CONFERENCE PROGRAM

2025 IEEE INTERNATIONAL WORKSHOP ON

Metrology for the Sea

GENOVA - OCTOBER 8-10, 2025

Università di Genova

RAISE

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Welcome Message from the General Chairs

On behalf of the Organising Committee, we welcome you in Genova, Italy!
This year MetroSea returns in Italy after two really successful events in Portorož, Slovenia and in La Valletta, Malta.
The 2025 IEEE International Workshop on Metrology for the Sea (*MetroSea 2025*) – Learning to Measure Sea Health Parameters – will take place at the NH Hotel Genova Marina, located in the city center, on a pier in the harbor. Genova's ancient maritime traditions date back to the XI century, during the period of the Maritime Republics (Genova, Pisa, Amalfi and Venezia) which were small city-states with strong commercial and economic power.
Genova's scientific and technical character is well represented by its University Schools, including those most closely linked to the sea, such as engineering, biology, geology, and economics. In particular, Genova's University offers one of Italy's three degree-courses in Naval Engineering, continuing the tradition of the historic Royal Naval Academy of Genova, founded in 1870.
The University's commitment to the sea is evidenced by the establishment of the Sea Center, which is characterized by close collaboration between various scientific sectors developing research activities related to the sea. The University also offers a PhD course on "*Marine Science and Technology*".
Interest in the sea does not stop at the University level. Genova is home to the Hydrographic Institute of the Navy, represented in this Congress by its Director, Rear Admiral Fabrizio Orengo. The Hydrographic Institute of the Navy in Genova was founded in 1872 at Forte San Giorgio as the state cartographic body, responsible for producing all Italian nautical documentation. Genova is also home to National Research Council Institutes related to the sea, such as the Institute of Marine Engineering.
The Conference is jointly organized by IEEE Italian, Bulgarian and Slovenian national Sections, as well by IEEE Ocean Engineering Society (OES) and IEEE Instrumentation and Measurement Society, involving several Chapters: IEEE OES Italian Chapter, IEEE Italian Instrumentation and Measurement Chapter, IEEE Sensors Council Italy Chapter, IEEE Women in Engineering Italian and Bulgarian Section Affinity Groups and IEEE Italian and Slovenian Sections of Young Professionals, and last but not least, with the contribution of The Regional Centre on Information Communication Technology – CeRICT.
We are pleased that the *IEEE 2025 MetroSea* Congress is sponsored by UNESCO as an Ocean Decade activity, underlining the Conference's support for sustainability, and again by the IEEE Oceanic Engineering Society, testifying its value and role in Society.

The sea is the special kind of water in which life on planet Earth began and which we all want to stay and evolve, even if we humans have to change our habits to do so. It is the water that made it possible for humans to travel from one continent to another in the first place and that is of

vital importance today. It also constitutes a great reservoir and a source of food for all living creatures. However, for generations it has served as a dumping ground for quietly and unpleasantly growing amounts of waste, especially on the seabed, and the battle to exploit the non-food minerals and resources it contains has begun. Its health is a major challenge to the survival of humanity, as it is one of the most important environmental components threatened by global warming.

Mastering the measurement of marine health parameters is a challenge for all of humanity, as evidenced by the growing interest in marine science. New technologies and analytical methods in this field have significantly improved the ability to obtain more detailed marine data by combining numerical approaches and measurement systems. For example, advances in computer science, data acquisition, modelling, spectrometric techniques, analysis and remote sensing have fostered collaboration between different scientific disciplines based on the measurement and interpretation of marine data. This multidisciplinary convergence includes the understanding and modelling of physical/chemical/biological processes and the transition to advanced digital techniques such as artificial intelligence and tools such as digital twinning to address the scientific and operational challenges of our seas and oceans.

The advantages of taking a multidisciplinary approach have minimized the uncertainty in marine technical research. The IEEE International Workshop on Metrology for the Sea 2025 is focused on bringing together individuals involved in creating instruments and measurement techniques for sea-related purposes and in developing advanced monitoring systems. It will address, among other topics, new technologies for monitoring the marine environment, measurement in sea industry production, sensors and signal conditioning and processing tailored to maritime use, and calibration methods for electronic testing and measurement specific to marine applications.

To promote breakthrough research on these topics, authors of all the above relevant contributions are welcome to submit an extended version to the special issue MetroSea 2025 Workshop, of the **IEEE Journal of Oceanic Engineering** by 31 January 2026. More details are available on the website.

The Workshop Technical Program consists of three parallel oral sessions (handling 18 special sessions and the regular ones), scheduled over three days. The technical program encompasses several events and activities. With the wide range of technical sessions covering the many fields of metrology for the sea we are happy to welcome you to the variety of technical presentations that await you this year. In particular, we welcome the members of the IEEE Oceanic Engineering Society that supports the Workshop in several ways.

We deeply thank the keynote speakers:

- *Marco Giovine*, University of Genova, President of the UniGe Sea Study Center, and *Navy LT Marco Saccone, Amerigo Vespucci Board Purser,* will speak about **The University of Genova's Sea Center and the Collaboration with the Italian Navy. The Joint Project Aboard the Amerigo Vespucci During its 2023-2025 World Tour**.
- *René Garello*, Professor Emeritus at IMT Atlantique, Life Fellow IEEE, will report and highlight challenges on **Ocean Observations and Climate Change**.
- *María de los Reyes Poo Argüelles*, University of Oviedo, Spain, will present advances obtained in navigation support systems: **NAOS: Maneuvering Support System for the Prevention of Ship Collisions**

We are pleased to have them as plenary speakers and thank them in advance for coming to our Conference to share their valuable knowledge and experiences with us.
The technical program also includes:

- **Tutorial** on **Bathymetric monitoring system for shallow waterbodies using autonomous unmanned flying and floating measurement platforms (INNOBAT)**, organized by Mariusz Specht, Gdynia Maritime University, Poland
- **Technical visits** offered by the Hydrographic Institute of the Navy to the nearby tide gauge, and to the historical instruments collection. See the web site for more information and visiting group reservation.

Three Awards are offered by International Institutions and Companies, and they will be assigned to best papers presented by young scientists.
In an effort to create a unified platform for researchers to share their discoveries in the field of marine metrology, the Workshop remained to keep a respectful number of special sessions. This expansion facilitates the natural meeting of experts and promotes discussions in their specific research areas. We thank the organisers of these special sessions for their cooperation and support in the organisation of the Workshop.
We would also like to thank the people who make this workshop possible every year. We are grateful for the invaluable contributions of all the authors and reviewers, as well as for the financial and moral support of our sponsors.
Finally, we would like to deeply thank all our Patrons and Sponsors, in particular the research project RAISE - Robotics and AI for Socio-economic Empowerment (ECS00000035) funded by the European Union - NextGenerationEU and by the Ministry of University and Research (MUR), National Recovery and Resilience Plan (NRRP), Mission 4, Component 2, Investment 1.5.
We all share a deep respect for the Sea, its health and its life. So, the IEEE International Workshop on Metrology for the Sea 2025 is just around the corner, and we wish you favourable wind and calm sea!

Francesco Crenna, *University of Genova, Italy*
Pasquale Daponte, *University of Sannio, Italy*
Giovanni Battista Rossi, *University of Genova, Italy*

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Sunao Yamashita, DKK-TOA Corporation, Japan
George Nicolaou Zodiatis, Oceanography Centre, University of Cyprus

IEEE MetroSea 2025 Keynote Speakers

Plenary Session - Wednesday October 8 - H 09:45

The University of Genoa's Sea Center and the Collaboration with the Italian Navy. The Joint Project Aboard the Amerigo Vespucci During its 2023-2025 World Tour

Marco **Giovine**
University of Genova, Italy

Marco **Saccone**
Italian Navy

ABSTRACT

The University of Genoa's Sea Center serves as an internal, cross-disciplinary hub to coordinate complex marine research and training initiatives. Its primary goal is to promote synergy and integration among the university's diverse research and teaching areas focused on the marine environment.

The Center's strength is its strong interdisciplinary nature, bringing together experts from seemingly distant sectors that are all intrinsically connected to the marine world. These fields include:

- Marine Sciences (biology, geology, oceanography)
- Engineering (naval, maritime)
- Law (maritime)
- Blue Economy (sustainable development, transport, and port facilities)
- Specialized Areas like languages (sea and navigation terminology), marine sports, and history (explorers and navigators).

This comprehensive approach allows the Sea Center to effectively address the complex challenges the sea presents: from sustainable resource management and ecosystem protection to developing innovative technologies and understanding climate change impacts. By fostering research networks, joint projects, and integrated training, the University of Genoa's Sea Center aims to be a national and international point of reference for maritime research, training, and innovation.

A Partnership at Sea

Among the projects coordinated by the Sea Center is a remarkable interdisciplinary research initiative carried out in partnership with the Naval Hydrographic Institute and the Italian Navy during the Amerigo Vespucci training ship's 2023-2025 World Tour.

Widely known as the “most beautiful ship in the world,” the Amerigo Vespucci recently completed her two-year global circumnavigation, a voyage combining the primary mission of training future naval officers with activities in diplomacy, culture, and scientific collaboration.

The unique collaboration with the University of Genoa’s Sea Center was a brilliant example of pooling expertise and resources. Beyond the significant scientific results, which are the subject of specific presentations, the project achieved a major outcome in terms of science diplomacy and mutual human growth between the crew and researchers, which opens the door to future joint ventures.

The Italian Navy's officer contribution to this keynote lecture will share real-life episodes at sea - including the successful passage of the legendary Cape Horn - to illustrate how teamwork, resilience, and the "crew spirit" enabled the Vespucci to face challenges and fulfill its multifaceted mission.

SPEAKERS BIOGRAPHIES

Professor Giovine's scientific and academic journey began with a Degree in Biological Sciences and a PhD in Biochemistry. He progressed through academic positions at the University of Genoa, becoming a Full Professor of Molecular Biology in 2024.

His research primarily focuses on marine molecular biology and marine biotechnology. He has led various national and international research projects in this field, and his scientific activity is documented by more than 80 publications in peer-reviewed international journals. He is also a co-inventor on several national and international biotechnology patents and a co-founder of two university spin-offs.

Prof. Giovine has held various academic appointments, including President of a Master's program in food biotechnology and Rector's Delegate for Student Orientation. He currently holds the position of President of the UniGe Sea Study Center, a strategic hub for advancing marine research and initiatives.

Lieutenant (Navy) **Marco Saccone**’s professional trajectory began with his graduation from classical high school in 2011, followed by his entry into the Italian Navy in 2012. He earned a Law Degree in 2017.

From 2017 to 2019, he served aboard the destroyer Caio Duilio, carrying out diverse operational and administrative duties.

Financial and Strategic Planning Expertise

In 2019, he was assigned to the Financial Office of the Defence General Staff, operating within the inter-forces domain in the Ufficio Generale Pianificazione, Programmazione e Bilancio (UGPPB). In this top interservice programming body, he was responsible for managing budget planning, resource allocation, and overseeing the financial distribution for Defence's investment sector. During this assignment, he also participated in the United Nations Contingent-Owned Equipment Working Group in New York (January 2023), contributing to discussions on the standardization and reimbursement of equipment used in UN peacekeeping operations.

Logistics and Administration on the Amerigo Vespucci

Since October 2023, Lieutenant Saccone has been embarked on board the Amerigo Vespucci as the Board Purser (Supply Officer / Commissario di Bordo). In this capacity, he is entrusted with the comprehensive administrative, financial, and logistical management of the vessel during its complex international operations. His duties include coordinating port calls, procurement, customs procedures, event organization, and diplomatic liaison.

Ocean Observations and Climate Change

René **Garello**
IMT Atlantique, Life Fellow IEEE

ABSTRACT

The impact of human activities on the ocean and on humanity is constantly increasing. Achieving climate resilience centers on both climate change mitigation and adaptation. A sustainable future of the oceans, seas and coasts is paramount for humankind. The IEEE and the Oceanic Engineering Society is at the crossroads of the technologies for global observations, integrated ocean observing systems, data management systems, and appropriate models leading to services. The focus will be on pollution – loss of biodiversity, health impacts, microplastics, etc. - and resource depletion, and how IEEE can propose clean-tech solutions to the community. The presentation will outline the need for more integration of measurements and sensors diversity. The collection of data, and their availability will be discussed. In particular a strong emphasis will be put on data quality assessment, processing and use of AI derived methodologies.

SPEAKER BIOGRAPHY

René Garello was born in 1953. He received the Ph.D. degree in Signal Processing at the Institut National Polytechnique de Grenoble (INPG) in 1981. From 1982 to 1984 he worked as a Research Associate at Aeronomy Lab, National Oceanic and Atmospheric Administration (NOAA) in Boulder, Colorado (USA). He joined the Institut Mines-Telecom Atlantique (IMT Atlantique, formerly Telecom Bretagne), Brest, France in 1985. In 1988, he became Professor in this engineering school in the field of signal processing and image processing and in 1995, Prof. Garello obtained his Habilitation (HDR; Habilitation to Supervise Research). Prof. Garello retired in Sept. 2021 with the status of Professor Emeritus.

His main research interests lie in Remote Sensing, 2D signal processing, statistical and spectral analysis applied to ocean surface features detection and characterization. For the last two decades, he has worked in the development of signal and image processing tools for the interpretation of radar signals and the extraction of sea surface features, either natural (wind, waves, currents) or manmade (ships, pollution). These application fields were supported by several European projects and industrial contracts. He is presently engaged in several initiatives

on the topic of Marine Debris and Plastic in the oceans, sustainable developments and ocean best practices systems. Prof. Garello has authored or co-authored more than 60 papers, a hundred and thirty conference communications and three books. He had supervised more than 30 PhD students. For all his works, Prof. Garello was elevated to the grade of Fellow of the IEEE, class of 2006, “for contributions to signal processing applied to remote sensing of the ocean”. In 2021, he received the Distinguished Technical Achievement Award from IEEE OES "for signal and image processing of remotely sensed measurements of the ocean and connecting to physical oceanography solutions". At IMT Atlantique, Prof. Garello was the head of the research team TOMS (Traitement, Observation et Méthodes Statistiques – Processing, Observations and Statistical Methods) within the CNRS unit Lab-STICC before creating the ICTO (Information & Communication Technologies for Oceans) program. He was the director of the Scientific Interest Group Bretagne Télédétection (Brittany Remote Sensing) and leader of the project VIGISAT, a satellite radar receiving ground station for which he obtained twice a multi-million € grant (2009-2014; 2015-2020).

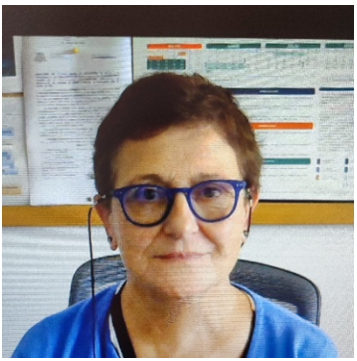
Prof. Garello was an elected IEEE Oceanic Engineering Society AdCom member from 1999 to 2001, from 2003 to 2005 and in 2005 for a new three-year term. In 2005, he was elected Vice-President Conference Operations and then re-elected in 2006 and 2008. In the beginning of 2001, he headed the Committee for defining a new set of Conference Policies and Procedures in order to insure continuity between successive OCEANS conferences. This committee (called JOAB – Joint OCEANS Administrative Board) defined several new approaches and came up with the concept of two Oceans-a-year (every year in Northern America, every other odd year in Europe and every other even year in Asia-Pacific).

Prof. Garello was the General Chairman of the first OCEANS of the new Two-Oceans-a-year concept: OCEANS’05 held in Brest, France in June 2005. He received the OES Distinguished Service Award (DSA) in 2006 for developing and implementing the two OCEANS conference policy. In 2012, Prof. René Garello was elected President of the IEEE OES for a two-year term and re-elected by acclamation in 2014. He was from 2017 to 2019 the chair of the IEEE Environmental Engineering Initiative, and has been for the same period seating as principal for IEEE at the GEO (Group on Earth Observation) Executive Committee.

Prof. Garello was an elected TAB member of the IEEE Conferences Committee (2015-2016), 2017 Member of the TAB Re-Connect Ad Hoc Committee. He was appointed as a member of the IEEE TAB Strategic Planning Committee from 2017 to 2019. Prof. René Garello is presently President of the IEEE France Section, elected for the period 2023-2025.He co-chaired the OBPS (Ocean Best Practices System) Steering Committee, a UNESCO/IOC supported project for the period 2023-2024.

He is the chair of the IEEE Region 8 ad hoc Committee on Climate change for the period 2025-2026.

He will be the General Chair of the IEEE OCEANS 2025 conference to be held in Brest in June 2025.



NAOS: Manoeuvring Support System for the Prevention of Ship Collisions

María **de los Reyes Poo Argüelles**
University of Oviedo, Spain

ABSTRACT

Maritime transport handles more than 80% of the volume of goods traded worldwide. Collisions between vessels are among the greatest risks in maritime transport and often have the most severe consequences. Human error is one of the main contributing factors: failures in supervision (such as inadequate lookout or delayed evasive action), misinterpretation of the International Regulations for Preventing Collisions at Sea (COLREGs), and lack of communication between the vessels involved.

Decision support systems/collision avoidance (DSS/CAS) aimed at preventing and avoiding such accidents should become essential equipment on all vessels. Above all, their adaptation and integration into Maritime Autonomous Surface Ships (MASS) will be crucial. The IMO will require that the DSS/CAS used in MASS be as effective as human Officers in charge Of the Navigational Watch (OONWs).

With the aim or reducing the mentioned human contributing factors in the collision risk, a software application has been implemented. This application, connected to the ship's Automatic Identification System (AIS), presents both received and calculated data for all nearby vessels. It provides the OONW with an intuitive visualization of the current risk situation, assisting in the selection of the most appropriate manoeuvres in accordance with COLREGs to resolve all potential risk scenarios.

The presentation will outline with several examples the foundation and applicability of this software, and will discuss the capabilities that can be added, as well as the planned adaptations for different types of vessels and operational environments.

It will show the tools currently available to the OONW for supporting watchkeeping and manoeuvring during navigation, and the contributions that the proposed system offers in this context.

Particular attention will be given to the common shortcomings in COLREG compliance that most publications on collision avoidance systems still exhibit, and how these issues are addressed in

the application. The transition from being a decision-support tool for the OONW to becoming an integral part of an autonomous navigation system will also be explored.

SPEAKER BIOGRAPHY

Dr. **Reyes Poo Argüelles** is an Associate Professor at the University of Oviedo, where she has been a faculty member in the Department of Electrical, Electronic, Communications and Systems Engineering since 1988. Throughout her academic career, she has taught control-related subjects at the undergraduate level in the School of Maritime Studies and has also been involved in graduate education, within the Master's Degree in Automation and Industrial Computing. In this program, she teaches a course on advanced automation systems, with a specific focus on safety in plant and process automation.

Her research expertise lies in the field of automation, with a particular emphasis on maritime safety and the development of collision avoidance algorithms and technologies. She has authored and co-authored several peer-reviewed publications on the specification of safety functions in navigational systems, the use of finite state machines in inter-ship communication, and the integration of COLREGs into collision avoidance algorithms.

Dr. Poo Argüelles is also active in international collaboration, notably through her involvement with the EduNet International Education Network and the EduNet World Association. She was a partner member in the Erasmus+ project Education & Training for Automation 4.0 in Thailand (ETAT) (2020–2023), which aimed to enhance industrial automation training and education in Southeast Asia.

Bathymetric monitoring system for shallow waterbodies using autonomous unmanned flying and floating measurement platforms (INNOBAT)

Mariusz **Specht**

Gdynia Maritime University, Poland

ABSTRACT

As part of the INNOBAT research project, conducted in 2021-2024, a bathymetric monitoring system for shallow waterbodies using autonomous unmanned flying and floating measurement platforms was developed.

The INNOBAT system enables the study of the coastal topography in accordance with the requirements provided for the second most stringent International Hydrographic Organization (IHO) order – Special (horizontal position error ≤ 2 m (p=0.95), vertical position error ≤ 0.25 m (p=0.95)). The bathymetric and topographic system enables accurate and precise measurement of the entire coastal relief based on data acquired by a camera, a Light Detection And Ranging (LiDAR) and a Global Navigation Satellite System (GNSS)/Inertial Navigation System (INS) mounted on an Unmanned Aerial Vehicle (UAV), as well as by a MultiBeam EchoSounder (MBES) and a GNSS Real Time Kinematic (RTK) receiver placed on an Unmanned Surface Vehicle (USV). LiDAR data enable the development of a numerical model of the land area. Aerial photos taken by the camera allow for determining coastline course and estimating depths in the area between the shoreline and the minimum isobath recorded by the echo sounder mounted on the USV. The remaining part of the seabed is measured by the integrated hydrographic system (MBES and GNSS RTK receiver) placed on the USV.

The geospatial data obtained in this way are then subjected to multi-sensor fusion (integration) to the target 3D coordinate system (PL-UTM/PL-EVRF2007-NH). For this purpose, the INNOBAT system computer application is used, consisting of four plugins for QGIS software:

- *Grid creator* – the task of this module is to integrate hydroacoustic and optoelectronic data and to use algorithms designed to model the coastal zone topography.

- *Depth prediction* – the task of this module is to determine the depth of a shallow waterbody based on the Structure from Motion (SfM) point cloud using the Support Vector Regression (SVR) algorithm.
- *Shoreline extraction* – the task of this module is to extract the coastline from LiDAR data using the algorithms proposed by Xu S. et al. and the contour method.

After harmonisation of geospatial data, a final numerical model of the coastal zone is developed in the form of a topo-bathymetric chart. Based on the model generated in this way and the information obtained, it is possible to assess the navigational and hydrographic situation of the shallow waterbody, including the coastline course, three-dimensional position coordinates, the waterbody area, etc.

SPEAKER BIOGRAPHY

Mariusz Specht received a PhD degree in civil engineering and transport from the Polish Naval Academy, Poland, in 2019. His doctoral dissertation, entitled: Determining the territorial sea baseline using a USV in selected waterbodies of the Republic of Poland, focused on developing methods for determining the territorial sea baseline, which is the maritime boundary of a coastal state, using a USV. Now, he works at Gdynia Maritime University as an assistant professor in the Department of Transport.

Mariusz Specht is the author or co-author of 108 peer-reviewed scientific publications, including 71 articles in JCR journals. He managed 3 research projects financed from external sources: National Centre for Research and Development, Ministry of Science and Higher Education and National Science Centre, as well as 2 research projects financed as part of the statutory activities of Gdynia Maritime University. Additionally, he has presented 28 papers at scientific conferences and co-organised 6 scientific conferences. Moreover, he was a reviewer of 126 publications in 36 scientific journals. He has also reviewed 2 PhD theses and acted as an assistant supervisor in a successfully defended doctoral dissertation. His publications, research projects and conference presentations focus on hydrography, satellite geodesy and satellite navigation.

IEEE MetroSea 2025 Venue

IEEE MetroSea 2025 will be held at the Hotel NH Collection Genova Marina.

An outstanding architectural hotel, the NH Collection Genova Marina rises on stilt-like pillars above Genoa's renovated Old Port area. Designed by Renzo Piano, this unique and distinctive modern building is close to the harbor attractions and cruise terminal, and within a short walk of the historic city center.

ADDRESS

Hotel NH Collection Genova Marina
Molo Ponte Calvi, 5 - Genova

Use the QRCode to open the location on *Google Maps*

IEEE MetroSea 2025 Social Events

WELCOME PARTY
Wednesday October 8 - H 19:00

The **IEEE MetroSea 2025 Welcome Party** will be held at the "***Hotel NH Collection Genova Marina***" on **Wednesday, October 8 - 19:00**.

ADDRESS
Hotel NH Collection Genova Marina
Molo Ponte Calvi, 5 - Genova

GALA DINNER
Thursday October 9 - H 20:00

The IEEE MetroSea 2025 **Gala Dinner** will be held at **"*Restaurant Giotto - Hotel Bristol Palace*"** on **Thursday, October 9 - 20:00**.

ADDRESS
Restaurant Giotto - Hotel Bristol Palace
Via XX Settembre, 35 - Genova

IEEE MetroSea 2025 Patronages

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Program Schedule - Wednesday, October 8

WEDNESDAY - OCTOBER 8				
09:00 - 09:45	OPENING CEREMONY - WELCOME ADDRESSES			
09:45 - 10:30	KEYNOTE LECTURE - Marco Giovine, University of Genova - Marco Saccone, Italian Navy The University of Genoa's Sea Center and the Collaboration with the Italian Navy. The Joint Project Aboard the Amerigo Vespucci During its 2023-2025 World Tour			
10:30 - 11:30	PANEL SESSION - AFCEA Chapter of Naples			
11:30 - 12:00	COFFEE BREAK			
	Mediterraneo Hall	Adriatico Hall	Tirreno Hall	
12:00 - 13:20	Session 1.1 - Multisource innovative approaches for enhancing the usability of metocean data	Session 1.2 - Artificial Intelligence for Marine Ecosystem Monitoring, Biodiversity Conservation, and Climate Change Impact Assessment - PART I	Session 1.3 - Towards Transparent Ocean using Underwater Sensor Networks - PART I	
13:20 - 14:40	LUNCH			**TECHNICAL VISITS**: The tide gauge at Ponte Morosini and The historical collection of measuring instruments GROUP A - GROUP B
	Mediterraneo Hall	Adriatico Hall	Tirreno Hall	
14:40 - 16:00	Session 2.1 - Methodologies and ecological indicators for the monitoring of anthropogenic impacts in transitional waters and marine ecosystems - PART I	Session 2.2 - Artificial Intelligence for Marine Ecosystem Monitoring, Biodiversity Conservation, and Climate Change Impact Assessment - PART II	Session 2.3 - Towards Transparent Ocean using Underwater Sensor Networks - PART II	
16:00 - 16:20	COFFEE BREAK			
16:20 - 17:20	Session 3.1 - Methodologies and ecological indicators for the monitoring of anthropogenic impacts in transitional waters and marine ecosystems - PART II			
19:00	WELCOME PARTY - Hotel NH Collection Genova Marina			

THURSDAY - OCTOBER 9				
	Mediterraneo Hall	Adriatico Hall	Tirreno Hall	
09:00 - 10:40	Session 4.1 - Detection and monitoring of water contamination phenomena	Session 4.2 - Modeling, measurements and products for satellite remote sensing of inland water bodies and coastal regions	Session 4.3 - Advancing marine megafauna research: monitoring techniques, modeling approaches, and conservation strategies	
10:40 - 11:00	COFFEE BREAK			
11:00 - 11:45	KEYNOTE LECTURE - René Garello, IMT Atlantique Ocean Observations and Climate Change			
11:50 - 13:10	Session 5.1 - Instrumentation and systems for maritime applications - PART I	Session 5.2 - Advancing Marine State Observation: Traditional Technologies, Innovations, and Project Initiatives	Session 5.3 - Marine Benthic Species as Key Players in Biodiversity and Ecosystem Health Monitoring - PART I	
13:10 - 14.30	LUNCH			**TECHNICAL VISITS**: The tide gauge at Ponte Morosini and The historical collection of measuring instruments GROUP C - GROUP D
14:30 - 15:10	TUTORIAL SESSION - Mariusz Specht, Gdynia Maritime University Bathymetric monitoring system for shallow waterbodies using autonomous unmanned flying and floating measurement platforms (INNOBAT)			
	Mediterraneo Hall	Adriatico Hall	Tirreno Hall	
15:10 - 16:30	Session 6.1 - Instrumentation and systems for maritime applications - PART II	Session 6.2 - Technologies, techniques and methodologies for coastal monitoring - PART I	Session 6.3 - Marine Benthic Species as Key Players in Biodiversity and Ecosystem Health Monitoring - PART II	
16:30 - 16:50	COFFEE BREAK			
16:50 - 18:20	Session 7.1 - Instrumentation and systems for maritime applications - PART III	Session 7.2 - Technologies, techniques and methodologies for coastal monitoring - PART II	Session 7.3 - Marine Benthic Species as Key Players in Biodiversity and Ecosystem Health Monitoring - PART III	
20:00	**GALA DINNER** - *Restaurant Giotto - Hotel Bristol Palace* Via XX Settembre, 35 - Genova			

FRIDAY - OCTOBER 10			
	Mediterraneo Hall	Adriatico Hall	Tirreno Hall
09:00 - 10:40	Session 8.1 - Metrology in Marine Geology: surveing tecniques, geological cartography and associated community databases	Session 8.2 - Indicators of state for the marine ecosystems: physical and biological contributions	Session 8.3 - Remote sensing, in-situ surveys, and GIS applications for marine and coastal areas - PART I
10:40 - 11:00	COFFEE BREAK		
11:00 - 11:45	KEYNOTE LECTURE - María de los Reyes Poo Argüelles, University of Oviedo NAOS: Manoeuvring Support System for the Prevention of Ship Collisions		
11:50 - 13:30	Session 9.1 - Marine Robotics for Sea Metrology - PART I	Session 9.2 - General Session	Session 9.3 - Remote sensing, in-situ surveys, and GIS applications for marine and coastal areas - PART II
13:30 - 14:40	LUNCH		
	Mediterraneo Hall	Adriatico Hall	Tirreno Hall
14:40 - 16:00	Session 10.1 - Marine Robotics for Sea Metrology - PART II	Session 10.2 - Nowcast and forecast of metocean conditions	Session 10.3 - Networking oceanography and metrology: examples and open challenges
16:00 - 16:20	COFFEE BREAK		
16:20 - 17:00	CLOSING AND AWARD CEREMONY		

08:30 - 18:00	*Hotel NH Collection Genova Marina* **REGISTRATIONS**

09:00 - 09:45	*Mediterraneo Hall* **OPENING CEREMONY - WELCOME ADDRESSES**

09:45 - 10:30	*Mediterraneo Hall* **PLENARY SESSION - KEYNOTE LECTURE** **Chair**: Giovanni Battista Rossi, *University of Genova*

The University of Genoa's Sea Center and the Collaboration with the Italian Navy. The Joint Project Aboard the Amerigo Vespucci During its 2023-2025 World Tour

Marco Giovine, *University of Genova, Italy*
Marco Saccone, *Italian Navy*

10:30 - 11:30	*Mediterraneo Hall* **PANEL SESSION - AFCEA Chapter of Naples** **Chair**: Giovanni Savoldelli Pedrocchi, *AFCEA Chapter of Naples*

10:30 **Welcome Addresses - Introduction**

10:40 **WSense's solutions for the Underwater Domain: Environmental and Critical Infrastructures Monitoring**
Maria Angelucci, Sales Manager - WSense

11:00 **Computer Vision for Maritime Operations**
Giuseppe Berrelli, Fincantieri

11:20 **Final Remarks**

11:30 - 12:00	*Hotel NH Collection Genova Marina* **COFFEE BREAK**

12:00 - 14:00 *Mediterraneo Hall*

Session 1.1 - Multisource innovative approaches for enhancing the usability of metocean data

Chair: Giuseppe Giorgi, *Polytechnic University of Turin, Italy*

12:00 **Machine Learning-Based Technique for the Correction of Numerical Wave Modelling over the Northern Tyrrhenian Sea**
Manuel Corrales-Gonzalez, Emiliano Gorr-Pozzi and Giuseppe Giorgi (Politecnico di Torino, Italy)

12:20 **On the Complementarity of Wind, Wave and Solar Energy in North Tyrrhenian Sea**
Lucia Clara Cairella (MOREnergy lab, Politecnico di Torino, Italy); Hafiz Ahsan Said (Maynooth University, Ireland); Edoardo Pasta (Politecnico di Torino, Italy)

12:40 **On the Inference of the Peak Wave Period Using Satellite Altimetry Measurements**
Leonardo Gambarelli and Edoardo Pasta (Politecnico di Torino, Italy); Clauidia Cecioni (Università degli Studi Roma Tre, Italy); Paolo Brandimarte and Giuseppe Giorgi (Politecnico di Torino, Italy)

13:00 **Benchmarking and Classification of Multi-Source Metocean Datasets in the Northern Tyrrhenian Sea**
Francesco Callea and Giuseppe Giorgi (Politecnico di Torino, Italy); Markel Penalba (Mondragon Unibertsitatea, Spain)

13:20 **Wave Field Variability at Model Grid Scale: Results from a Moored Buoy Array Offshore Livorno**
Carlo Brandini, Bartolomeo Doronzo (CNR ISMAR & Consorzio LaMMA, Italy); Luca Centurioni (University of California, USA); Stefano Taddei (Consorzio LaMMA, Italy); Angelo Boccacci (CNR ISMAR, Italy)

13:40 **Wind and Waves in Arabian Peninsula: Extremes and Resource Assessment**
Valentina Laface and Felice Arena (Mediterranea University of Reggio Calabria, Italy)

12:00 - 13:20 *Adriatico Hall*

Session 1.2 - Artificial Intelligence for Marine Ecosystem Monitoring, Biodiversity Conservation, and Climate Change Impact Assessment - PART I

Chairs: Fabiana Di Ciaccio, *University of Florence, Italy*
Leonardo Saccotelli, *CMCC Foundation, Italy*

12:00 **Assessment of Marine Biofouling Coverage on Surfaces Using a Machine Learning-Based Image Recognition Software**
Filippo Castelli and Veronica Piazza (National Research Council, Italy); Ennio Ottaviani and Isabel Carozzo (On AIR, Italy); Francesco Rosasco (Independent Consultant, Italy); Francesca Garaventa (National Research Council, Italy)

12:20 **Deep Learning-Based Detection of Nephrops Norvegicus Burrows**
Oscar Papini, Enrico Cecapolli and Filippo Domenichetti (National Research Council of Italy, Italy); Gabriele Pieri (ISTI-CNR & Institute of Information Science and Technologies - National Research Council of Italy, Italy); Marco Reggiannini, Lorenzo Zacchetti and Michela Martinelli (National Research Council of Italy, Italy)

12:40 **Underwater Inspection Platform for Vision-Based Biodiversity Identification**
Gianluca Manduca and Gaspare Santaera (Scuola Superiore Sant'Anna, Pisa, Italy); Ada Natoli (Zayed University, United Arab Emirates); Giulia De Masi (Sorbonne University-Abu Dhabi, United Arab Emirates); Cesare Stefanini (Dean, Italy); Donato Romano (Scuola Superiore Sant' Anna, Italy)

13:00 **A Hybrid Classification Approach for Shoreline Detection Through Automatic Training Site Generation**
Emanuele Alcaras, Francesco Giuseppe Figliomeni and Pier Paolo Amoroso (Parthenope University of Naples, Italy); Mariusz Specht (Gdynia Maritime University, Poland)

12:00 - 13:20 *Tirreno Hall*
Session 1.3 - Towards Transparent Ocean using Underwater Sensor Networks - PART I
Chairs: Filippo Campagnaro, *University of Padova, Italy*
Naoki Motoi, *Kobe University, Japan*

12:00 **A Reliable Transfer File Protocol over UDP for Multihop Underwater Acoustic Networks**
Vincenzo Cimino, Filippo Campagnaro and Michele Zorzi (University of Padova, Italy)

12:20 **Multispectral Satellite Imaging for Detection and Quantification of Floating Coastal Macro-Litter**
Faisal Mehmood Shah and Faranak Fough (Robert Gordon University, United Kingdom); Muhammad Rashid (National Universtiy of Technology, Pakistan); Nazila Fough (University of Glasgow, United Kingdom)

12:40 **Comparative Security Performance Analysis of DSSS and FHSS in Underwater Acoustic Channels**
Khaliq Ur Rahman (Robert Gordon University, United Kingdom); Nazila Fough (University of Glasgow, United Kingdom); Christopher D McDermott, Rida Sundas and Somasundar Kannan (Robert Gordon University, United Kingdom)

13:00 **Deep Learning-Based Direction of Arrival Estimation for Underwater Acoustic Sources Using BPSK Signals and Multiple Array Geometries**
Rida Sundas, Ali Rohan, James Njuguna and Khaliq Ur Rahman (Robert Gordon University, United Kingdom); Nauman Anwar Baig (National University of Sciences and Technology, Pakistan); Rabeel Ahmed (Robert Gordon University, United Kingdom); Nazila Fough (University of Glasgow, United Kingdom)

13:20 - 14:40	*Hotel NH Collection Genova Marina* **LUNCH**

13:30 - 15:00	**TECHNICAL VISITS - GROUP A - GROUP B** *The tide gauge at Ponte Morosini* *The historical collection of measuring instruments*

14:40 - 15:40	*Mediterraneo Hall* **Session 2.1 - Methodologies and ecological indicators for the monitoring of anthropogenic impacts in transitional waters and marine ecosystems - PART I** **Chairs:** Matilda Mali, *Polytechnic University of Bari, Italy* Pasquale Ricci, *University of Bari Aldo Moro, Italy*

14:40 **Breakdown of Polycyclic Aromatic Hydrocarbons in Different Size Fractions of Marine Sediments**
Santina Giandomenico, Lucia Spada, Maria Immacolata Acquaviva (Water Research Institute (IRSA) CNR, Italy); Matilda Mali (Politecnico di Bari & DICATECh, Italy)

15:00 **Recovery of Cellulose Acetate from Spent Cigarette Filters by Green Solvents for Production of Polymer Film**
Darya Nefedova (Politecnico di Bari, Italy); Matilda Mali (Politecnico di Bari & DICATECh, Italy); Stefano Todisco, Piero Mastrorilli and Maria Michela Dell'Anna (Politecnico di Bari, Italy)

15:20 **A Cross-Disciplinary Approach for Marine Waste Valorisation**
Matilda Mali, Rossella Petti, Michele Notarnicola and Francesco Todaro (Politecnico di Bari, Italy); Sara Dastoli (ISPRA, Italy); Grazia Masciandaro, Eleonora Peruzzi and Serena Doni (CNR, Italy); Antonella Di Leo (Water Research Institute IRSA - CNR Taranto, Italy); Marcella Narracci (National Research Council, Italy); Fabiano Pilato, Davide Sartori and Enrichetta Barbieri (ISPRA, Italy); Nancy Attolico and Paolo Iusco (ADSP MAM, Italy); Simone Pacciardi (ADSP MLo, Italy); Andrea Petrella (Politecnico di Bari, Italy); Davide Vetrala (ADSPMLOr, Italy); Dimitrios Spyrou and Ioannis Alefantinos Lais (Port Authority of Piraeus, Greece); Claudia Vitone (Politecnico di Bari, Italy)

14:40 - 16:00	*Adriatico Hall* **Session 2.2 - Artificial Intelligence for Marine Ecosystem Monitoring, Biodiversity Conservation, and Climate Change Impact Assessment - PART II** **Chairs:** Fabiana Di Ciaccio, *University of Florence, Italy* Leonardo Saccotelli, *CMCC Foundation, Italy*

14:40 **Deep Learning-Based Visual Approaches for Underwater Garbage Detection**
Dario Perhat (University of Zagreb, Croatia); Fausto Ferreira (University of Zagreb & CoE MARBLE, Croatia)

15:00 **Diagnosing and Addressing Spatio-Temporal Autocorrelation in Marine Megafauna Habitat Models in the Mediterranean Sea**
Carla Cherubini (University of Bari, Italy); Leonardo Saccotelli (CMCC, Italy); Giulia Cipriano, Giovanni Dimauro (University of Bari, Italy); Francesca Cornelia Santacesaria (Jonian Dolphin Conservation, Italy); Angelica Catacchio (CoNISMa, Italy & University of Bari, Italy); Giovanni Coppini (CMCC, Italy); Carmelo Fanizza (Jonian Dolphin Conservation, Italy); Roberto Carlucci (University of Bari, Italy); Rosalia Maglietta (STIIMA-CNR, Italy)

15:20 **Preliminary Insights into Cluster-Based Estuarine Prediction Using Machine Learning**
Leonardo Saccotelli, Giorgia Verri and Alessandro De Lorenzis (CMCC, Italy); Gianluca Epifani and Carla Cherubini, Giovanni Dimauro (University of Bari, Italy); Giovanni Coppini (CMCC, Italy); Rosalia Maglietta (STIIMA-CNR, Italy)

15:40 **Vision-Language Models for Underwater Ecological Monitoring**
Rim ElTobgui, Saverio Iacoponi, Sajid Javed and Federico Renda (Khalifa University, United Arab Emirates); Giulia De Masi (Sorbonne University-Abu Dhabi, United Arab Emirates); Jorge Dias (Khalifa University, United Arab Emirates)

14:40 - 16:00 *Tirreno Hall*
Session 2.3 - Towards Transparent Ocean using Underwater Sensor Networks - PART II
Chairs: Filippo Campagnaro, *University of Padova, Italy*
Naoki Motoi, *Kobe University, Japan*

14:40 **Robot Operating System (ROS) Talks Underwater: an Open-Source Communication Middleware to Control Underwater Vehicles**
Davide Costa, Filippo Campagnaro and Michele Zorzi (University of Padova, Italy)

15:00 **Acoustic Propagation Studies Across Seasons for Wireless Underwater Seismological Sensor Networks in the Sea of Marmara**
Craig Stewart (Robert Gordon University, United Kingdom); Nazila Fough (University of Glasgow, United Kingdom); Khaliq Ur Rahman (Robert Gordon University, United Kingdom); Radhakrishna Prabhu (IDEAS Research Institute, United Kingdom)

15:20 **Tracking Coastal Change Along Pakistan's Shoreline Using Remote Sensing and Machine Learning: a Meteorological Approach for Marine Geology**
Faisal Mehmood Shah (Robert Gordon University, United Kingdom); Nazila Fough (University of Glasgow, United Kingdom)

15:40 **Underwater Bilateral Control with Reaction Torque Observer Considering Buoyancy and Fluid Force**
Shotaro Yagi and Naoki Motoi (Kobe University, Japan)

16:00 - 16:20	*Hotel NH Collection Genova Marina* **COFFEE BREAK**

16:20 - 17:40	*Mediterraneo Hall* **Session 3.1 - Methodologies and ecological indicators for the monitoring of anthropogenic impacts in transitional waters and marine ecosystems - PART II** **Chairs:** Matilda Mali, *Polytechnic University of Bari, Italy* Pasquale Ricci, *University of Bari Aldo Moro, Italy*

16:20 **Ecological Status of the Macrobenthic Assemblages Impacted by Clam Fishery in the Southern Adriatic Sea**
Francesca P De Luca (CoNISMa, Italy); Daniela Cascione (Polytechnic University of Bari, Italy); Giulia Cipriano (University of Bari, Italy); Angelica Catacchio (CoNISMa, Italy & University of Bari, Italy); Roberto Carlucci (University of Bari, Italy); Diana De Padova, Michele Mossa (Politecnico di Bari, Italy); Pasquale Ricci (University of Bari, Italy)

16:40 **Turning Threats into Prospects: Monitoring the Pearl Oyster Pinctada Radiata (Leach, 1814) in the Gulf of Taranto**
Claudio Calabrese (University of Salento, Italy); Elisa Quarta, Maria Immacolata Acquaviva, Francesca Biandolino, Santina Giandomenico, Ermelinda Prato (National Research Council, Italy); Adriana Giangrande (University of Salento, Italy); Loredana Stabili (National Research Council, Italy)

17:00 **Assessing the Correlation of Soil Properties and Groundwater Quality in Coastal Aquifers**
Maria Rosaria Alfio, Piero Mastrorilli, Gabriella Balacco, Maria Dolores Fidelibus, Maria Michela Dell'Anna, Matilda Mali (Politecnico di Bari, Italy)

17:20 **Chain Length of Diatoms as Indicator of Heavy Metal Contamination in the Marine Environment**
Domenico Paparo, Ruqyyah Mushtaq, Chiara Gambardella and Roberta Miroglio (National Research Council, Italy); Fabio Novelli (Ruhr University Bochum, Germany); Melania Paturzo (National Research Council, Italy); Andrea Rubano (University Federico II, Italy); Angela Sardo and Sergio Balzano (Stazione Zoologica Anton Dohrn, Italy)

19:00 - 20:30	*Hotel NH Collection Genova Marina* **WELCOME PARTY**

08:30 - 17:00	*Hotel NH Collection Genova Marina* **REGISTRATIONS**

09:00 - 10:40	*Mediterraneo Hall* **Session 4.1 - Detection and monitoring of water contamination phenomena** **Chairs:** Anna Verlanti, *Parthenope University of Naples, Italy* Yuan Guo, *Institute of Oceanology, Chinese Academy of Sciences, China*

09:00 **Hybrid Polarimetric Synthetic Aperture Radar Measurements to Monitor Sea Oil Spills: the Case Study of the Mauritius Island Accidental Oil Spill**
Lucio Mascolo and Andrea Buono (University of Naples Parthenope, Italy); Mohammed Dabboor (Environment and Climate Change Canada, Government of Canada, Canada); Maurizio Migliaccio (University of Naples Parthenope, Italy)

09:20 **A C-Band Sensitivity Analysis of Dual-Polarization Model-Based Decomposition Parameters to Green Macroalgae-Covered Sea Surface**
Yuan Guo (Institute of Oceanology, Chinese Academy of Sciences, China); Ferdinando Nunziata (Sapienza Università di Roma, Italy); Xiaofeng Li (Institute of Oceanology, Chinese Academy of Sciences, China); Maurizio Migliaccio (University of Naples Parthenope, Italy)

09:40 **Satellite Data for Detecting Floating Plastic Litter: Experiments Outcomes**
Christian Bignami, Marco Polcari, Marina Locritani and Filippo Muccini (Istituto Nazionale di Geofisica e Vulcanologia, Italy); Silvia Merlino (Consiglio Nazionale delle Ricerche, Italy); Ferdinando Nunziata (Sapienza Università di Roma, Italy); Marco Bianucci (Istituto di Scienze Marine, Italy); Giovanni Anconitano (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

10:00 **Radarsat Constellation Mission Compact-Polarimetric SAR Imagery to Observe Coastal Areas**
Ferdinando Nunziata (Sapienza Università di Roma, Italy); Maurizio Migliaccio (University of Naples Parthenope, Italy); Mohammed Dabboor (Environment and Climate Change Canada, Government of Canada, Canada); Marco Polcari and Christian Bignami (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

10:20 **Future Steps Towards the Italian Pellets Watch Survey**
Roberta Giugliano (Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta, Italy); Claudio Casani (Dipartimento di Biologia, University of Pisa, Italy);

Marina Locritani (INGV, Italy); Vincenzo Palleschi (Research Area of CNR, Italy); Simona Bronco, Cristina De Monte, Lucia Ricci (Istituto per i processi chimico-fisici, CNR, Italy); Stefania Di Vito Di Vito (Legambiente Nazionale APS, Italy); Leonardo Arrighetti (Istituto per i processi chimico-fisici, Italy); Silvia Merlino (Consiglio Nazionale delle Ricerche, Italy)

09:00 - 10:40 *Adriatico Hall*

Session 4.2 - Modeling, measurements and products for satellite remote sensing of inland water bodies and coastal regions

Chairs: Andrea Buono, *Parthenope University of Naples, Italy*
Giuseppe Grieco, *ISMAR - National Research Council, Italy*

09:00 **SAR Speckle Distribution Under High Wind Regimes**
Yingying Liu (Nanjing University of Information Science and Technology, China); Giuseppe Grieco (National Research Council, Italy); Maurizio Migliaccio (University of Naples Parthenope, Italy)

09:20 **Monitoring the Seasonal Behavior and Morphological Changes of the Hunga Iceberg Using Sentinel-1 SAR Data**
Mozhgan Zahriban Hesari, Andrea Buono, Giuseppe Aulicino, Maurizio Migliaccio (University of Naples Parthenope, Italy)

09:40 **Validation of SeaWinds-Derived Winds Against Coastal Buoys**
Giuseppe Grieco (National Research Council, Italy); Federico Cossu (Institut de Ciències del Mar, Spain); Marcos Portabella (Institut de Ciències del Mar - Consejo Nacional de Investigaciones Cientificas, Spain); Ad Stoffelen, Anton Verhoef and Jur Vogelzang (Koninklijk Nederlands Meteorologisch Instituut, The Netherlands)

10:00 **A Single SAR Image-Based Approach to Analyse the Dynamics of Terra Nova Bay Polynya**
Giovanna Inserra (National Research Council, Italy); Andrea Buono, Giuseppe Aulicino and Maurizio Migliaccio (University of Naples Parthenope, Italy)

10:20 **Speckle-Based Approach for Detecting Lakes in X-Band COSMO-SkyMed Data**
Anna Verlanti (Parthenope University of Naples, Italy); Yuan Guo (Institute of Oceanology, Chinese Academy of Sciences, China); Ferdinando Nunziata (Sapienza Università di Roma, Italy); Maurizio Migliaccio (University of Naples Parthenope, Italy)

09:00 - 10:20 *Tirreno Hall*

Session 4.3 - Advancing marine megafauna research: monitoring techniques, modeling approaches, and conservation strategies

Chairs: Maurizio Ingrosso, *University of Bari Aldo Moro, Italy*
Marta Anna Azzolin, *University of Turin, Italy*
Beatriz Tintoré, *Brunel University of London, UK*

09:00 **Nesting Activity of Caretta Caretta Along the Southern Italian Shores (Provinces of Taranto, Matera, Potenza, and Upper Ionian Cosenza) from 2011 to 2024**
Gianluca Cirelli (Sea Turtle Rescue Center WWF Italy in Policoro (MT), Italy & OA WWF Costa Ionica Lucana e Aree Interne, Italy); Elisabetta Fullone (University of Florence, Italy); Vito Petragallo (Sea Turtle Rescue Center WWF Italy in Policoro (MT), Italy); Federica Lambo (Naturoffice APS, Italy); Giovanni Galluzzo (Sea Turtle Rescue Center WWF Italy in Policoro (MT), Italy); Cosimo Manna (WWF Taranto Onlus, Italy); Laura Stabile (Free lance, Italy); Francesca Catucci (OA WWF Costa Ionica Lucana e Aree interne, Italy); Erika Ottone (OA WWF Costa Ionica Lucana e Aree Interne, Italy); Antonio Colucci (Sea Turtle Rescue Center WWF Italy in Policoro (MT), Italy); Sara Fratini (University of Florence, Italy)

09:20 **Implementation of Machine-Learning Models to Study Habitat Suitability for Deep Diving Cetaceans in the Ikarian Basin**
Beatriz Tintoré (Brunel University London, United Kingdom & Archipelagos Institute of Marine Conservation, Greece); Gera Troisi (Brunel University London, United Kingdom); Marie Cigarroa and Thodoris Tsimpidis (Archipelagos Institute of Marine Conservation, Greece)

09:40 **Exploring the Temporal Dynamics of Cetaceans Strandings in the Mediterranean Sea**
Angelica Catacchio (CoNISMa, Italy & University of Bari, Italy); Francesca P De Luca (CoNISMa, Italy); Noëmie Testard (Ecole Normale Superieur-Paris Science et Lettre, France & University of Bari Aldo Moro, Italy); Roberto Carlucci (University of Bari, Italy); Daniela Cascione (Polytechnic University of Bari, Italy); Giulia Cipriano and Pasquale Ricci (University of Bari, Italy); Maurizio Ingrosso (National Insitute of Oceanography and Applied Geophysics, Italy)

10:00 **Seasonal Variation of Distribution of Suitable Habitats of Bottlenose Dolphin (Tursiops Truncatus, Montagu 1821) in the Adriatic Sea**
Marta Azzolin (University of Torino, Italy); Antonella Arcangeli (ISPRA, Italy); Matteo Costantino, Marco Gamba and Cristina Giacoma (University of Torino, Italy); Andrea Giovannini (Gaia Research Institute, Italy); Livio Favaro (University of Torino, Italy); Sonia Silvestri (Bologna University, Italy); Maria Aurora Iorfino (University of Bologna, Italy)

10:40 - 11:00 *Hotel NH Collection Genova Marina*
COFFEE BREAK

11:00 - 11:45	*Mediterraneo Hall* **PLENARY SESSION - KEYNOTE LECTURE** **Chair**: Maurizio Migliaccio, *Parthenope University of Naples, Italy*

Ocean Observations and Climate Change

René Garello, *IMT Atlantique, Life Fellow IEEE*

11:50 - 13:10	*Mediterraneo Hall* **Session 5.1 - Instrumentation and systems for maritime applications - PART I** **Chair:** Giovanni Ludeno, *National Research Council, Italy*

11:50 **Marine Obstacles Multi-Modal Detection, Classification and Tracking via Camera-LiDAR Late Fusion**
Filippo Ponzini, Michele Martelli (University of Genova, Italy)

12:10 **A Compact Setup for Low-Frequency Free-Field Calibration of Hydrophones and Autonomous Underwater Recorders in Lakes**
Silvano Buogo (National Research Council of Italy, Institute of Marine Engineering, Italy); Junio Fabrizio Borsani (Italian Institute for Environmental Protection and Research, Italy); Valentina Caradonna (University of Campania Vanvitelli, Italy)

12:30 **Retrieving the Radiation Properties of Maritime Antenna Arrays in the Presence of Faulty Elements**
Giulia Buttazzoni, Fulvio Babich, Francesca Vatta and Massimiliano Comisso (University of Trieste, Italy)

12:50 **High Resolution Imaging of Surface Currents and Wind Fields over Lakes: a Case Study from Lake Garda, Italy**
Virginia Zamparelli, Gianfranco Fornaro, Simona Verde, Marina Amadori, Mariano Bresciani, Giacomo De Carolis, Claudia Giardino (National Research Council, Italy); Lorenzo Giovannini, Sebastiano Piccolroaz and Marco Toffolon (Università di Trento, Italy); Francesca De Santi (National Research Council, Italy); Marco Papetti and Giulia Valerio (Università di Brescia, Italy)

11:50 - 13:10	*Adriatico Hall* **Session 5.2 - Advancing Marine State Observation: Traditional Technologies, Innovations, and Project Initiatives** **Chairs:** Marco Picone, *Italian Institute for Environmental Protection and Research* Carlo Lo Re, *Italian Institute for Environmental Protection and Research*

11:50 **Advancements in the Italian National Wave Buoy Network: First Results from the Upgraded Stations**
Carlo Lo Re, Gabriele Nardone, Marco Picone (ISPRA, Italy); Giovanni Battista Rossi, Francesco Crenna and Mohamad Khalil (University of Genova, Italy)

12:10 **Integrated Observations for Coastal Management in Campania Region**
Simona Saviano, Anastasia Angela Biancardi, Simonepietro Canese, Fabio Conversano, Augusto Passarelli and Daniela Cianelli (Stazione Zoologica Anton Dohrn, Italy)

12:30 **Experimental Study on the Stationarity of Sea Waves in the Mediterranean Sea**
Giovanni Battista Rossi, Francesco Crenna and Mohamad Khalil (University of Genova, Italy); Marco Picone, Carlo Lo Re and Gabriele Nardone (ISPRA, Italy)

12:50 **Advances in the Development of Monitoring Systems Allying Acoustic Real-Time Data and Model Validation for Effective Management of Underwater Noise Pollution**
Alessio Maglio (SINAY - Maritime Data Solution. Caen (France), France); Fulvio Fossa (RINA Consulting, Italy)

11:50 - 13:10 *Tirreno Hall*
Session 5.3 - Marine Benthic Species as Key Players in Biodiversity and Ecosystem Health Monitoring - PART I
Chairs: Roberta Trani, *University of Bari Aldo Moro, Italy*
Tamara Lazic, *University of Bari Aldo Moro, Italy*
Daniele Arduini, *University of Salento, Italy*
Montserrat Compa, *University of the Balearic Islands, Spain*

11:50 **Recorded Mass Mortality of Petrosia (Petrosia) Ficiformis (Poiret, 1789) (Porifera, Demospongiae) in the Southern Adriatic Sea: a Marine Heatwave as a Potential Driver**
Antonella Schiavo, Joseba Aguilo-Arce, Roberta Trani and Caterina Longo (University of Bari Aldo Moro, Italy)

12:10 **Accumulation of Heavy Metals in Petrosia Ficiformis and Sarcotragus Spinosulus (Porifera, Demospongiae): Insights from Two Apulian Sites in the Northern Ionian Sea**
Roberta Trani, Pietro Cotugno (University of Bari Aldo Moro, Italy); Daniela Valeria Miniero (LUM University Giuseppe Degennaro, Italy); Cataldo Pierri, Antonella Schiavo, Caterina Longo (University of Bari Aldo Moro, Italy)

12:30 **Sponges as Sentinels of Coastal Water Quality and Microplastic Contamination in Mallorca, Western Mediterranean**
Marta Ximenis-Amengual, Amanda F. Cohen-Sánchez, Antoni Sureda, Montserrat Compa, Guillem Mateu-Vicens, Silvia Tejada and Pere Ferriol (University of the Balearic Islands, Spain)

12:50 **Assessing Human Impact on Estuarine Environments: from Microplastic Detection to Foraminiferal Response**

Carla Altieri, Antonino Briguglio, Laura Cutroneo, Cristina Carbone, Luca Arena and Marco Capello (University of Genova, Italy)

13:10 - 14:30	*Hotel NH Collection Genova Marina* **LUNCH**

13:30 - 15:00	**TECHNICAL VISITS - GROUP C - GROUP D** *The tide gauge at Ponte Morosini* *The historical collection of measuring instruments*

14:30 - 15:10	*Mediterraneo Hall* **TUTORIAL SESSION** **Chair**: Francesco Crenna, *University of Genova*

Bathymetric monitoring system for shallow waterbodies using autonomous unmanned flying and floating measurement platforms (INNOBAT)

Mariusz Specht, *Gdynia Maritime University, Poland*

15:10 - 16:30	*Mediterraneo Hall* **Session 6.1 - Instrumentation and systems for maritime applications - PART II** **Chair:** Stefano Perna, *Parthenope University of Naples, Italy*

15:10 **Innovative Marine Robotic Technologies for Coastal Hazard Monitoring and Climate Adaptation Strategies**
Roberta Ferretti, Marco Bibuli, Giorgio Bruzzone, Massimo Caccia and Angelo Odetti (National Research Council - Institute of Marine Engineering, Italy)

15:30 **Towards a Modulation Transfer Function for Short-Range K-Band Radar Systems: Preliminary Results**
Giovanni Ludeno, Giuseppe Esposito, Ilaria Catapano, Francesco Soldovieri, Gianluca Gennarelli (National Research Council, Italy)

15:50 **A Numerical Tool for Buoyant Plastic Debris Transport Prediction in the Nearshore Zone**
Claudio Iuppa (University of Messina, Italy); Giovanni Passalacqua (University of Catania, Italy); Imen Chebbi and Carla Faraci (University of Messina, Italy)

16:10 **Marine Surface Analysis Using Monostatic and Bistatic SAR for Wind and Sea Surface Velocity Mapping: PLATiNO-1 Mission Insights**
Andrea Petrossi, Pietro Mastro, Giacomo De Carolis, Gianfranco Fornaro, Virginia Zamparelli, Simona Verde (National Research Council, Italy); Alfredo Renga (University of Naples Federico II, Italy); Giovanni Paolo Blasone, Deodato Tapete and Simona Zoffoli Zoffoli (Italian Space Agency, Italy)

15:10 - 16:30 *Adriatico Hall*

Session 6.2 - Technologies, techniques and methodologies for coastal monitoring - PART I

Chair: Giacomo Peruzzi, *University of Padova, Italy*

15:10 **Sea Wave Reconstructions from Radar Systems by the Least Squares with Regularization Method**
Gianmarco Lunghi, Francesco Serafino (National Research Council, Italy)

15:30 **Autonomous Stereo Camera Based Semantic Mapping of Underwater Posidonia Oceanica**
Gherardo Liverani, Alessandro Bucci, Alberto Topini, Filippo Parati, Adele Magi, Alessandro Ridolfi (University of Florence, Italy)

15:50 **SEASMO: SEismo-Acoustic Submarine Mediterranean Observatory**
Sergio Scirè Scappuzzo (INGV-PA, Italy); Fabrizio Ameli (INFN-RM1, Italy); Simone Biagi (INFN-LNS, Italy); Cinzia Giuseppina Caruso (INGV-PA, Italy); Giacomo Cuttone (INFN-LNS, Italy); Antonino D'Alessandro (INGV-ONT, Italy); Fabiano Felice and Emidio Giorgio (INFN-LNS, Italy); Gianluca Lazzaro (INGV-PA, Italy); Pietro Litrico (INFN-LNS, Italy); Manfredi Longo (INGV-PA, Italy); Francesco Italiano (OGS, Italy); Giuseppe Messina (INGV-PA, Italy); Maurizio Mongelli (INFN-BA, Italy); Sabina Morici (INGV-PA, Italy); Carlo Nicolau (INFN-RM1, Italy); Angelo Orlando (INFN-LNS, Italy); Giuseppe Passafiume (INGV-PA, Italy); Santi Passarello, Sara Pulvirenti and Davide Sciuto (INFN-LNS, Italy); Agostino Semprebello (INGV-PA, Italy); Stefano Speciale (INGV-ONT, Italy); Irene Sgura (INFN-BA, Italy)

16:10 **Characterization of Low-Cost Transducers for Underwater Communications**
Federico Marin, Antonio Montanari, Filippo Campagnaro and Michele Zorzi (University of Padova, Italy)

15:10 - 16:30 *Tirreno Hall*

Session 6.3 - Marine Benthic Species as Key Players in Biodiversity and Ecosystem Health Monitoring - PART II

Chairs: Roberta Trani, *University of Bari Aldo Moro, Italy*
Tamara Lazic, *University of Bari Aldo Moro, Italy*
Daniele Arduini, *University of Salento, Italy*
Montserrat Compa, *University of the Balearic Islands, Spain*

15:10 **Growth of the Short-Snouted Seahorse (Hippocampus Hippocampus) Under Laboratory Conditions**
Chiara Arcuri (Italy); Luca Giannattasio (University of Bari Aldo Moro & CoNISMa, Italy); Alessia Atzori (National Council of Research, Italy); Laura Castellano (Acquario di Genova, Italy); Michele Gristina (National Research Council of Italy, Italy); Natalia Perez (Acquario di Genova, Italy); Cataldo Pierri (University of Bari Aldo Moro, Italy);

Marco Spoto (University of Bologna, Italy & National Research Council, Italy); Tamara Lazic (University of Bari Aldo Moro, Italy)

15:30 **Preliminary Assessment of Habitats and Biocenosis in Marine Coastal Areas of the Mar Piccolo of Taranto**
Maria Chiara Cascarano, Tamara Lazic, Luca Giannattasio, Giuseppe Corriero, Porzia Maiorano, Anna Caterina Pellegrini, Miriam Ravisato, Roberta Trani, Alessandro Abate, Cataldo Pierri (University of Bari Aldo Moro, Italy)

15:50 **Artificial Habitats for Seahorse Conservation in the Mar Piccolo (Taranto, Italy): Results from 15 Months of Monitoring**
Miriam Ravisato, Maria Chiara Cascarano (University of Bari Aldo Moro, Italy); Marco D'Adamo (Mar Piccolo of Taranto Regional Nature Park, Italy); Luca Giannattasio (University of Bari Aldo Moro, Italy); Michele Gristina (National Research Council, I taly); Tamara Lazic (University of Bari Aldo Moro, Italy); Giulia Liguori (One Ocean Foundation, Italy); Caterina Rocca (ROCKWOOL Group, Denmark); Beatrice Rossini (University of Bari Aldo Moro, Italy, Italy); Marco Spoto (University of Bologna, Italy & National Research Council, Italy); Cataldo Pierri (University of Bari Aldo Moro, Italy)

16:10 **Evaluating the Efficiency of PacBio Long-Read Technology to Analyse the Diet of Alien Blue Crabs (Callinectes Sapidus Rathbun, 1896)**
Tamara Lazic (University of Bari Aldo Moro, Italy); Lucrezia Cilenti (National Council of Research, Italy); Rita De Giosa and Bruno Fosso (University of Bari Aldo Moro, Italy); Marinella Marzano, Elisabetta Notario (National Research Council, Italy); Graziano Pesole, Cataldo Pierri (University of Bari Aldo Moro, Italy)

16:30 - 16:50 *Hotel NH Collection Genova Marina*
COFFEE BREAK

16:50 - 18:10 *Mediterraneo Hall*
Session 7.1 - Instrumentation and systems for maritime applications - PART III
Chair: Giulia Buttazzoni, University of Trieste, Italy

16:50 **Task-Based Motion Control of an Autonomous Surface Vehicle Connected to a Remotely Operated Vehicle for Inspection Purposes**
Juri Khanmeh, Francesco Wanderlingh, Enrico Simetti and Giovanni Indiveri (University of Genoa, Italy)

17:10 **Autonomous Ocean Sensor Platform**
Kasper Mayntz Paasch (University of Southern Denmark & Philon Engineering ApS, Denmark); Michael Linden-Vørnle (DTU Space, Denmark); William Greenbank (Centre for Industrial Electronics, Denmark); Jerome Jouffroy (Centre for Industrial Mechanics, University of Southern Denmark, Denmark)

17:30 **Retrieval of the 3-D Deformation Field Through Advanced Synthetic Aperture Radar Satellite Systems: the Coastal Area Landslides Monitoring Application Scenario**

Stefano Perna (Università degli Studi di Napoli Parthenope & IREA, Italy); Sabatino Buonanno, Claudio De Luca, Adele Fusco, Mario Fernando Monterroso, Riccardo Lanari (IREA-CNR, Italy)

17:50 **Using Photogrammetry to Assess Shallow-Water Seagrass Meadows: a Case Study from the Aegean Sea**
Lorenzo Romani (Van Hall Larenstein University, The Netherlands); Silvia Giacomello and Anastasia Miliou (Archipelagos Institute of Marine Conservation, Greece); Laura Macrina (King Abdullah University of Science and Technology, Saudi Arabia)

16:50 - 18:20 *Adriatico Hall*
Session 7.2 - Technologies, techniques and methodologies for coastal monitoring - PART II
Chair: Giacomo Peruzzi, *University of Padova, Italy*

16:50 **Comparison Between Two Mercury Extraction Methodologies: Sequential Extraction and Methylmercury Extraction**
Giulia Fucile, Maria Teresa Berducci and Chiara Maggi (ISPRA, Italy)

17:10 **UAV Based Monitoring of Plastic Debris Detection**
Dušan Gleich, Primoz Smogavec and Marko Vovk (University of Maribor, Slovenia)

17:30 **Light as Trigger and Power: a VLC-Harvesting Hybrid Architecture for Marine Sensor Nodes**
Giacomo Peruzzi (University of Padova, Italy); Jessica Barichello (National Research Council, Italy); Matteo Bertocco and Alessandro Brighente (University of Padova, Italy); Fabio Matteocci (University of Rome "Tor Vergata", Italy); Tommaso Michelon, Alessandro Pozzebon, Noah Tormena, Nicola Trivellin (University of Padova, Italy)

17:50 **Africa's Coastline Long-Term Monitoring Using Remote Sensing and GIS Techniques**
Anselme Muzirafuti (University of Messina, Italy)

18:10 **The role of MAR (Multipurpose Amphibious Rover) in coastal monitoring, safety, ad resilience**
Eduardo De Francesco, SeTeL

16:50 - 17:50 *Tirreno Hall*
Session 7.3 - Marine Benthic Species as Key Players in Biodiversity and Ecosystem Health Monitoring - PART III
Chairs: Roberta Trani, *University of Bari Aldo Moro, Italy*
Tamara Lazic, *University of Bari Aldo Moro, Italy*
Daniele Arduini, *University of Salento, Italy*
Montserrat Compa, *University of the Balearic Islands, Spain*

16:50 **From Inshore to Offshore: Rare Polychaete Species are Informative for Soft Bottom Ecology in the Southern Adriatic**
Rita Tarantini and Andrea Tursi (University of Bari Aldo Moro, Italy); Simone Galli (University of Roma Tor Vergata, Italy); Maria Flavia Gravina (University of Roma Tor Vergata Italy, Italy); Francesco Mastrototaro (University of Bari Aldo Moro, Italy)

17:10 **Growth and Biomass Potential of Two Ascidian Species Cultured in a Novel Integrated Multi-Trophic Aquaculture (IMTA) System in the Ionian Sea (Mediterranean Sea, Italy)**
Daniele Arduini, Silvia Fraissinet, Sergio Rossi and Adriana Giangrande (University of Salento, Italy)

17:30 **Tracking Anthropogenic Particles with Sea Urchins: Paracentrotus Lividus as a Bioindicator in the Balearic Islands**
Jessica Lombardo (Research Group on Community Nutrition & Oxidative Stress, Spain); Antoni Sureda (University of the Balearic Islands, Spain); Samuel Pinya (Interdisciplinary Ecology Group, Spain); Silvia Tejada and Pere Ferriol, Montserrat Compa (University of the Balearic Islands, Spain)

20:00 *Restaurant Giotto - Hotel Bristol Palace - Via XX Settembre, 35 - Genova*
GALA DINNER

08:30 - 15:00	*Hotel NH Collection Genova Marina* **REGISTRATIONS**

09:00 - 10:40	*Mediterraneo Hall* **Session 8.1 - Metrology in Marine Geology: surveing tecniques, geological cartography and associated community databases** **Chair:** Danilo Morelli, *University of Genova, Italy*

09:00 **Quantitative Morphometric Assessment of Submarine Mass Transport Deposits: Insights from the Taranto Landslide Complex (North Ionian Sea)**
Agostino Meo (Universita degli Studi del Sannio, Benevento, Italy & CoNISMa, Italy)

09:20 **Advancing Marine Geomorphological Mapping Through Integrated Geophysical Methods: a Case Study from the Liguro-Provençal Continental Shelf**
Gabriella Raffa (University of Pisa, Italy); Danilo Morelli (University of Genoa, Italy); Matteo Vacchi (University of Pisa, Italy); Nicola Corradi (University of Genoa, Italy); Fabrizio Pepe (University of Palermo, Italy); Andrea Zerboni (University of Milan, Italy); Marta Pappalardo (University of Pisa, Italy)

09:40 **Geological Data Acquisition and Management for the Cartography of Submerged Areas Within the Italian CARG Mapping Project**
Andrea Fiorentino, Loredana Battaglini, Simone Orefice and Alessandra Pensa (ISPRA, Italy)

10:00 **Geomorphological Study of the Abruzzo Coastal Area, Central Italy ARENA RESEARCH Preliminary Results**
Balsa Milojkovic and Giorgio Paglia (University of Chieti-Pescara, Italy); Vania Mancinelli (Ud a TEMA University G d'Annunzio for Land and Sea, Italy); Anna Grazia De Flaviis (University of Chieti-Pescara, Italy); Marcello D' Alberto (Servizio Opere Marittime Regione Abruzzo, Italy); Elena Romano (Italian Institute for Environmental Protection and Research, Italy); Roberta Ivaldi (Italian Navy & Italian Hydrographic Institute, Italy); Enrico Miccadei (Ud a TEMA University G d Annunzio for Land and Sea, Italy)

10:20 **Structural Constraints on Active and Late-Quaternary Relic Landforms in the Gulf of Genoa (Ligurian Sea, Italy): New Evidence from CARG Survey**
Danilo Morelli, Michele Locatelli, Laura Crispini, Nicola Corradi, Paola Cianfarra, Laura Federico and Pierluigi Brandolini (University of Genoa, Italy)

09:00 - 10:40 *Adriatico Hall*

Session 8.2 - Indicators of state for the marine ecosystems: physical and biological contributions

Chairs: Angela Pomaro, *National Research Council, Italy*
Pier Francesco Moretti, *National Research Council, Italy*
Giancarlo De Gasperis, *Sapienza University of Rome, Italy*
Antonio Giorgini, *National Research Council, Italy*
Lorenzo Brezzi, *University of Padova, Italy*

09:00 **SEAmPhonia: a 3D Acoustic Field Approach to Marine Ecosystem Modelling**
Angela Pomaro (Sapienza University of Rome & National Research Council of Italy, Institute of Marine Sciences, Italy); Alice Affatati (National Institute of Oceanography and Applied Geophysics, Italy); Lorenzo Brezzi (University of Padova, Italy); Silvano Buogo (National Research Council, Italy); Giancarlo De Gasperis and Lucilla Di Marcoberardino (Sapienza University of Rome, Italy); Antonio Giorgini, Pier Francesco Moretti and Damoon Nazarpour (National Research Council, Italy); Francesco Nobile (University of Naples Federico II, Italy); Paolo Simonini (University of Padova, Italy)

09:20 **Acoustic Underwater Noise: the Segregation of Frequency Bands for Science-to-Policy Advise**
Pier Francesco Moretti (National Research Council of Italy, Italy); Angela Pomaro (Sapienza University of Rome & National Research Council of Italy, Italy)

09:40 **The VONGOLA (Visual and nOise-eNhanced AI Analysis for Marine Biodiversity MonitoriнG, Observation and LeArning) Project: Design and Achievements of CSFNSM**
Giorgio Riccobene (INFN, Italy); Alessia Rita Tricomi (University of Catania, Italy); Salvatore Viola and Didac Diego-Tortosa (INFN-LNS, Italy); Elena Geraci (University of Catania, Italy); Clara Gomez-Garcia (CSFNSM, Italy); Riccardo Lo Nero, Giorgia D'Amico, Flavia Grenga (Centro Siciliano di Fisica Nucleare e Struttura della Materia, Italy)

10:00 **SOUND: a Real-Time Acoustic Observatory for the Monitoring of Noise Pollution in the Marine Environment**
Letizia Stella Di Mauro (Centro Siciliano di Fisica Nucleare e Struttura della Materia, Italy); Elena Irene Geraci (University of Catania, Italy); Gabriele Giandinoto, Giuseppe Giuffrida and Carmelo Leonardo Gorgone (Centro Siciliano di Fisica Nucleare e Struttura della Materia, Italy); Giorgio Riccobene (INFN, Italy); Alessia Rita Tricomi (University of Catania, Italy); Salvatore Viola (INFN-LNS, Italy); Flavia Grenga (Centro Siciliano di Fisica Nucleare e Struttura della Materia, Italy)

10:20 **The Italian Ocean Sound Monitoring Subsystem for the Italian Integrated Environmental Research Infrastructures System (ITINERIS) Project**
Simone Sanfilippo, Danilo Bonanno and Abdelghani Idrissi (Istituto Nazionale di Fisica Nucleare, Italy); Letizia Stella Di Mauro (Centro Siciliano di Fisica Nucleare e Struttura

della Materia, Italy); Didac Diego-Tortosa, Giorgio Riccobene, Salvatore Viola (Istituto Nazionale di Fisica Nucleare, Italy)

09:00 - 10:40	*Tirreno Hall* **Session 8.3 - Remote sensing, in-situ surveys, and GIS applications for marine and coastal areas - PART I** **Chairs:** Claudio Parente, *Parthenope University of Naples, Italy* Mariusz Specht, *Gdynia Maritime University, Poland* Oktawia Specht, *Gdynia Maritime University, Poland*

09:00 **Development of a Shallow-Water Bathymetry Estimation Method Using UAV-Derived RGB Imagery**
Oktawia Specht (Gdynia Maritime University, Poland)

09:20 **Ice Dynamic Observation with Remote Sensing**
Roberto Nardini (Ministero Difesa, Italy); Bianca Federici (University of Genoa, Italy); Maurizio Demarte (Ministry of Defense, Italy); Filippo Britti (E-GEOS, Italy)

09:40 **An Assessment of ICESat-2 Sea Surface Height Dataset for the Ligurian Sea**
Roberto Nardini (Ministero Difesa, Italy); Bianca Federici (University of Genoa, Italy); Paola Picco (Italian Navy, Italy); Luca Repetti (Ministry of Defense, Italy)

10:00 **Long-Term Shoreline Change Analysis in Tyre South Lebanon**
Mohamad Khalil, Ali Alakbar Karaki, Ak (University of Genova, Italy); Chadi Abdallah (National Council For Scientific Research, Lebanon); Mohammad Abboud (LIU, Lebanon); Francesco Crenna and Giovanni Battista Rossi (University of Genova, Italy)

10:20 **Comparison Between Shorelines Derived from Radar and Multispectral Satellite Data**
Riccardo Angelini (University of Florence, Italy); Eduard Angelats (CTTC, Spain); Fabiana Di Ciaccio (University of Florence, Italy); Guido Luzi (Centre Tecnologic de Telecomunicacions de Catalunya, Spain); Andrea Masiero (University of Padova, Italy); Francesco Mugnai (University of Florence, Italy); Francesca Ribas (Universitat Politecnica de Catalunya, Spain)

10:40 - 11:00	*Hotel NH Collection Genova Marina* **COFFEE BREAK**

11:40 - 11:45	*Mediterraneo Hall* **PLENARY SESSION - KEYNOTE LECTURE** **Chair**: Salvatore Gaglione, *Parthenope University of Naples, Italy*

NAOS: Manoeuvring Support System for the Prevention of Ship Collisions

María de los Reyes Poo Argüelles, *University of Oviedo*

11:50 - 13:30 *Mediterraneo Hall*
Session 9.1 - Marine Robotics for Sea Metrology - PART I
Chair: Francesco Wanderlingh, *University of Genova - ISME, Italy*

11:50 **Cyber Security Risks for Unmanned and Autonomous Systems**
Gianluca Maria Marcilli, Italian Navy

12:10 **Towards Real-Time Computer Vision for Cable Angle Estimation in Subsea Laying Operations**
Matej Fabijanic and Zdravko Eskinja (University of Zagreb, Croatia); Fausto Ferreira (University of Zagreb & CoE MARBLE, Croatia)

12:30 **Dynamic Simulation and Control of an Amphibious Drone for Marine Measurements**
Alessandro Muccichini, Chiara Foglietta, Nicola Pio Belfiore, Davide Papa and Andrea Gasparri (Roma Tre University, Italy); Eduardo De Francesco (SETEL, Italy); Fabio Leccese (Roma Tre University, Italy)

12:50 **Unscented Kalman Filter with a Nonlinear Propagation Model for Navigation Applications**
Amit Levy and Itzik Klein (University of Haifa, Israel)

13:10 **Trustworthy AI-Driven Autonomous Underwater Vehicles for Port Infrastructure Inspection: Paradigm Conceptualization**
Alberto Topini, Lorenzo Cecchi, Fausto Fedi, Marco Minarelli, Alessandro Bucci and Alessandro Ridolfi (University of Florence, Italy)

11:50 - 13:50 *Adriatico Hall*
Session 9.2 - General Session
Chairs: Ilaria Ferrando, *University of Genova, Italy*

11:50 **Evaluation of the Propagation of Oil Spills in Ports Through Artificial Neural Networks**
Elisa Castro (University of Catania, Italy); Giulia Bonanno and Claudio Iuppa (University of Messina, Italy); Rosaria Musumeci and Enrico Foti (University of Catania, Italy); Federico Roman (University of Trieste, Italy); Carla Faraci (University of Messina, Italy); Luca Cavallaro (University of Catania, Italy)

12:10 **Evaluation of a Multi-Modal Wake Detection Framework Using Satellite Data**
Maria Daniela Graziano (University of Naples Federico II, Italy); Giuliano Vernengo (University of Genova, Italy); Davide Bonaldo (CNR-ISMAR, Italy); Angela Carmen Cristofano, Andrea Mazzeo and Alfredo Renga (University of Naples Federico II, Italy); Diego Villa and Nicola Petacco (University of Genova, Italy); Gian Marco Scarpa, Federica Braga, Paolo Vavasori and Stefano Menegon (CNR-ISMAR, Italy); Amedeo Fadini (CNR-ISMAR & IUAV University of Venice Scuola di Dottorato, Italy)

12:30 **ECOMAR Project: Measurement Aspects for the Automation of Real-Time Sea Water Quality Analysis**

Enrico Petritoli (Roma Tre University, Italy); Eduardo De Francesco (SETEL, Italy); Nicola Pio Belfiore (Roma Tre University, Italy); Sara Bobone (Esseodue, Italy); Giuseppe Schirripa Spagnolo, Simonetta Tuti, Mariagrazia Leccisi and Fabio Leccese (Roma Tre University, Italy)

12:50 **Experimental Study on Nearshore Transport of Buoyant Plastic Particles Under Irregular Waves**
Giovanni Passalacqua (University of Catania, Italy); Imen Chebbi and Claudio Iuppa (University of Messina, Italy); Fabrizio Narzisi, Luca Cavallaro, Rosaria Musumeci and Enrico Foti (University of Catania, Italy); Carla Faraci (University of Messina, Italy)

13:10 **Multispectral LED Sensors as Sea Wave Detector**
Federico Fina (Roma Tre University, Italy); Massimo Piotto, Simone Contardi (University of Pisa, Italy); Fabio Leccese (Roma Tre University, Italy)

13:30 **Atmospheric Precipitable Water Vapor Tracking During 2023-2025 Amerigo Vespucci World Tour**
Ilaria Ferrando, Neelam Javed and Domenico Sguerso (University of Genoa, Italy)

13:50 **Advancing Offshore Renewable Energy in the Mediterranean Sea: Digital-Med, a Project for Integrating Resource Assessment and Decision Support**
Silvio Del Pizzo, Salvatore Gaglione, Pier Paolo Amoroso (Parthenope University of Naples, Italy); Pasquale Contestabile (Luigi Vanvitelli University of Campania, Italy); Yuri Cotroneo, Francesco Giuseppe Figliomeni (Parthenope University of Naples, Italy); Diego Vicinanza (Luigi Vanvitelli University of Campania, Italy); Giorgio Budillon (Pathenope University of Naples, Italy)

11:50 - 13:30 *Tirreno Hall*
Session 9.3 - Remote sensing, in-situ surveys, and GIS applications for marine and coastal areas - PART II
Chairs: Ugo Falchi, *Parthenope University of Naples, Italy*
Mariusz Specht, *Gdynia Maritime University, Poland*
Oktawia Specht, *Gdynia Maritime University, Poland*

11:50 **Multidisciplinary Approach for Assessment and Management of Posidonia Oceanica Banquettes**
Elena Piscitelli (University of Campania Luigi Vanvitelli, Italy); Stefania Chiesa (ISPRA, Italy); Massimiliano Scalici (University Roma Tre, Italy); Alice Rotini (ISPRA, Italy); Giulia Pettini (University Roma Tre, Italy); Loredana Manfra (ISPRA, Italy); Giovanni Libralato (University of Naples Federico II, Italy)

12:10 **Present and Future Coastal Exposure to Flooding: a Case Study of the Volturno Coastal Plain Under Sea-Level Rise Scenarios**
Giovanni Fasciglione, Gaia Mattei, Guido Benassai (Parthenope University of Naples, Italy); Daniele Trippanera and Marco Anzidei (Istituto Nazionale di Geofisica e Vulcanologia, Italy); Pietro P. C. Aucelli (University of Naples Parthenope, Italy)

12:30 **Identification of Damaged Coastal Areas Starting from Newspaper Articles in the Canary Islands**
Aniello Florio (University of Naples Parthenope Naples, Italy); Daniel Guerra Medina, German Rodriguez (Universidad de Las Palmas de Gran Canaria, Spain); Diana Di Luccio and Guido Benassai (Parthenope University of Naples, Italy)

12:50 **Coastline Automatic Extraction from Sentinel-2 Images at 10 m Resolution Using GIS Tools**
Francesca Guastaferro (Almaviva Digitaltec, Italy); Claudio Parente, Vincenzo Verde (Parthenope University of Naples, Italy)

13:10 **The Effects of Sea Level Rise on Domitian Coastal Area Around Volturno River Mouth (Italy) in Future Scenarios**
Ugo Falchi and Pasquale Maglione (Parthenope University of Naples, Italy); Paola Mercogliano (Centro Euro-Mediterraneo sui Cambiamenti Climatici, Italy); Claudio Parente (Parthenope University of Naples, Italy)

13:30 - 14:40 *Hotel NH Collection Genova Marina*
LUNCH

14:40 - 16:00 *Mediterraneo Hall*
Session 10.1 - Marine Robotics for Sea Metrology - PART II
Chair: Francesco Wanderlingh, *University of Genova - ISME, Italy*

14:40 **Trustworthy AUV Inspection of Critical Underwater Assets via Risk-Aware Coverage Path-Planning**
Marco Minarelli, Alberto Topini, Alessandro Bucci, Filippo Parati, Alessandro Ridolfi (University of Florence, Italy)

15:00 **Trustworthy Automatic Target Recognition via Variational Autoencoder-Based Out-of-Distribution Detection**
Fausto Fedi, Lorenzo Cecchi, Alberto Topini, Alessandro Bucci and Alessandro Ridolfi (University of Florence, Italy)

15:20 **A Brief Survey on the Integration of Large Language Models with Marine Robotic Systems**
Barbara Arbanas Ferreira (CoE MARBLE, Croatia); Dula Nad (University of Zagreb, Croatia); Fausto Ferreira (University of Zagreb & CoE MARBLE, Croatia); Massimo Caccia (National Research Council, Italy)

15:40 **A Meta-Review on New Technologies for Marine Biodiversity Monitoring and Assessment**
Francesco Wanderlingh and Andrea Tiranti (University of Genoa, Italy); Gennaro Ucciero and Marzia Cianflone (University of Naples, Italy); Giovanni Indiveri and Enrico Simetti (University of Genoa, Italy); Simonetta Fraschetti (University of Naples, Italy)

14:40 - 15:40 *Adriatico Hall*
Session 10.2 - Nowcast and forecast of metocean conditions
Chairs: Giovanni Besio, *University of Genova, Italy*
Claudio Iuppa, *University of Messina, Italy*

14:40 **Clustering-Based Data Reduction for Significant Wave Height Modeling in the Mediterranean Sea: a Multi-Site Analysis**
Francesca Sapuppo, Giovanni Ragusa, Luca Patanè, Claudio Iuppa, Carla Faraci and Maria Gabriella Xibilia (University of Messina, Italy)

15:00 **Evolutionary Sea State Estimation for Short-Term Forecasts**
Francesco Crenna, Mohamad Khalil and Giovanni Battista Rossi (University of Genova, Italy)

15:20 **Toward a Sustainable Estimation of Significant Wave Height Through Photogrammetry**
Sabina Mammadova, Ilaria Ferrando and Domenico Sguerso (University of Genoa, Italy)

14:40 - 15:40 *Tirreno Hall*
Session 10.3 - Networking oceanography and metrology: examples and open challenges
Chairs: Andrea Merlone, *Istituto Nazionale di Ricerca Metrologica, Italy*
Marc Le Menn, *Shom, France*

14:40 **In Situ Measurements of Temperature: How to Assess Their Uncertainties?**
Marc Le Menn (Shom, France)

15:00 **Conductivity Calibration: Results of an Interlaboratory Comparison**
Marc Le Menn (Shom, France); Rajesh Nair (National Institute of Oceanography and Applied Geophysics - OGS, Italy); Robin Craft (National Oceanography Centre (NOC), France); Florence Salvetat (Ifremer, France)

15:20 **Challenges in pCO2 Measurement: Lessons Learnt from the MINKE Project**
Michela Sega, Francesca Rolle, Francesca Durbiano, Stefano Pavarelli (Istituto Nazionale di Ricerca Metrologica, Italy); Giancarlo Raiteri and Andrea Bordone (ENEA Marine Environment Research Centre of S. Teresa, Italy); Sue Hartman (National Oceanography Centre, NOC, United Kingdom); Nicholas Roden (Norwegian Institute for Water Research, NIVA, Norway); Rajesh Nair (National Institute of Oceanography and Applied Geophysics - OGS, Italy)

16:00 - 16:20 *Hotel NH Collection Genova Marina*
COFFEE BREAK

16:20 - 17:00 *Mediterraneo Hall*
CLOSING AND AWARD CEREMONY