





Dr Nikolas Martzikos

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About -

Post-Doctoral Researcher experienced in the analysis of metocean data with a strong background in Applied Mathematics, Statistics and Engineering. My work for over a decade is focused on extreme events and the analysis of wave and climate big datasets for their application in Ocean and Coastal Engineering and Offshore Renewable Energy.  

Research Fellow in ORE Metocean Data Integration - School of Biological and Marine Sciences, Faculty of Science and Engineering, University of Plymouth (Dec 2021 - June 2023)

RD&I in FLOW project (ERDF) in the Celtic Sea. Integration and analysis of high-frequency radars datasets. Application of neural networks for the estimation of offshore wind speed. Technical supervision & maintenance. Member of Coastal Processes Research group. Topographical surveys for coastal dunes and shoreline evolution in Devon and Cornwall.

Researcher - Laboratory of Harbour Works, School of Civil Engineering, NTUA (2021)

Experience - Member of the Storms2Coast research project for the probabilistic representation of coastal storms for the resilience of coastal structures, funded by the NTUA (PEVE 2020 Scholarship).

Research & Teaching Assistant - Laboratory of Harbour Works, School of Civil Engineering, NTUA (2015 - 2021)

Teaching “Coastal Engineering” and “The Port System” to under/post-graduate students at the School of Civil Engineering. Co-supervising students’ theses in the field of Coastal Engineering. Member of a team for writing grant proposals at the national and international level. Participation at PEARL project (Fp7) working for the climate change, extreme and rare events in the coastal area of Rethymno - Crete. Data visualisation for several research articles of Laboratory of Harbour Works|

Teacher of Mathematics (tutor) - Axia private educational institute in Athens (2008 - 2020)

Teaching Calculus & Statistics, for students' preparation for university entrance exams, R, Statistics, and Data Analysis to undergraduate students. Algebra and Geometry for high school students. Teaching in groups (1-6 students). Team leader, responsible for assessment production and educational content.

PhD in Coastal Engineering - School of Civil Engineering, Department of Water Resources and Environmental Engineering, NTUA (2021)

Courses: Integrated Coastal Zone Management, Coastal Environment Protection Works

Thesis title: "Analysis of Coastal Storms for their Application in Harbours and Coastal Structures Design" (**IKY Scholarship**). Supervisor: V. K. Tsoukala (Prof.)

Statistical analysis of coastal storms| datasets of 30 locations in Mediterranean| copulas modelling| C-Vines| coastal storms simulation| return periods estimation.

MSc in Marine Science & Technology - School of Naval Architecture and Marine Engineering, NTUA (2013)

Courses: Atmosphere and Oceans' Dynamics, Wave Theory, Marine Transportation Systems, Management of the Sea System, Hydromechanics, Anchored Structures, Marine Geology and Geophysics, Fluid Mechanics

Thesis Title: "Analysis and modelling of free surface elevation"

Analysis of wave time series| datasets of 4 locations in Greece| ARMA models| statistical analysis| forecast.

BSc in Mathematics (specialisation in Applied Mathematics) - Faculty of Sciences, Aristotle University of Thessaloniki (2008)

Thesis in Didactics of Mathematics: "A cognitive approach in mathematics learning"

Organizational / management skills acquired as:

- researcher at Storms2Coast project
- research and teaching assistant at the School of Civil Engineering
- treasurer and board member of Proteas (association for the preservation of Hellenic Maritime Heritage, member of European Maritime Heritage)
- team leader working as a Teacher of Mathematics
- reserve non-commissioned officer in the Army, with the duties of team leader and corporal/sergeant

Communication skills acquired as

- Skills** -
- mathematics teacher at a private college
 - teaching assistant during PhD

- producer and researcher of the Documentary “New Life” in Turkey and Greece
- Social skills** acquired as
- board member of Proteas (association for the preservation of Hellenic Maritime Heritage)
 - member and ocean leader at Sustainable Ocean Alliance (SOA) association
 - participant at the “Researchers’ Night in the National Technical University of Athens” 2015-2020
 - researcher and producer of “New Life” documentary. A documentary about refugees from Lampsacus of Minor Asia in Turkey and New Lampsacus of Evia in Greece. Official screening at the 7th Festival of Greek Documentaries in Chalkida (2013). Participation in AGORA of the 16th Thessaloniki International Documentary Festival (2014). TV viewing on the Cosmote-History channel.
 - torchbearer and volunteer Personnel Assistant in Cycling at Olympic and Paralympic Games (ATHENS 2004)
 - participant in Euroscola project, for the building of the European Union. European Parliament, Strasbourg, 2001

Digital skills

- experienced user for data processing, communication, content creation, problem-solving, visualisation
- good handling of Microsoft Office (Word, PowerPoint), Adobe Illustrator, SPSS, Statistica, Mathtype, Mathematica, Linux
- good knowledge of programming in R, MATLAB, C + +, FORTRAN

Other skills

- carpentry (skills acquired due to the parent’s main job)
- traditional wooden shipbuilding
- cooking
- cycling / running / basketball

Driving Licence

A & B Class

Languages

- Greek (fluently - mother tongue)
- English (independent user in reading, speaking, and writing). IELTS (Academic Module - 13 July 2013) - Certificate of Competency in English, University of Michigan (May 1999)

Publications

Malliouri, D., **Martzikos, N.**, Tsoukala, V., 2022. Fully Probabilistic Reliability and Resilience Analysis of Coastal Structures based on Damage-Evolution

Additional -

- Simulation. 39th IAHR World Congress, Granada, Spain. [doi://10.3850/IAHR-39WC2521716X20221268](https://doi.org/10.3850/IAHR-39WC2521716X20221268) [PDF]
- Martzikos, N.,** Prinos, P., Memos, C.D., Tsoukala, V., 2021. Statistical analysis of Mediterranean coastal storms. *Oceanologia* 63, Issue 1. (Thomaidion Award)
<https://doi.org/10.1016/j.oceano.2020.11.001>
- Martzikos, N.,** Prinos, P., Memos, C.D., Tsoukala, V., 2021. Key Research Issues of Coastal Storm Analysis. *Ocean and Coastal Management* 199.
<https://doi.org/10.1016/j.ocecoaman.2020.105389>
- Skourti, O.M., Papadakis, M., **Martzikos, N.,** Chondros, M., Tsoukala, V., 2019. Adapting ports to climate change - the case of Evdilos port, Ikaria island, Greece. 2nd International Conference: ADAPTtoCLIMATE. Heraklion, Crete. [PDF]
- Martzikos, N.,** Prinos, P., Memos, C.D., Tsoukala, V., 2019. Mediterranean Coastal Storms in a Changing Climate. 1st International Scientific Conference on the Design and Management of Harbor Coastal and Offshore Works. Athens, Greece. [PDF]
- Martzikos, N.,** Afentoulis, V., Tsoukala, V., 2018. Storm Clustering and Classification for the Port of Rethymno in Greece. *Water Utility Journal* 20, pp. 67-79. [PDF]
- Martzikos, N.,** Soukissian, H.T., 2017. Modelling of the sea surface elevation based on a data analysis in the Greek seas. *Applied Ocean Research* 69, pp. 76-86.
<https://doi.org/10.1016/j.apor.2017.10.008>
- Martzikos, N.,** Lykou, A., Makropoulos, C., Tsoukala, V.K., 2017. Cluster Analysis and Classification of Storm Events at Rethymno. 10th World Congress on Water Resources and Environment, Athens, 5-9 July 2017. *European Water* 57, pp. 57-62. [PDF]
- Martzikos, N.,** Chondros, M., Pyrpiri, T., Tsoukala, V.K., 2017. Prediction of Wave Transmission Coefficient Using Neural Networks and Experimental Measurements. *Hydrotechnika* 26, pp. 28-40. [PDF]
- Tsoukala, V., Chondros, M., Kapelonis, Z.G., **Martzikos, N.,** Lykou, A., Belibassakis, K., Makropoulos, Ch., 2016. An integrated wave modelling framework for extreme and rare events for climate change in coastal areas - the case of Rethymno-Crete, *Oceanologia*, 58 (2) pp. 71-89.
[doi:10.1016/j.oceano.2016.01.002](https://doi.org/10.1016/j.oceano.2016.01.002)
- Pyrpiri, Th., **Martzikos, N.,** Tsoukala, V. K., 2016. Wave overtopping in port of Rethymno during storms considering climate change scenarios. 7th National Conference on Harbour Works, Athens 21-23 November 2016. (Thomaidion Award)

Giantsi, Th., Papacharalampous, G., **Martzikos, N.**, Moutzouris, C.I., 2016. Spectral parameters modification in front of a seawall with wave return. In: Erpicum et al. (Eds), Sustainable Hydraulics in the Era of Global Change: Advances in Water Engineering and Research. Taylor & Francis, CRC Press 2016. pp. 330–337.

Continuing Education

Nature-based Solutions for Disaster and Climate Resilience. United Nations Environment Programme (UNEP) and the Partnership for Environment and Disaster Risk Reduction (PEDRR). February 2021.

Data Science and Machine Learning Bootcamp with R. Udemy. April 2017.

Tsunamis and Storm Surges: Introduction to Coastal Disasters. edX Honor Code Certificate. January 2016. Grade Achieved: 88%

Monitoring Climate from Space. European Space Agency. Future Learn. November 2015. Grade Achieved: 88%

Introduction to Programming with MATLAB. Vanderbilt University. Coursera. June 2015. Grade Achieved: 84.3%

Pathways to climate change adaptation: the case of Small Island Developing States. University of Geneva. Coursera. March 2015. Grade Achieved: 80.6%

Introduction to Sustainable Development. Columbia University. Coursera. February 2015.

Conferences & Seminars

1st International Scientific Conference on the Design and Management of Harbor Coastal and Offshore Works. Athens, Greece. 8-11 May 2019.

10th World Congress on Water Resources and Environment, Athens, 5-9 July 2017.

International Summer School CoastTools. Center for Marine and Environmental Research (CIMA), Universidade do Algarve, Faro, Portugal. 19 - 23 June 2017.

National Conference on Management and Improvement of Coastal Zones, 24-27 November. National Technical University of Athens, Laboratory of Harbour Works. Eugenides Foundation, Athens.

International Science Festival, GeoMeetings. Lecture: What is the future of our seas? March 4th 2014. Eugenides Foundation, Athens.

5th European Summer University on the History and Epistemology in Mathematics Education, 19 – 24 July 2007, Prague, Czech Republic.

6th Two-day Dialogue for Teaching Mathematics, 17 & 18 March 2007, Thessaloniki. Department of Elementary Education, Aristotle University of Thessaloniki.

10th National Conference of Philosophy with subject Philosophy of Sciences, 6 – 8 May 2006. Hellenic Philosophical Society & Department of Philosophy, Aristotle University of Thessaloniki.

Two-day “History of Mathematics, Mathematics Education and Teaching Extensions”, 14 & 15 April 2006, School of Mathematics, Aristotle University of Thessaloniki

5th two-day Dialogue on Teaching Mathematics, 17 & 18 March 2006. Department of Primary Education, Aristotle University of Thessaloniki

Military Service

2007-2008: Completed, as a reserve non-commissioned officer in the, with the duties of team leader, corporal/sergeant.