura, Chania, Greece, Bulletin of the Geological Society of Greece, 36(3), 1214–1223.
- 3) Vafidis, A., **Economou, N.**, Ganiatsos, Y., Manakou, M., Poulidou, G., Sourlas, G., Vrontaki, E., Sarris, A, Guy, M, and Kalpaxis Th., 2005, Integrated geophysical studies at ancient Itanos (Greece), Journal of Archaeological Science, 32, 1023-1036.
- 4) Hamdan H., Kritikakis G., Andronikidis, N., **Economou, N.**, Manoutsoglou E., and Vafidis, A., 2010, Integrated geophysical methods for imaging saline karst aquifers. A case study of Stylos, Chania, Greece Journal of the Balkan Geophysical Society, 13, no. 1, 1-8.
- 5) Mertzani, Y., **Economou, N.**, Hamdan, H., and Vafidis, A., 2010, Imaging sea water intrusion in coastal areas, Bulletin of the Geological Society of Greece, 43(4), 1802–1811.
- 6) **Economou, N.**, and A., Vafidis, 2010, Spectral balancing GPR data using time variant band-width in t-f domain, Geophysics, 75, no. 3, J19-J27.
- 7) +**Economou, N.**, and A, Vafidis, A., 2011, Deterministic deconvolution for GPR data in t-f domain, Near Surface Geophysics, 9, no. 5, 427-433. Invitation was based on the presentation made at the 5th Congress of Balkan Geophysical Society, Belgrade, Serbia, 10-16 May 2009.
- 8) +**Economou, N.**, and Vafidis, A., 2012, GPR data time varying deconvolution by kurtosis maximization, Journal of Applied Geophysics, 81, 117-121. Invitation was based on the presentation made at GPR2010, 21-25 May 2010, Lecce, Italy.
- 9) +**Economou, N.**, Vafidis A., Hamdan H., Kritikakis G., Andronikidis N., and Dimitriadis K., 2012, Time varying deconvolution of GPR data in civil

- engineering, Nondestructive Testing and Evaluation International, 27, 3, 285-292. Invitation based on the presentation made at the EGU Conference, Session GI-6 Civil Engineering Applications of Ground Penetrating Radar, Vienna, Austria, 3-8 April, 2011.
- 10) Hamdan, H., **Economou N.**, Kritikakis, G., Andronikidis, N., Manoutsoglou E., Vafidis, A., Pangratis, P., and Apostolidou, G., 2012, 2D and 3D imaging of the metamorphic carbonates at Omalos plateau/polje, Crete, Greece by employing independent and joint inversion on resistivity and seismic data, Journal of Speleology, 41, 2, 199-209.
 - 11) Vafidis, A., Andronikidis, N., **Economou, N.**, Panagopoulos, G., Zelilidis, A., and Manoutsoglou, E., 2012, Reprocessing and interpretation of seismic reflection data at Messara Basin, Crete, Greece, Journal of the Balkan Geophysical Society, 15, no 2, 31-40.
 - 12) Vafidis A., Steiakakis M., Agioutantis Z., Andronikidis N., Kritikakis G., **Economou N.**, Pandi K., Spanoudakis N., Savvaidis A., Margaris B., Theodoulidis N., Lekidis V., Karakostas Ch., Mangriotis M-D., Kalogeras I., Koutrakis S., 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" of selected areas in Crete, Greece, towards realistic assessment of seismic design actions. Bulletin of the Geological Society of Greece, 47(3), 1439–1446.
 - 13) Hamdan, H., Andronikidis, N., Kritikakis, G., **Economou, N.**, Agioutantis, Z., Schilizzi, P., Steiakakis, C., Papageorgiou, C., Tsourlos, P., Vargemezis, G., and Vafidis, A., 2014, Contribution of electrical tomography methods in geotechnical investigations at Mavropigi lignite open pit mine, Northern Greece, Environmental Earth Sciences, 72, 5, 1589-1598.
 - 14) +Vafidis, A. Soupios, P., **Economou, N.**, Hamdan, H., Andronikidis, N., Kritikakis, G., Panagopoulos, G., Manoutsoglou, E., Steiakakis, E., Candansayar, E., and Schafmeister, M., 2014, Seawater intrusion imaging at Tybaki, Crete, Greece, using geophysical data and joint inversion of electrical and seismic data, First Break, 32, 8, 107 - 114.
 - 15) **Economou, N.**, 2016, Time varying band pass filtering GPR data by self-inverse filtering, Near Surface Geophysics EAGE, 14, 2, 207 - 217.
 - 16) **Economou, N.**, and Kritikakis, G., 2016, Attenuation analysis of real GPR wavelets: The Equivalent Amplitude Spectrum (EAS), Journal of Applied Geophysics, 126, 13-26.
 - 17) Partsinevelos, P., Kritikakis, G., **Economou, N.**, Agioutantis, Z., Tripolitsiotis, A., Mertikas, S. and Vafidis, A., 2016, Integration of seismic and image data processing for rockfall monitoring and early warning along transportation networks, Natural Hazards, 83, 1, 133-153.
 - 18) **Economou, N.**, Benedetto, F., Bano, M., Tzani, A., Nyquist, J., Sandmeier, K-J., and Cassidy, N., 2017, Advanced Ground Penetrating Radar Signal Processing Techniques, Editorial, Signal Processing, 132, 197-200.
 - 19) Vafidis, A., Kritikakis, G., **Economou, N.**, Galetakis, M., Soutana, A., Michalakopoulos, T., Apostolopoulos, G., Roumpos, C., and Pavloudakis,

- F., 2018, Assessment of geophysical methods for the detection of hard rock formations in lignite mines employing bucket wheel excavators. the case of South Field lignite mine, Macedonia, Greece, *Górnictwo Odkrywkowe*, “Poltegor – Instytut” Instytut Górnictwa Odkrywkowego, R. 59, No 4, 23-30.
- 20) +Bianchini, L., Tosti F, **Economou, N.**, and Benedetto, F., 2019, Signal Processing of GPR data for road surveys, *Geosciences*, 9(2), 96. Cite Score (Scopus): 1.97.
- 21) **Economou, N.**, Vafidis, A., Bano, M., Hamdan, H., and Ortega-Ramirez, J., 2019, Ground-penetrating radar data diffraction focusing without a velocity model, *Geophysics*, 85, no. 3, 1-12. IF: 2.391.
- 22) +**Economou, N.**, Bano, M., and Ortega-Ramirez, Jose., 2021, Delineation of Fractures Using a 2D GPR Processing Strategy for 3D Imaging: Weak Zones within Carbonates at the Archaeological Site of Xochicalco in Mexico, Special issue on “Applications of Ground-Penetrating Radar to Geomorphology, Near-Surface Geology and Geoarchaeology”, *Applied Sciences*, 11, (13): 5893, pp 1-12.
- 23) +**Economou, N.**, Kritikakis, G., Manoutsoglou, E., and Vafidis, A., 2022, Fast and efficient void detection in carbonates by combined ERT and borehole data: A case study from Chania Airport in Greece, *The Leading Edge* 41: 322–330.
- 24) Bano, M., **Economou, N.**, Bradford, J., Giannopoulos, A., Klotzsche, A., Slob, E., and Tsoflias, G., 2022, GPR data imaging and interpretation — Introduction, *Geophysics*, 87, no. 4: WBi-WBii.
- 25) Hamdan, H., **Economou, N.**, Vafidis, A., Bano, M., and Ortega-Ramirez, J., 2022, A New Approach for Adaptive GPR Diffraction Focusing. *Remote Sensing*, 14, 2547.
- 26) +Farfour, M., **Economou, N.**, Abdalla, O., Al-Taj, M., 2022, Integration of Geophysical Methods for Doline Hazard Assessment: A Case Study from Northern Oman. *Geosciences*, 12, 243.
- 27) Kritikakis G, Kokinou E, **Economou N**, Andronikidis N, Brintakis J, Daliakopoulos IN, Kourgialas N, Pavlaki A, Fasarakis G, Markakis N, Soupios P, Manios T, and Vafidis A., 2022, Estimating Soil Clay Content Using an Agrogeophysical and Agrogeological Approach: A Case Study in Chania Plain, Greece, *Water*, 14(17):2625.

7D. Published work – Extended abstracts – Presentations (47)

Asterisk (*) on my surname indicates that I presented the specific work and underlining indicates that I participated in the relevant conference.

7DA. Extended abstracts (37)

- 1) Vafidis, A., Sarris, A., **Economou N.** & Kalpaxis, Th. (1996). Geophysical survey in the archaeological site of Itanos, Lasithi, Greece. 1st Balkan Geoph. Society Ext. Abstracts September 23-27, Athens, 54-55.
- 2) Sarris, A., Vafidis, A., **Economou, N.**, Poulioudis, G., Limneou-Papakosta, C., (2001), “Prospecting the old Jewish Cemetery in the center

- of Alexandria, Egypt”, 4th Int. Conf. On Archaeological Propection, Austrian Academy of Sciences, Vienna, September 19-23.
- 3) Vafidis, A., **Economou***, N., and Sarris, A., “Geophysical data presentation using GIS”, (2002), Computer Applications and Quantative Methods in Archaeology Conference 2-6 April, 2002, Heraklion, Crete, Greece.
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- 35) Andronikidis, M., G Kritikakis, A Vafidis, H Hamdan, Z Agioutantis, C Steiakakis, N. **Economou**, 2021, Geotechnical Investigations in Lignite Open pit Mine Using Electrical Tomography (2D&3D) and Seismic Reflection Methods, 11th Congress of the Balkan Geophysical Society, Bucharest, Romania.
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- 37) Hamdan, H., Moraetis, D., **Economou**, N., Elsaman, A., and Abdel-Fattah, M., 2022, Estimating Water Infiltration Rate Using Time-lapse GPR Technique, 2nd Annual Meeting, Marrakech, 27-30 November 2022.

7DB. Invited presentations with articles (4)

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- 2) Vafidis, A., and **Economou*** N., 2007, Pilot geophysical research at the archaeological site of Littos, Kastelli Pediados, Crete, Proceedings of conference “Liktos Euktimeni”, 9-11 November, Kastelli Pediados, Crete.
- 3) **Economou**, N., Vafidis, A., and Benedetto, F., 2013, Presentation entitled “Development of advanced GPR data processing techniques. State of the art and open issues”, First Meeting of the COST ACTION TU1208, Rome, Italy. Proceedings, <http://gpradar.eu/resources/books.html>, ISBN978-88-548-7221-9. [Invited chapter for the Springer Book entitled *CIVIL ENGINEERING APPLICATIONS OF GROUND PENETRATING RADAR*].
- 4) **Economou** N. and F. Benedetto, 2014, Development of advanced GPR data processing techniques, Vienna, 2nd meeting of the TU1208 Cost Action, EGU 2014. Proceedings, <http://gpradar.eu/resources/books.html>, ISBN 978-88-548-7224-0.

7DC. Invited presentations without articles (3)

- 1) **Economou***, N., and Vafidis, A., 2002, Geophysical data presentation using GIS, an example from the archaeological site of Itanos, Crete, Greece, 11th meeting of Greek GIS users, ArcInfo-ArcView, Marathon Data Systems, Athens, November.
- 2) **Economou*** N., and F. Benedetto, 2015, State of the art on Advanced data processing algorithms for GPR, Athens, 4th meeting of the TU1208 Cost Action.

- 3) **Economou* N.**, 2015, Conventional data processing steps to be included in guidelines for GPR assessment of flexible pavements & for GPR detection and location of utilities and voids, Athens, 4th meeting of the TU1208 Cost Action.

7DD. Presentations at conferences (abstracts) (3)

- 1) **Economou* N.**, and Vafidis, A., 2002, Geophysical data presentation using GIS, an example from the archaeological site of Itanos, Crete, Greece, 11th meeting of Greek GIS users, ArcInfo-ArcView, Marathon Data Systems, Athens, November 2001.
- 2) **Economou* N.**, Vafidis A., Hamdan H., Kritikakis G., Andronikidis N., and Dimitriadis K., 2011, Time varying deconvolution of GPR data in civil engineering, Conference of European Geosciences Union, General Assembly 2011, Session GI-6 Civil Engineering Applications of Ground Penetrating Radar, Vienna, Austria, 3-8 April [*invited paper by “Nondestructive Testing and Evaluation” for the Special Issue on “Civil Engineering Applications of Ground Penetrating Radar”*].
- 3) Pajewski, L., Giannopoulos, A., Sesnic, S., Randazzo, A., Lambot, S., Benedetto, F., and **Economou, N.**, 2017, COST Action TU1208 –Working Group 3 – Electromagnetic modelling, inversion, imaging and data-processing techniques for Ground Penetrating Radar, Session GI3-1 Civil Engineering Applications of Ground Penetrating Radar, Vienna, Austria, Geophysical Research Abstracts, Vol. 19, EGU2017-16855-1, 2017, EGU General Assembly 2017.

7E. Courses Creation and Development

- 1) Creation of the course “Gravity and Magnetic Exploration Methods”, at Sultan Qaboos University, College of Science, Earth Sciences Department, for the Winter semester 2022-2023.
- 2) Creation of the course “Exploration Geophysics” at Sultan Qaboos University, College of Science, Earth Sciences Department, for the Spring semester 2021-2022.
- 3) Development of the course “Field Geophysics”, at Sultan Qaboos University, College of Science, Earth Sciences Department, for the Spring semester 2021-2022.
- 4) Development of the course “Applied Geophysics” at University of Western Macedonia, Greece, Mineral Resources Engineering Dpt, for the Spring semester, 2020-2021.
- 5) Participation in the development of notes for courses of “Applied Geophysics II” at Technical University of Crete Greece (near surface geophysics courses including the electrical, magnetic, gravimetric and electromagnetic methods). Professor A. Vafidis.
- 6) Participation in the development of notes for courses of “Formation Evaluation using Loggings” at Technical University of Crete Greece (courses related to the interpretation of loggings). Professor A. Vafidis.

7D. Citations



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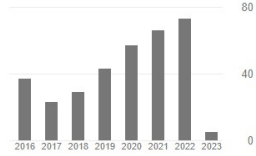
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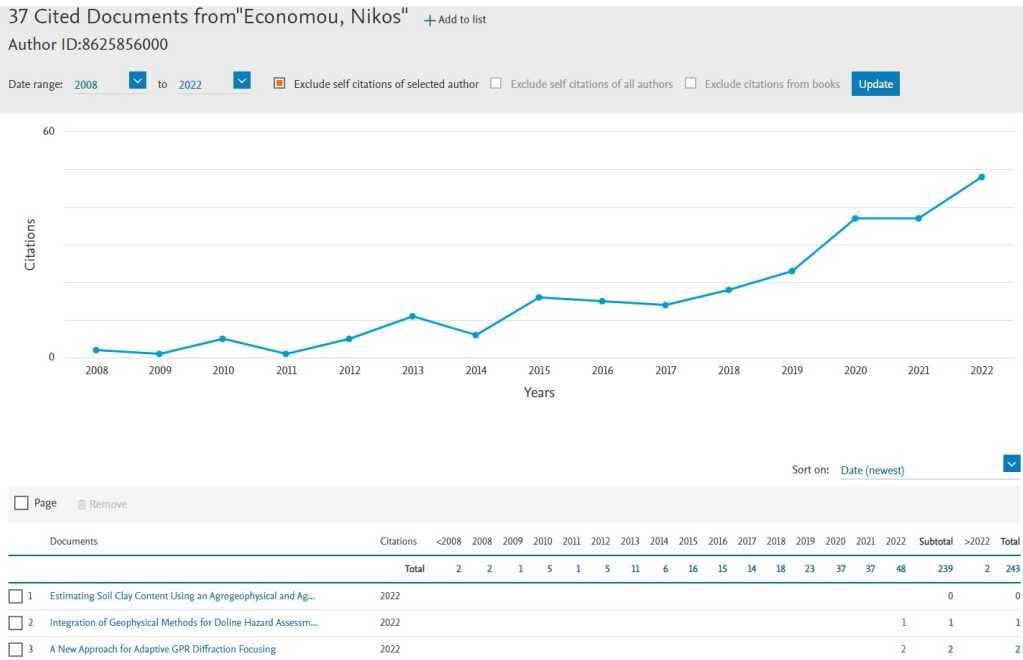
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