



3rd International Conference

DESIGN AND MANAGEMENT OF PORT,
COASTAL AND OFFSHORE WORKS

7-9 MAY 2025

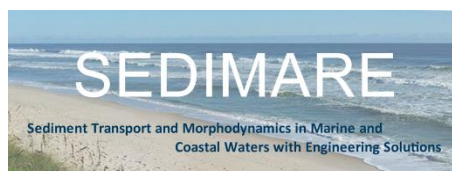
CONFERENCE & CULTURAL CENTER OF THE UNIVERSITY OF PATRAS

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WEDNESDAY MAY 7

Conference Opening – Welcome Addresses

09:00 - 09:15 **A. Dimas, Professor, Department of Civil Engineering, University of Patras**
F. Zaimis, Deputy Governor of Achaia of the Region of Western Greece, CPMR BBSC President

09:15 – 11:00 **SESSION 1. Coastal Modelling**
RM: I-4 **Chairs: A. Dimakopoulos – G. Leftheriotis**

Long-term Coastline Evolution: A Hybrid One-Line Model Approach for Urban Shorelines

S. Demetriade & D. Stagonas

Assessing the Impact of Climate Change on Shoreline Evolution in Alykes Beach, Zakynthos, Greece

A. Metallinos, A. Papadimitriou, M. Chondros, J. Reynolds & D. Roelvink

The Compound Hazard of Coastal Flooding and Beach Erosion at the Beaches of Platania and Agia Marina in Crete, Greece

D. Malliouri, C. Kyriakidou, S. Petrakis, D. Vandarakis, V. Moraitis, F.K. Gad, P. Drakopoulou & V. Kapsimalis

Developments in Wave-Induced Cross-Shore Sediment Transport Modelling Using the Telemac Suite

G. Kolokythas, W.A. Breugem, Wang L. & B. De Maerschalck

Numerical Modeling of Seagrass Effects on Cross-Shore Morphology

Th. Karambas & A.G. Samaras

Composite Modeling for the Simulation of Coastal Processes in the Fishing Shelter of Kato Pyrgos, Cyprus

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

Numerical Modeling and Machine Learning Techniques for Predicting Wave Disturbance: A Case Study at the Marina of Kalamata, Greece

O. Angelopoulou & M. Chondros

11:00 - 11:30 **Coffee break**

11:30 - 13:15 **SESSION 2. Hydrodynamics**
RM: I-4 **Chairs: C. Michailides – G. Kolokythas**

Calibration Approach for Mediterranean Wave, Current, and Tide Models

A. Scala, V. De Cristofano, E. Tomassetti, F. Ligorio & G. Cuomo

The-Oceans: A Cutting-Edge Solution for Global Metocean Insights

E. Tomassetti, A. Scala, V. De Cristofano & G. Cuomo

The Fate of Floating Particles Released in the Gulfs of Patras and Corinth System (Greece): A Numerical Study

A.G. Aspioti & N.Th. Fourniotis

Numerical Modelling of Marine Macroplastic Transport: Application to the Saronikos Gulf, Greece

A. Pospotikis & M. Chondros

Quasi-3D Modelling of Micro Plastics Advection and Dispersion in the Marine Environment

Th. Karambas, A. Zafeirakou, A. Katsouleas & G. Palantzas

Numerical Simulations of Oil Spill Incidents in the Framework of a Digital Twin

P. Keramea, N. Kokkos & G. Sylaios

Hydrodynamic Study of Upwelling Events in the Coastal Zone of Mussel Cultures of Chalastra (NW Thermaikos Gulf)

Y. Savvidis

13:15 - 14:15 **Lunch break**

14:15 - 16:00 SESSION 3. Wave Modelling
RM: I-4 Chairs: G. Cuomo – N. Fourniotis

A Methodology for Systematic Analysis and Processing of Critical Wave Events for Floating Structures, Towards the Definition of Design Wave Events

A. Paradeisiotis & D. Stagonas

The Evolution of Regular Wave Surface Elevations and Kinematics in the Coastal Zone

O. Millar, L. Ma & I. Karpadakis

The Evolution of Steep Wavefields as they Propagate into Shallower Water

G. Spiliotopoulos & V. Katsardi

Spectral Wave Modelling Using Different Forms of 1st Order Quasi-Coherent Approximations of the General Transport Equation

V. Baltikas & Y. Krestenitis

Real-time Forecasting of Coastal Waves using Neural Networks

W. Wright, J. Craske & I. Karpadakis

Predicting Significant Wave Height and Sea Level Using Reservoir Computing Multimodal Machine Learning

C. Karampas & Th. Karambas

3D Simulation of Irregular Waves in Harbor Using the Non-Hydrostatic Model SWASH

T. Koronakis & Th. Karambas

16:00 - 16:30 Coffee break

16:30- 18:15 SESSION 4. Wave Structure Interaction
RM: I-4 Chairs: E. Loukogeorgaki – G. Leftheriotis

Hydrodynamic Forces on Sea-bed Structures: A Methodology Overview for South-Eastern Mediterranean Sea

A. Mylonas, I. Roupas & C. Memos

Wave Loading on Slender Monopiles in the Vicinity of the Free Surface

X.L. Mao, L. Ma & I. Karpadakis

Focused Wave Impacts at a Rubble Mound Breakwater Crest Wall: A Physical Model Study

M. Sklia & B. Hofland

Multimodal Machine Learning Approaches for Accurate Wave Overtopping Discharge Predictions

Z. Sotireli & T. Karambas

Turbulence in Submerged Breakwaters under Regular and Irregular Surface Waves

I. Roupas, E. Repousis & C. Memos

Numerical Investigation of Wave Interaction with Porous Artificial Reef Units

G. Leftheriotis, I. Sibetheros & A. Dimas

Numerical Study on the Efficiency of Geotube Breakwaters for Coastal Protection during Extreme Storms

S. Petalas, N. Kokkos & G. Sylaios

THURSDAY MAY 8

09:00 - 09:30 RM: I-4	Keynote I: "Multiscale - Multiphysics Modelling of Metocean Processes for Marine and Coastal Applications, Current Practice and Outlook" <i>G. Cuomo, Director of Maritime Engineering and Hydraulics, SPERI SpA</i> Chairs: A. Dimas – A. Dimakopoulos
09:30 - 11:00 RM: I-4	SESSION 5. SEDIMARE: Advanced Hydro-Morphodynamics Chairs: Th. Karambas – C. Makris

SEDIMARE: A Marie-Sklodowska-Curie-Actions (MSCA) Doctoral Network

A. Dimas

Evaluation of RANS Turbulence Models for Weak Breaking Wave Simulations with a Moving Boundary using the InterFoam Solver

G. Pasiadis, G. Barajas, L.J. Lara, D.G.E. Grigoriadis & D. Stagonas

Numerical Investigation of Scour Evolution Around Monopile Structures Using sedInterFoam

N. Tiwari, M. Knaapen, S. Haeri & T. Attili

Numerical Analysis of Particle Trajectories Driven by Currents and Waves in an Idealized Estuarine Model

N. Soori, M. Brocchini & M. Postacchini

Impact of Flow and Sediment Parameters on the Morphodynamic Evolution of Vortex Ripples

G. Leftheriotis & A. Dimas

Large-Eddy Simulation of Turbulent Oscillatory Flow and Mixed-Grain Sediment Transport over Fixed Ripples

I. Tsipas, G. Leftheriotis & A. Dimas

11:00 - 11:30 **Coffee break**

11:30 - 13:30 RM: I-4	SESSION 6. Floating Wind Energy Chairs: I. Karmpadakis – Th. Gerostathis
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Ultimate Limit State Mooring System Design for a 10 MW Semi-submersible Offshore Wind Turbine in the Aegean Sea

T. Konstantaras & E. Loukogeorgaki

Design and Assessment of Three Catenary and Hybrid-Catenary Mooring Systems for a Semi-Submersible Wind Turbine

D. Manolas, D. Konispoliatis, S. Mavrakos & M. Meleddu

Comparison of CFD Simulations and Experimental Results for Floating Tension-Leg Platforms

D. Tsakalomatis, S. Papadopoulou, A. Trompouki, F. Mouzakis & A. Peppas

Analysis of the VoltturnUS-S 15 MW Offshore Wind Turbine under Extreme Environmental Conditions in Greek Seas

G. Tsoukleri & A. Dimas

A Numerical Wave Tank for Evaluating Dynamic Response of Floating Wind Platforms

A.S. Dimakopoulos, L. Daskalothanasi, A. Paradeisiotis & D. Stagonas

Simulating Floating Bodies Using Smooth Particle Hydrodynamics

I. Boufidi, I. Martínez-Estévez, A.J. Crespo & E. Loukogeorgaki

FORCYS; A 15 MW Floating Offshore Wind Turbine Conceptual Design

C. Michailides, E. Loukogeorgaki, W. Shi, S. Tsani, C. Tsipou, N. Mantadakis, I. Boufidi, C. Chytou & T. Tsaousis

Performance Assessment of FORCYS FOWT Combined with TALOS Wave Energy Converter

C. Michailides, E. Loukogeorgaki, G. Aggidis & W. Shi

13:30 - 14:30 **Lunch break**

14:30 - 16:15 **SESSION 7. Offshore, Coastal and Port Management I**
RM: I-4 **Chairs: A. Samaras – D. Tsakalomatis**

Optimal Siting of Offshore Wind Farms in Greece: Methodology, Cost Surface & Results; The Case of Patraikos State-Proposed Development Area

C. Tsiara, V. Katsardi, G. Spiliotopoulos & L. Vasiliades

Evaluation of the Proposed Offshore Wind Farm in the Gulf of Patras

S. Kontoe, A. Dimakopoulos, C. Pappas & K.F. Georgoutsou

Environmental Contours of Wind and Wave Actions in Thracian Sea for the Development of Offshore Wind Farms

E. Kostaki, C. Michailides & G. Panagopoulos

Türkiye's Offshore Wind Energy Potential and Suitable Offshore Wind Power Plant Site Selection in YEKA Zones

H.B. Güral & G.G. Akkurt

Assessment Framework for Integrating Socioeconomic Impacts in Maritime Spatial Planning

C. Politopoulou, A.F. Papathanasiou, L. Mitropoulos, A. Vassi & T. Giantsi

The Provision of Water Supply and Sanitation for Coastal Zones and Marine Infrastructure in Georgia: Challenges and Key Issues

L. Kavelashvili, Z. Tsinadze & K. Gordeziani

An Integrated Approach to Coastal Protection of Navagio (Shipwreck) Beach in Zakynthos, Greece

V. Tsoukala, A. Papadimitriou, P. Sartampakos, A. Metallinos, A. Ziros & M. Chondros

16:15 - 16:45 **Coffee break**

16:45 - 18:15 **SESSION 7. Offshore, Coastal and Port Management II**
RM: I-4 **Chairs: V. Katsardi – A. Papadimitriou**

Assessment of Property Exposure to Coastal Flooding in Urban Areas: Application in Miami (FL, USA)

C. Makris, Z. Mallios, Y. Androuridakis & V. Kourafalou

Risk Management of Commercial Ports, Methodology and Application to the Port of Palermo

F. Maresca, A. Scala, V. De Cristofano, A. Viviano & G. Cuomo

Determination of the Optimal Location of Commercial Ports for Sustainable Development: The Case of Elefsis Port

N. Kyriazi, G. Chatzimarkaki & Th. Giantsi

Harbour Layout Design in a Changing Climate Based on Advanced Numerical Models and Machine Learning: Incorporating Downtime and Upgrading Costs

A.G. Samaras, L. Iliadis & T.V. Karambas

Navigating the Integration of Digital Twins into Smart Ports: Processes, Interconnections, and Evolution

C.N. Tsaimou & V.K. Tsoukala

Enhancing Seismic Resilience of Port Infrastructures Using BIM Technology: A Case Study of the Port of Patras

P. Tsikas & A. Chassiakos

20:00 **Conference Dinner at Patras Sailing Club**
(transportation from the conference venue will be provided)

FRIDAY MAY 9

09:00 - 10:00 RM: I-4	Keynote II: “Innovative Monitoring and Maintenance Strategies for Ensuring the Sustainability of Major Infrastructure Projects in Harsh Environments: The Rio-Antirrio Bridge Case Study” <i>A. Stathopoulos-Vlavis, Chief Technical Officer, GEFYRA S.A.</i>
	Keynote III: “Digitally Deep: Enabling Holistic Digital Transformation with Advanced Surveying Systems” <i>Th. Xenakis, Director of Research and Innovation, METRICA S.A.</i>
	Chairs: V. Tsoukala – Th. Karambas
10:00 - 11:00 RM: I-4	SESSION 9. SEDIMARE: Wave Energy Chairs: M. Chondros – A. Metallinos

Statistics of OWC Power Output in Real Seas

Y.R. Almalki & I. Karmpadakis

Performance of Mixed Arrays of Heaving Wave Energy Converters in front of a Wall

E. Loukogeorgaki, C. Michailides & I.K. Chatjigeorgiou

The Influence of Different Ramp Slopes on the Amount of Water Discharge in an OBREC: Preliminary Numerical Results in the Port of Ancona

S. Osouli, M. Postacchini, I. Sabbioni & M. Brocchini

Hydrodynamic Analysis and Performance Evaluation of Wave Energy Converter Arrays in Nearshore and Coastal Regions

Th. Gerostathis, A. Magkouris & K. Belibassakis

11:00 - 11:30 *Coffee break*

11:30 - 13:15 RM: I-4	SESSION 10. Engineering Design and Construction Chairs: V. Tsoukala – A. Dimas
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Practical Guidance for Representative Wave Heights and Periods in the Surf Zone

U. Al Khalili, M. Christou & I. Karmpadakis

Experimental Measurements on a Physical Model for the Optimization of the Kato Pyrgos Fishing Shelter Layout in Cyprus

V. Tsoukala, M. Chondros, A. Ziros, G. Mplounas, E. Eleftheriadou, P. Sartampakos, A. Papadimitriou, A. Metallinos, A. Kalpias, A. Toumazis, C. Solomonidis & S. Zervos

A Practical Application of Assessing Wave Loads, Overtopping and Structural Stability on Crown Seawalls – The Case Study of Residential Developments on Al Marjan Island

A.S. Dimakopoulos, E. Vanino, K. Dasam, S. Vemuri, V. Nichannamettla, A. Buyukozer & E. Iribarren

Wave Action on Coastal Bridges: Engineering an Iconic 1,100-Meter Low-Lying Sea Bridge in KSA

N. Diplarakos, G. Fountoulis, D. Kolios & A. Alexandris

Challenges in the Construction of a Submarine Pipeline: Experience from a Metal Cooling Pipeline in Rhodes-Soroni Area

C.N. Roukounis & I. Sahinoglou

Runway 10-28 of the International Airport of Thessaloniki «MAKEDONIA»: The Implementation of an Extensive Embankment in the Sea

M. Papaiconomou, I. Efstathopoulou & Th. Samartzis

Audit Findings Evaluation of Coastal Engineering Studies

S. Gouloumis, E. Panopoulou, K. Kouros, V. Oikonomou, R.V. Araviadis & S. Michas

13:15 - 14:15 *Lunch break*

14:15 - 16:00 SESSION 11. Remote Sensing
RM: I-11 Chairs: D. Malliouri – G. Pouliasis

Design and Implementation of a Customisable GNSS based Wave Buoy

G. Voza, F. Ligorio, A. Scala, E. Tomassetti, F. De Santis & G. Cuomo

Integrated Modelling of Watershed-Coast System Morphodynamics in a Changing Climate: Considerations on the Use of Satellite Data

A.G. Samaras & M. Nones

Tracking Shoreline Changes in Northern Peloponnese, Western Greece: A Spatiotemporal Analysis Using Satellite Remote Sensing Observations

K. Panousis, J.M. Riedl, K.F. Georgoutsou, A. Dimakopoulos & C. Pappas

Satellite Derived Shoreline Detection Using PlanetScope Data - A Probabilistic Method

A. Hewetson, J. Lawrence & I. Karmpadakis

From Satellite to UAVs: The Role of Remote Sensing and Photogrammetry in Coastal Monitoring

K. Nikolakopoulos

Long-term Geophysical and Hydrographic Surveillance of Pockmarks in Katakolo Port, Greece: A Key Factor for the Optimization of Port Operations and Safety

D. Kiouisi, P. Sartampakos, C. Petropoulos, E. Mamitsa & V.K. Tsoukala

A Methodology to Correct Satellite Derived Chlorophyll-a Concentrations to Assess Coastal Waters' Eutrophication Status

I. Biliari & I. Zacharias

16:00 - 16:30 Coffee break

16:30 - 18:15 SESSION 12. Coastal Hazards
RM: I-11 Chairs: C. Pappas – A. Dimakopoulos

Preliminary Results of the Implementation of the Coastal Vulnerability Index in Greece

V. Boumpoulis, M. Michalopoulou, A. Kazolias, M. Geraga, N. Depountis & G. Papatheodorou

Assessing Coastal Vulnerability in Southeast Cyprus: A Methodological Framework for Developing a Coastal Vulnerability Index

E. Tsakalos, D. Stagonas, A. Sarris, M. Kazantzaki, M. Polidorou & E. Filippaki.

Empirical Formulations of Wave Setup on Reef Lined Coasts

G. Pouliasis & P. Higuera

Early Warning System for Coastal Hazards in Thermaikos Gulf (Aegean Sea)

C. Makris, Y. Androulidakis, V. Kolovoyiannis, K. Kombiadou, V. Baltikas, S. Kartsios, I. Pytharoulis, Z. Mallios & Y. Krestenitis

Deployment of a Compound Coastal Flooding Early Warning System

A. Papadimitriou, A. Metallinos, M. Chondros, P. Sartampakos, P. Kanelleas & V. Tsoukala

An Index Based Approach for Multi-risk Assessment of Future Climate Change Related Hazards

V. Boumpoulis, M. Masina, D. Ferrario, M. Maraschini, D. Nguyen, M.K. Dal Barco, H. Fonseca, O. Rufo, S. Torresan & A. Critto

Assessing the Coastal Flooding Risk from Present till 2100 at the Ancient City of Delos, Greece

D. Malliouri, S. Petrakis, L. Fadin, J.C. Moretti, D. Vadarakis, V. Moraitis, P. Drakopoulou & V. Kapsimalis

18:15 Closing

