



2nd International Conference

DESIGN AND MANAGEMENT OF PORT, COASTAL AND OFFSHORE WORKS

Organised by:



Laboratory of
Maritime
Engineering and
Maritime Works



Laboratory of
Harbour Works



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Floating Structures
and Mooring
Systems



Hydraulic
Engineering
Laboratory



CONFERENCE TECHNICAL PROGRAM

MAY 24-27, 2023

Aristotle University's
Research Dissemination Center
Thessaloniki, Greece



2nd International Conference DESIGN AND MANAGEMENT OF PORT, COASTAL AND OFFSHORE WORKS

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Sponsors:



Έργο: Υποστήριξη διοργάνωσης 2^{ου} Διεθνούς Επιστημονικού Συνεδρίου με θέμα «Σχεδιασμός και διαχείριση πλημνικών παράκτιων και υπεράκτιων έργων»

Πρόγραμμα - Μέτρο: «Εξωστρεφείς Δράσεις, Φυσικό Περιβάλλον και Καινοτόμες Δράσεις 2023»

Προϋπολογισμός έργου: 15000 €

Χρηματοδότηση: Πράσινο Ταμείο

Όνομα δικαιούχου: ΕΛΚΕ ΑΠΘ, ΠΟΛΥΤΕΧΝΙΚΗ ΣΧΟΛΗ – ΤΜΗΜΑ ΠΟΛΙΤΙΚΩΝ ΜΗΧΑΝΙΚΩΝ

Under the auspices:



CONFERENCE TECHNICAL PROGRAMME

Wednesday **MAY 24th**

08:30 - 09:30 Reception and Registration of Participants

09:30 - 10:00 Conference Opening – Welcome Addresses

10:00 - 10:30 **Keynote I: "Climate Change Impacts and Adaptation at European and Global Scale"**

Dr. M. Vousdoukas, European Joint Research Centre

10:30 - 11:00 Coffee break

11:00 - 13:00 **SESSION 1. Coastal Modelling**

In honor of Professor Emeritus Christofer Koutitas

Chairs: Th. Karambas, A. Samaras

Modelling Earthquake-Generated Tsunamis: Considerations on the Effects of Fault Models on Tsunami Generation and Propagation

A.G. Samaras, I. Triantafyllou, A. Agalos, G. Papadopoulos & Th. Karambas

Quasi-Coherent Spectral Wave Modelling

V. Baltikas & Y. Krestenitis

CoastFLOOD: Fine-Resolution Modelling of Flood Inundation due to Storm Surges in the Coastal Zone

C. Makris, Z. Mallios, Y. Androulidakis & Y. Krestenitis

Impact of Sea Level Variability on Coastal Inundation in the Aegean, Ionian and Cretan Seas

Y. Androulidakis, C. Makris, Z. Mallios & Y. Krestenitis

Analysis of Extreme Storm Surges at the Mediterranean Coastline under Climate Change

P. Galiatsatou, C. Makris, V. Baltikas, Y. Krestenitis & P. Prinos

Post-Boussinesq Modelling of Nonlinear Irregular Waves in Port Basins with Wave-Structure Interaction

C. Makris, Th. Karambas & S. Christopoulos

13:00 - 14:00 Lunch break

14:00 - 16:00

SESSION 2. Coastal Hydrodynamics

Chairs: Y. Savvidis, Y. Androulidakis

Assessing the Wind Wave Climate at Several Scales in the Offshore and Coastal Zones

K. Mosiou, I.G. Mamoutsos, V. Zervakis, E. Tragou & E. Krasakopoulou

Modeling-based Results for Waves Propagation in the Case of Climate Change Adaptation Measures Assortment with Specific Reference to the Maritime Port of Constanta

R. Mateescu & L. Rusu

Interaction of Gravity Currents with Internal Waves in a Linearly Stratified Ambient

A. Kokkinos & P. Prinos

Climate Change Effects on the Storm Surges of the Mediterranean Coastal Zone

C. Makris, K. Tolika, V. Baltikas, K. Velikou & Y. Krestenitis

Circulation Pathways in Thermaikos Gulf based on Field and Model Lagrangian Experiments

Y. Androulidakis, C. Makris, Y. Krestenitis, V. Kolovoyannis, V. Baltikas & Z. Mallios

On Using Submarine Cables to Monitor Water Transport: The Case of Intensely Baroclinic Oceanic Flows

S. Vatitsis, I.G. Mamoutsos, V. Zervakis, E. Tragou & A.F. Velegakis

Optimizing the Parameterization of a High Resolution Numerical Simulation of the Saronikos Gulf Hydrodynamics

V. Kolovoyannis, S. Petalas, I. Mamoutsos, E. Krasakopoulou, V. Zervakis, E. Tragou & H. Kontoyiannis

16:00 - 16:30

Coffee break

16:30 - 17:00

Keynote II: "Management of Dredged Materials"

Dr. V. Kapsimalis, National Center of Marine Research, Greece

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17:00 - 18:30

SESSION 3. Extreme Waves - Wave Hydrodynamics

Chairs: V. Katsardi, I. Karmpadakis

An Expanded Harmonic Separation Method to Showcase the Effects of Nonlinearity on Extreme Waves
G. Spiliopoulos & V. Katsardi

Improved Crest Height Predictions for Nonlinear and Breaking Waves in Large Storms
I. Karmpadakis & C. Swan

Statistical Distribution of Free Water Surface over a Mild Bed Slope for Extreme Wavefields
I. Karmpadakis, V. Katsardi, C. Swan & M.A. Tayfun

Spatial Evolution of Wave Height and Crest Height Distributions of Waves Propagating over Sloping Coastal Bathymetry
V. Bellos, I. Karmpadakis & C. Swan

Assessment of Extreme Sea State Conditions for Offshore Aquaculture Projects
T. Soukissian, F. Karathanasi, C. Zeri & S. Zervoudaki

Using a Multivariate Stochastic Model to Reproduce Existing Wave Data
A. Valsamidis, Y. Cai & D.E. Reeve

Thursday MAY 25th

08:30 - 10:30

SESSION 4. Offshore Renewable Energy I

Dedicated to the memory of Professor Emeritus Demos Angelides
Chairs: E. Loukogeorgaki, C. Michailides

Hydrodynamic Loads and Fatigue Design of Large Rated Fixed Bottom Offshore Wind Turbines
C. Michailides & W. Shi

Numerical Investigation of Wave-Induced Seabed Response around a Monopile Foundation
M. Gkougkoudi-Papaioannou, B. Stuyts & P. Troch

Design and Time-domain Analysis of a 10 MW Semi-submersible Floating Offshore Wind Turbine
L.A. Vagenas, M. Panagiotidou, E. Loukogeorgaki & C. Michailides

Wave Trapping Phenomena in an Array of Bottom-Seated Surface-Piercing Porous Cylinders

D. Konispoliatis, I. Chatjigeorgiou & V. Bougiouri

Numerical Modelling of a Floating Hybrid Offshore Wind and Wave Energy System by Utilizing the Generalized Modes Approach

N. Mantadakis, E. Loukogeorgaki, C. Michailides & P. Troch

2D Numerical Hydrodynamic Validation of Very Flexible Floating Solar Platforms

R. Ioannou, V. Stratigaki, E. Loukogeorgaki & P. Troch

Time-domain Analysis of an Array of Heaving Wave Energy Converters in front of a Wall

A. Papadopoulou & E. Loukogeorgaki

10:30 - 11:00

Coffee break

11:00 - 11:30

Keynote III: "The Coastal & Ocean Basin and the Research Dike Raversijde: Two New Research Facilities along the Belgian Coastline supporting Coastal Engineering Research"

Prof. P. Troch, Ghent University, Belgium

11:30 - 13:00

SESSION 5. Offshore Renewable Energy II

Chairs: A.A. Dimas, T. Koutrouveli

The First Energy Competence Center in Greece: A Mutual Initiative of NTUA and ICCS (oral presentation)

I. Chatjigeorgiou

Assessing the Integration of an Oscillating Water Column at the Planned Genoa Breakwater

G. Lavidas, F. De Leo & G. Besio

Exploitation of Marine Wave Energy: Application in Selected Greek Coastal Areas

S. Ipodimatopoulou, M. Syrpi & Y. Savvidis

Mean Drift Forces on Arrays of Vertical Porous Cylindrical Bodies

D. Konispoliatis

Ocean Thermal Energy Conversion (OTEC) Systems Prospect in the Mediterranean Sea

L. Aresti, C. Michailides, T. Onoufriou & P. Christodoulides

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13:00 - 14:00 Lunch break

14:00 - 15:30 SESSION 6. Offshore Renewable Energy III

Chairs: I. Chatjigeorgiou, G. Lavidas

Offshore Wind Farm – Design Basis – Site and Ecological Conditions: How to Reduce Risks and Optimize Design during Auction Process

L. Barbetti, T. Koutrouveli & M. Mathys

Offshore Wind: What is the Roadmap from Development to Construction?

M. Sfouni-Grigoriadou, V. Giotas & M. Antoniadou

Multi-Criteria Cost-Benefit Analysis of Offshore Wind Farms in the Aegean Sea

C. Tsioras, D. Kollias, L. Vasileiadis & V. Katsardi

A GIS-based MCDM Approach for Floating Offshore Wind Farms Site Selection in Greece

V.I. Chalastani, E. Feloni, A. Katrasi, A. Papadimitriou & V. Tsoukala

Greek Port Infrastructures Assessment towards Floating Offshore Wind Farms Development

A. Tsakos & E. Loukogeorgaki

Harvesting Offshore Wind Energy for Climate-neutral Hydrogen Production

V. Miserlis & E. Loukogeorgaki

15:30 - 16:00 Coffee break

16:00 - 17:30 SESSION 7. Marine Spatial Planning & Environment

Chairs: M. Papadopoulou, X. Loizidou

Investigating the Potential of New Marine Protected Areas in the Greek Marine Territory

N. Kartsakli & M.P. Papadopoulou

Assessing Coastal and Port Vulnerability through a Single Composite Index to Support MSP

V.I. Chalastani, M. Koulouri, E. Feloni, V. Tsoukala

Spatial Delimitation of the Coastal Zone in the Context of Evaluating Environmental Impacts of Artificial Constructions

A. Karditsa, I.E. Margaritou, G. Alexandrakis, E. Stanota, V. Kotinas & S. Poulos

Design of Coastal Aquaculture Structures and Allocated Zones for Aquaculture Development in Cyprus

I. Kyriakides, F. Gavriel, P. Lemonaris, S. Charalambous, M. Menicou, M. Charalambides, R. Abu Alhaija, D. Hayes, O. Nisiforou, G. Nikolaidis, E. Hadjisolomou, G. Triantafyllou & G. Triantaphyllidis

A Shipping Commitment against Plastic Pollution in the Mediterranean: Action Plan for Harbors

X.I. Loizidou, M.L. Loizides, D. Petsa & D.L. Orthodoxou

Circular Economy: Re-Use of Building Materials at an Island's Port Project

S. Gouloumis & S. Michas

20:00 Conference Dinner at Ergon Agora East Thessaloniki
(transportation from the conference venue will be provided)

Friday MAY 26th

08:30 - 10:30 **SESSION 8. Coastal Erosion and Management I**
Chairs: V. Tsoukala, M. Chondros

Sea Bottom Evolution considering Wave Events Sequences and Environmental Aspects: The Case Study of Kolymvari Coast, Crete

D. Malliouri, D. Vandarakis, S. Petrakis, V. Moraitis, F.-K. Gad, A. Skoumpaki, E. Strogloudi & V. Kapsimalis

Protection of the Poti Coastal Zone from Erosion using Submerged Breakwaters
I. Saginadze, M. Kodua & M. Pkhakadze**Historical Evolution and Impact of Coastal Structures on Shoreline Stability along the South Coast of Cyprus**

S. Demetriadis, D. Stagonas, S. Zervos & G. Protopapas

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Evolution and Trends of Coastal Erosion along the Nestos River Delta

K. Zachopoulos, N. Kokkos & G. Sylaios

Climate Change Impacts on the Coastal Zone of Alfios River Estuary

M. Chondros, A. Metallinos, A. Papadimitriou & V. Tsoukala

Perched Beach Nourishment against Coastal Erosion and Flooding: Experimental and Numerical Simulation

D. Spyrou, S. Christopoulos & Th. Karambas

Wave Regime and Shoreline Evolution of the Coastal Front of Kymi (Euboea)

S. Lesioti, S. Poulos, A. Karditsa & C. Aggelopoulos

10:30 - 11:00 Coffee break

11:00 - 11:30 Keynote IV: "Nature-based Solutions for Coastal Management and Resilience"

Prof. P. Prinos, Aristotle University of Thessaloniki, Greece

11:30 - 13:00 SESSION 9. Coastal Erosion and Management II

Chairs: G. Sylaios, G. Leftheriotis

A Sideways Look at 1-Line Beach Modelling

D. Reeve

Effects of Flow and Sediment Parameters on Vortex Ripple Morphodynamics

G.A. Leftheriotis & A.A. Dimas

Representative Waves for Estimating Annually Averaged Sedimentation and Erosion Trends in Sandy Coastal Areas using Numerical Models and Artificial Neural Networks

M. Diamanta & M. Chondros

Revisiting and Enhancing the Concept of Equivalent Wave Heights

A. Papadimitriou, V. Tsoukala & Th. Karambas

Wave Input Reduction Methods for Annual Bed Evolution Applications

A. Papadimitriou & V. Tsoukala

Decision-Making Tool for Mitigation of the Coastal Erosion and Extreme Wave Impacts in the Coastal Zone, in the Context of Climate Change

S. Liaros, S.E. Poulos, N. Kampanis, J.D. Alexopoulos, G. Alexandrakis, A. Karditsa, G. Ghionis, E. Vassilakis, M. Hatzaki, P. Nastos, P. Nomikou, V. Kotinas, E.-S. Stanota, A. Nteris, V. Methenitis, G.S. Mitsika, D. Lampridou, E. Margaritou, S. Skolovas, K. Nikolaou, A. Stamatoglou, I.K. Giannopoulos, V. Gkossios, A. Konsolaki, G. Kontostavlos, M. Konstantopoulou, M. Panagou, N. Gkogkos, L. Roussos, I. Exintavelonis, H. Roukouni & K. Stamatoglou

13:00 - 14:00 Lunch break

14:00 - 16:00 SESSION 10. Integrated Coastal Zone Management

Chairs: N.Th. Fourniotis, A. Valsamidis

Digitisation and Proactive Management of Coastal and Offshore Infrastructure and Environment

T. Onoufriou, C. Michailides & P. Christodoulides

A Case-Study for the Water Renewal in the Rio Castle Moat in Greece

G.A. Leftheriotis, I.S. Chalmoukis & A.A. Dimas

A Preliminary Study of Water Renewal in a Flow-Through Lake in Western Greece

N.Th. Fourniotis & G.A. Leftheriotis

Ground Penetrating Radar for Inspecting the Core and Base of Coastal Sand Dunes

J.D. Alexopoulos, I.K. Giannopoulos, G.S. Mitsika, V. Gkosis, A. Konsolaki, E. Vasillakis & S.E. Poulos

Coastal Marine Steel Corrosion: The Environment's Influence and In-Situ Monitoring – A Review

C. Kassinis, T. Onoufriou & C. Michailides

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Monitoring and Analysis of Coastal Eutrophication Using Remote Sensing

I. Biliani & I. Zacharias

Integrated Observatory System for Managing Coastal Erosion Risk due to Climate Change using Earth Observation Data:

A Project by the Managing Authority of the Central Macedonia Region, Greece

A.I. Triantafyllou, D.A. Natsiopoulos, A. Michailidou, E. Tzanou, G.S. Vergos and G.M. Tsakoumis

Carrying Capacity Indicators in Tourism – The Case of the Island of Paros Coastal Zone

D. Prokopiou & B. Tselentis

16:00 - 16:30 Coffee break

16:30 - 17:00 **Keynote V: "Sea-river Interactions within a Microtidal Environment:
Mouth Bar Generation and River Plume Evolution"**
Prof. M. Brocchini, Università Politecnica delle Marche, Italia

17:00 - 18:30 **SESSION 11. Ports & Port Engineering I**

Chairs: Th. Giantzi, C. Solomonidis

Towards a Digital Twin for Marine and Maritime Activities: The ILIAD Project Framework

G. Sylaios, A.-J. Berre, B.L. Bye, U. Broenner & V. Kiousi

Advancing Image Analysis Practices for Condition Assessment of Port Infrastructure with GIS Applications

C. Tsaimou, D.G. Kagkelis, P. Sartampakos & V. Tsoukala

Expansion of Pier 6 of the Port of Thessaloniki

C. Solomonidis, K. Papadopoulos, D. Pachakis, D. Fotiadis & V. Drossos

Creation of a Double Berth Jetty for Small Scale LNG Carriers & Barges in Revithoussa Island, Greece – A Multipurpose Terminal

C. Solomonidis, P. Biniskos & M. Aggelidis

Numerical Modelling of Dredged Material Dispersion at Dredging and Disposal Areas

Th. Karambas & A. Papageorgiou

Assessing the Impact of Climate Change in Wave Agitation for the Port of Piraeus

I. Kollias, A. Papadimitriou, M. Chondros, V. Chalastani, D. Spyrou, Ch. Laspidou, P. Koundouri & V. Tsoukala

Saturday MAY 27th

08:30-10:30

SESSION 12. Ports & Port Engineering II

Chairs: S. Christopoulos, C. Makris

Contemporary Types and Models of Private Sector Involvement in Ports

K. Chlomoudis & M. Tozidis

Smart and Green Ports

P. Boudouris

Piraeus Port Authority S.A. and Thessaloniki Port Authority S.A. before and after the Privatization

M. Voudigaris & Th. Giantsi

Revisiting Port Regulatory Governance & Substance: Towards a Holistic Supply Chain Approach

C. Chlomoudis, P. Pallis & T. Styliadis

Expectations and Risks for Greek Ports from the Upcoming New EU Regulation for the Trans European Transport Network (TEN-T)

Th. Giantsi

Expansion of a Quay Wall at the Port of Heraklion, Crete. Errors and Omissions that led to the Collapse

S. Lyrantzakis & Th. Giantsi

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Boomer Sub-Bottom Profiler: Also Valid for Distinguishing Habitat Boundaries during Port Geological Surveys? – An example from Armenistis Coastal Zone in Ikaria Island

A. Poulos, O. Andreadis, I. Petsimeris, K.A. Chtouris, T. Hasiotis, A. Kokoromytis & D. Karamaniolas

The Social Acceptance of Autonomous Merchant Ships in Greek Ports

C. Politopoulou, A.-F. Papathanasiou & Th. Giantsi

10:30 - 11:00 Coffee break

11:00-13:00 SESSION 13. Coastal Structures

Chairs: S. Gouloumis, E. Loukogeorgaki

Performance of a System of Detached Breakwaters on the South Corinthian Gulf

E. Papafotiou & Th. Giantsi

Kinematic Perturbations in Submerged Breakwaters under Waves

E. Repousis, N. Diplarakos, I. Roupas & C. Memos

Coastal Protection Works of Liopetri's River "Potamos", Cyprus

S. Gouloumis & M. Karas

Coastal Engineering Study for the Rehabilitation of the Beachfront at the Fire-Struck Area of Mati, Eastern Attica

C. Solomonidis & G. Fotis

A New Time-Dependent Irregular Wave Propagation Model

Th. Karambas, A.G. Samaras & C. Makris

LES of Wave Propagation on a Beach with Different Vegetation Characteristics

I.A. Chalmoukis, G.A. Leftheriotis & A.A. Dimas

Coastal Engineering Applications in Greece from a Consultant's Point of View

A. Valsamidis

13:00-14:00

SESSION 14. Geotechnical & Geo-environmental Engineering

Chairs: T. Hasiotis, Th. Karambas

Offshore Infrastructures in Greece: A New Era and a Big Challenge for Marine Geotechnical Surveying

T. Hasiotis & N.K. Chtouris

Satellite Derived Bathymetry (SDB) with no Use of Field Data

A.K. Mavraeidopoulos

Seabed Conditions in the Embayment of Agia Efimia (Kefalonia) Two Years after the Medicane Ianos

I. Petsimeris, A. Oikonomou, A. Poulos, O. Andreadis, V. Lioupa & T. Hasiotis

The Importance of Hydrography in Local Seismic Activity Monitoring: A Case Study in Katakolon Port, Kyparissiakos Gulf, Western Peloponnese, Greece

D. Kioussi, E. Oikonomou, A. Sartampakou & P. Sartampakos



NOTES



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